INTRODUCTION

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. Scarcity refers to the limitation of _____ in relation to _____ for a commodity.
2. _____ deals with study of jute industry.
3. _____ Science deals with what ought to be or how the economic problems should be solved.
4. Microeconomics is that part of economic theory which studies the behaviour of _____ units of an economy.
5. _____ is the cost of next best alternative foregone.
6. The problem of _____ involves selection of goods and services to be produced and the quantity to be produced of each selected commodity.
7. Production Possibility Frontier is _____ shaped because of increasing marginal rate of transformation.
8. Macroeconomics is also known as _____.
9. _____ is also known as Price Theory.
10. _____ is a system which provides people with the means to work and earn a living.
11. _____ is that part of economic theory which studies the behaviour of aggregates of the economy as a whole.
12. _____ Economics deals with what are the economic problems and how are they actually solved.
13. Production Possibility Frontier is convex shaped when marginal rate of transformation is _____.
14. Two branches of Economics are _____ and _____.
15. Growth of resources shifts the production possibility frontier towards _____.
16. The part of economics which deals with the question of what, how and for whom to produce is known as _____.
17. The problem of _____ deals with technique of production.
18. PPF will shift towards _____ when there is technological degradation in case of both the goods.
19. _____ (Positive/Normative) statement is based upon facts and not suggestive in nature.
20. _____ measures the slope of Production Possibility Frontier.
21. Microeconomics and Macroeconomics are both _____ (Independent/Interdependent) Branches of Economics.

Ans. **1.** *Supply, Demand,* **2.** *Microeconomics,* **3.** *Normative,* **4.** *Individual,* **5.** *Opportunity Cost,* **6.** *What to Produce,* **7.** *Concave,* **8.** *Income and Employment Theory,* **9.** *Microeconomics,* **10.** *Economy,* **11.** *Macroeconomics,* **12.** *Positive,* **13.** *Decreasing,* **14.** *Microeconomics, Macroeconomics,* **15.** *Right,* **16.** *Microeconomics,* **17.** *How to Produce,* **18.** *Left,* **19.** *Positive,* **20.** *Marginal Rate of Transformation or MRT,* **21.** *Interdependent.*

TRUE OR FALSE *with REASONS*

1. The problem of 'how to produce' involves choice between consumer goods and capital goods.
   False. The problem of 'how to produce' deals with choice of technique to be used for production of goods and services.
2. Economy always operates on production possibility frontier.
   False. Economy operates on production possibility frontier (PPF) only when resources are fully and efficiently utilised. If resources are not fully and efficiently utilized, then economy operates at any point inside PPF.
3. Macroeconomics deals with study of cotton textile industry.
   False. Cotton textile industry is a micro concept as it is one of the part of industry. So, it is studied under microeconomics.
4. If the economy is operating inside the production possibility frontier, it indicates that the economy is saving resources for growth and expansion in future.
   False. It indicates that there is underutilisation or inefficient use of resources.
5. Central problems are found only in the developing economies like India and Bangladesh and not in developed countries like USA.
   False. Central problems are found in all economies (both developed and developing economies) as every economy faces problem of scarcity of resources.
6. Production possibility frontier shifts towards right when an economy moves from a situation of underutilization to fuller utilization of resources.
   False. Production possibility frontier (PPF) will remain at its original position. Rather, economy will now operate on the PPF.
7. Economy can never operate outside the production possibility frontier with the given resources and technology.
   True, as all points outside production possibility frontier are unattainable.
8. Production possibility frontier is concave shaped as production of one good can be increased only by reducing quantity of another good.
   False. Production possibility frontier is concave shaped due to increasing marginal opportunity cost.
9. The problem of price determination of a product comes under the purview of macroeconomics.
   False. It comes under the purview of microeconomics.
10. Growth of resources shifts the production possibility frontier towards right.
    True. Growth of resources increases the capacity of economy to produce more. It shifts the production possibility frontier towards right.
11. Microeconomics is concerned with study of problems of the economy like inflation or unemployment.
    False. Macroeconomics is concerned with study of aggregates like inflation or unemployment.
12. Microeconomics and macroeconomics are independent branches of economics.
    False. Microeconomics and macroeconomics are interdependent.
13. The opportunity cost of a machine which can produce only one product is high.
    False. The opportunity cost of such machinery will be zero as it has no alternative use.
14. Economising of resources refer to saving resources for future use.

False. It refers to making optimum or best possible use of available resources.

15. 'No Scarcity' means no economic problem.
True. If there is no scarcity, then there would be no economic problem as scarcity is the basic reason for economic problem.

16. The part of economics which deals with the question of what, how and for whom to produce is known as macroeconomics.
False. Microeconomics deals with the question of what, how and for whom to produce.

17. Production Possibility Curve shows the point at which the economy actually operates.
False. Production Possibility Curve (PPC) does not show the point at which the economy will actually operate. It only shows the maximum available possibilities, which an economy can produce. The exact point of operation depends on how well the resources of the economy are used.

18. Main tools of Macroeconomics are demand and supply.
False. The main tools of Macroeconomics are Aggregate Demand and Aggregate Supply.

MATCHING TYPE QUESTIONS

Q. 1. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Microeconomics	(i) Tools are aggregate demand and aggregate supply
(b) Normative Economics	(ii) Aims to determine the ideals
(c) Opportunity Cost	(iii) Cost of best alternative
(d) Production possibility frontier	(iv) Convex shaped

Ans. (b) Normative Economics – (ii) Aims to determine the ideals.

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Macroeconomics	a. Aims to determine price of a commodity
	b. Aims to determine income and employment level of the economy

Ans. (i) b.

Q. 3. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Positive Economics	a. It is suggestive in nature
(ii) Normative Economics	b. It is not suggestive in nature

Ans. (i) b; (ii) a.

Q. 4. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Opportunity Cost	a. Technique to be used for production of goods and services
(ii) Positive Economics	b. Concave Shaped

(A)	(B)
(iii) Production Possibility Frontier	c. Cost of next best alternative foregone
(iv) How to Produce	d. Deals with how the economic problems are actually solved

Ans. (i) c; (ii) d; (iii) b; (iv) a.

Q. 5. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Normative Economics	a. Transformation Curve
(ii) Microeconomics	b. Discovery of new natural resources
(iii) Growth of Resources	c. It is suggestive in nature
(iv) What to Produce	d. Cotton Industry
(v) Production Possibility Frontier	e. Selection of goods and services to be produced

Ans. (i) c; (ii) d; (iii) b; (iv) e; (v) a.

Q. 6. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Concave PPF	a. Constant MRT
(ii) Convex PPF	b. Increasing MRT
	c. Decreasing MRT

Ans. (i) b; (ii) c.

Q. 7. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Microeconomics	a. Income and Employment Theory
(ii) Macroeconomics	b. Positive Economics
	c. Price Theory

Ans. (i) c; (ii) a.

(MCQs) MULTIPLE CHOICE QUESTIONS *and* (MRQs) MULTIPLE RESPONSE QUESTIONS

In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. The law of scarcity:
   (a) Does not apply to rich, developed countries.
   (b) Applies only to the less developed countries.
   (c) Implies that consumers want will be satisfied in a socialistic system.
   (d) Implies that consumer's wants will never be completely satisfied.
2. Assume that a PPF for butter and guns is drawn so that it is a straight line. It means:
   (a) Less and less units of butter are sacrificed to gain an additional unit of gun.

(b) More and more units of butter are sacrificed to gain an additional unit of gun.
(c) Same units of butter are sacrificed to gain an additional unit of gun.
(d) None of these.

3. Which of these is not an assumption of PPC?
(a) Resources are not fully employed
(b) Resources in the economy are fixed
(c) There is no change in level of technology
(d) Resources are equally efficient in production of all products

4. In which situation, can PPC be a straight line:
(a) When MRT is decreasing (b) When MRT is increasing
(c) When MRT is constant (d) None of these

5. Which of these economic problem deals with technique of production?
(a) What to Produce (b) How to Produce
(c) For whom to Produce (d) None of these

6. Ramesh is working at a salary of ₹ 35,000 per month. He receives two job offers: (i) To work as an accountant at a salary of ₹ 30,000 per month; (ii) To work as a sales manager at a salary of ₹ 25,000 per month. In the given case, his opportunity cost will be:
(a) ₹ 25,000 (b) ₹ 30,000
(c) ₹ 35,000 (d) ₹ 65,000

7. PPF is concave to the origin because of:
(a) Increasing MRT (b) Diminishing MRT
(c) Constant MRT (d) None of these

8. An economy operate on PPF when there is:
(a) Optimum utilisation of resources (b) Inefficient use of resources
(c) Underemployment of resources (d) Fuller utilisation of resources

9. Identify the central problem which deals with deciding the quantity of goods to be produced:
(a) What to Produce (b) How to Produce
(c) For whom to Produce (d) None of these

10. Scarcity refers to limitation of _____ in relation to _____ for a commodity.
(a) Demand, Sale (b) Demand, Supply
(c) Supply, Demand (d) None of these

11. The word 'Economics' is most closely connected with the word:
(a) Free (b) Scarcity
(c) Unlimited (d) Restricted

12. A point outside the PPF indicates:
(a) Fuller utilisation of resources (b) Unutilisation of resources
(c) Unattainable combination (d) None of these

13. Opportunity cost is the:
(a) Number of units sacrificed (b) Number of units gained
(c) Cost of next best alternative foregone (d) None of these

14. Which economic problem involves selection of category of people who will ultimately consume the goods?
(a) How to produce (b) For whom to produce
(c) What to produce (d) None of these

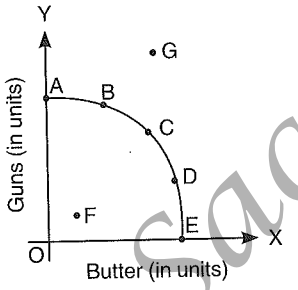
15. Which of the following will lead to shift in PPF?
(a) Upgradation of Technology
(b) Exploration of new oil reserves
(c) Massive unemployment
(d) None of these

16. The fundamental economic problem being faced is:
(a) Unlimited human wants
(b) Limited wants and unlimited resources
(c) Unlimited wants and scarcity of resources
(d) Limited wants and limited resources

17. Which part of economic theory aims to determine income and employment level of the economy?
(a) Microeconomics
(b) Macroeconomics
(c) Neither (a) nor (b)
(d) Both (a) and (b)

18. What will happen to PPF if there is technological upgradation in case of both the goods?
(a) Rightward shift in PPF
(b) Leftward Shift in PPF
(c) Rotation of PPF
(d) None of these

19. Answer the following questions with the help of following diagram:



(i) Which of the following point represents underutilisation of resources?
(a) G
(b) E
(c) A
(d) F

(ii) Which of the following point represents fuller and efficient utilisation of resources?
(a) B
(b) G
(c) F
(d) None of these

(iii) Which of the following point shows unattainable combination?
(a) C
(b) F
(c) G
(d) A

20. Labour-intensive techniques are chosen in a:
(a) Labour-surplus economy
(b) Capital-surplus economy
(c) Developed economy
(d) Developing economy

21. Which of the following is related to Microeconomics?
(a) Jute Industry
(b) Unemployment Problem
(c) National income
(d) Income from Postal department

22. Which of the following is a cause of economic problem?
(a) Scarcity of Resources
(b) Unlimited Wants
(c) Alternative Uses
(d) All of these

23. Which of the following is a central problem of economy?
(a) How to Produce
(b) When to Produce
(c) What to Produce
(d) For whom to Produce

24. Which of the following illustrates a decrease in the unemployment using the PPC?
(a) A movement down along the PPC
(b) A rightward shift of the PPC
(c) A movement from a point on the PPC to a point inside the PPC
(d) A movement from a point inside the PPC to a point towards the PPC

25. The problem of 'What to produce' covers the issue relating to:
(a) What goods are to be produced
(b) What quantities of goods to be produced
(c) Both (a) and (b)
(d) Neither (a) nor (b)

26. Consider the following table:

Production Possibilities	A	B	C	D	E
Guns (Units)	0	1	2	3	4
Butter (Units)	10	9	7	4	0

(i) The opportunity cost of increasing guns production from 2 to 3 units is ____ units of butter.
(a) 7
(b) 2
(c) 4
(d) 3

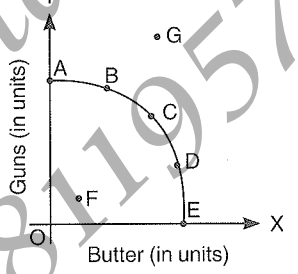
(ii) All possibilities A to E deal with:
(a) Full use of available resources
(b) Under-utilisation of available resources
(c) No use of available resources
(d) Demand for more resources

(iii) If at some other point say G, the economy produces 2 units of guns and 6 units of butter, then:
(a) It represent under-utilization of resources
(b) Economy would operate at a point below PPF
(c) Both (a) and (b)
(d) Neither (a) nor (b)

(iv) If the above points A to E are depicted on a graph, then such PPF would be:
(a) Convex to the origin
(b) Concave to the origin
(c) Straight line
(d) Rectangular hyperbola

27. Economics is the study of:
(a) How society manages its unlimited resources
(b) How to reduce our wants until we are satisfied
(c) How society manages its scarce resources
(d) How to fully satisfy our limited wants

28. Which point on the following PPC shows a "productively efficient" level of output?



(a) A
(b) B
(c) E
(d) All of these

29. In deciding "How to produce", the economy should consider:
(a) Labour Intensive Techniques
(b) Capital Intensive Techniques
(c) Both (a) and (b)
(d) Neither (a) nor (b)

30. Opportunity Costs arise:
(a) When there is only course of action
(b) When there are two or more alternative courses

(c) Both (a) and (b) (d) Neither (a) nor (b)

31. Which of these statement is true about production possibility curve?

(a) It shows various combinations of two goods which yield same level of satisfaction.

(b) It shows various combination of two goods which an economy can produce with a given amount of resources and technology.

(c) It shows various combination of two goods which an economy can produce with a given budget.

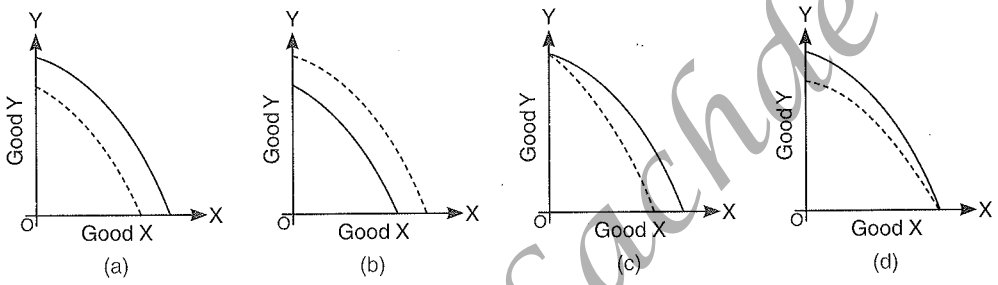
(d) It shows various combination of two goods which an economy can produce with a given time.

32. The Production Possibility Frontier is generally:

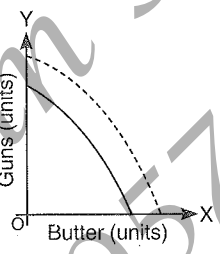
(a) Convex Shaped Downward Sloping (b) Concave Shaped Downward Sloping

(c) Either (a) or (b) (d) Neither (a) nor (b)

33. Due to 'Make in India', there has been large inflow of foreign capital. It will lead to the following change in PPC:



34. The shift in PPC is caused due to:



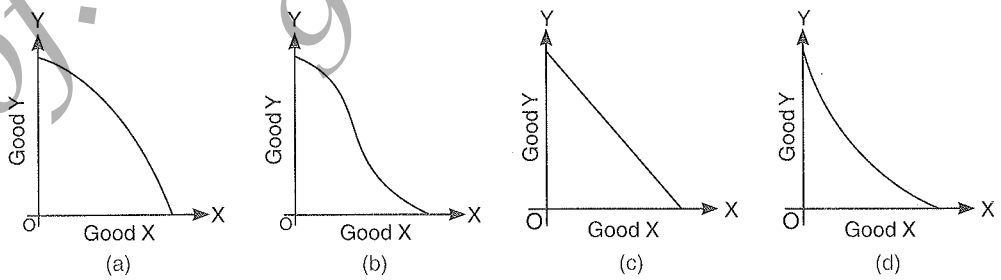
(a) Increase in resources for production of both the goods

(b) Increase in resources for production of butter only

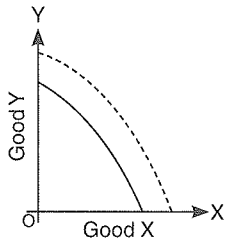
(c) Increase in resources for production of guns only

(d) None of these

35. In case of decreasing MRT, the shape of PPC will be depicted by the following diagram:

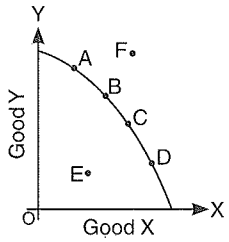


36. The following change in PPC is due to:



(a) Massive Unemployment
(b) Destruction of Resources
(c) Increase in Resources
(d) Fuller Utilisation of Resources

37. In the order of sequence, the points of 'Underutilisation' and 'Unattainable' are:



(a) A and F
(b) F and E
(c) D and E
(d) E and F

38. Which of the following is an assumption of Production Possibility Frontier?
(a) Resources are not fully employed.
(b) Resources are not equally efficient for production of the two goods.
(c) Resources are not efficiently employed.
(d) Resources available are not fixed.

39. Macroeconomics focuses on all of the following except:
(a) Allocation of Resources
(b) Inflation in the Economy
(c) Aggregate Demand
(d) Jute Industry

40. Which of the following is an example of a Positive Economy:
(a) India is taking steps to control rising prices
(b) There are inequalities of income in our economy
(c) India should not be an overpopulated country
(d) Income inequalities should be reduced

41. The statements like 'Economy should control pollution' or 'Unemployment in the economy ought to be reduced' fall within the scope of:
(a) Normative Statements
(b) Positive Statements
(c) Both (a) and (b)
(d) None of these

42. An economy has 2 alternatives of production from the available resources: (i) 20X + 1Y; or (ii) 18X + 2Y. If the economy chooses the second alternative, then what is the MOC of producing Y:
(a) 1X
(b) 2X
(c) 1Y
(d) None of these

43. The Opportunity Cost arises:
(a) When there is just one alternative
(b) When there are two or more alternatives
(c) Either (a) or (b)
(d) None of these

44. In the context of rising prices, following statements are made by two people:
Udit: Prices in the economy are continuously rising;

Shivam: The Government should take reasonable steps to control rising prices.

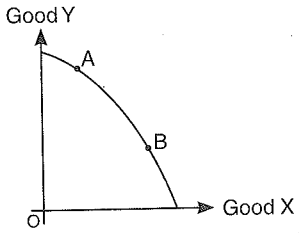
Identify the statements as Positive Statement and Normative Statement.

(a) Udit: Positive; Shivam: Normative
(b) Udit: Normative; Shivam: Positive
(c) Both are Positive Statements
(d) Both are Normative Statements

45. Production Possibility Frontier is:

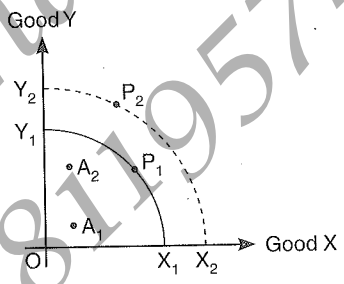
(a) Downward Sloping
(b) Concave Shaped
(c) Both (a) and (b)
(d) Either (a) or (b)

46. In the given figure, the movement on the production possibility curve from point A to point B shows_____. (Choose the correct alternative)



(a) Growth of all the resources in the economy.
(b) Underutilisation of resources.
(c) Production of more units of Good X and less units of Good Y.
(d) Production of more units of Good Y and less units of Good X

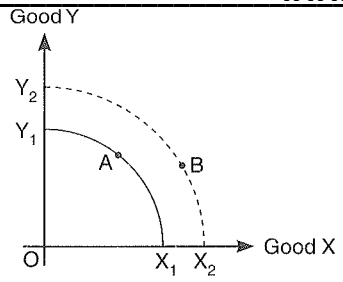
47. In the given figure X_1Y_1 and X_2Y_2 are Production Possibility Curves in two different period T_1 and T_2 respectively for Good X and Good Y. A_1 and A_2 represent actual outputs and P_1 and P_2 represent potential outputs respectively in the two time periods.



The change in actual output of Goods X and Y over the two periods would be represented by movement from _____. (Fill up the blank)

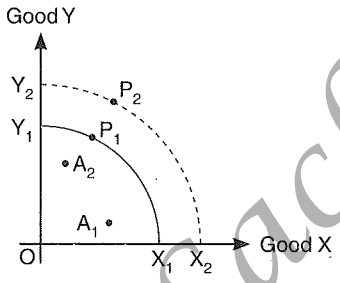
(a) A_2 to P_2
(b) A_1 to P_2
(c) P_1 to A_2
(d) A_1 to A_2

48. Shift from Point A on Production Possibility Curve X_1Y_1 to Point B on X_2Y_2 in the given figure indicates: (Choose the correct alternative)



(a) Decrease in resources
(b) Increase in resources
(c) Full and efficient utilisation of resources
(d) Wastage of resources

49. In the given figure X_1Y_1 and X_2Y_2 are Production Possibility Curves in two different time periods T_1 and T_2 respectively. A_1 and A_2 represent actual outputs in T_1 and T_2 periods respectively. P_1 and P_2 are potential outputs in T_1 and T_2 periods respectively.



The change in potential production over the two periods would be represented by a shift from _____. (Choose the correct alternative)

(a) P_2 to A_2
(b) A_1 to A_2
(c) A_2 to A_1
(d) P_1 to P_2

50. Positive Economic analysis is concerned with:

(a) Opinions
(b) Value Judgements
(c) Facts and Figures
(d) Ideals

51. 'Fit India Movement' launched by the Indian Government will lead to:

(a) Leftward Shift in PPC
(b) Rightward Shift in PPC
(c) Forward Rotation on X-axis
(d) No Change in PPC

52. Out of the following, which one is Macro variable?

(a) Production of Food Grains in India
(b) Pricing decision by Tata Motors
(c) Measurement of General Price Level
(d) Fall in Petrol Prices

53. Which of the following is the salient feature of resources?

(a) They are limited as compared to wants
(b) They have alternative uses
(c) Both (a) and (b)
(d) They are unlimited

54. If there in unemployment in the economy, then we would be producing _____ the PPC.

(a) Below
(b) Above
(c) On
(d) None of the above.

Ans. **1.** (d); **2.** (c); **3.** (a), (d); **4.** (c); **5.** (b); **6.** (b); **7.** (a); **8.** (a), (d); **9.** (a); **10.** (c); **11.** (b); **12.** (c); **13.** (c); **14.** (b); **15.** (a), (b); **16.** (c); **17.** (b); **18.** (a); **19.** (i - d, ii - a, iii - c); **20.** (a); **21.** (a), (d); **22.** (d); **23.** (a), (c), (d); **24.** (d); **25.** (c); **26.** (i - d, ii - a, iii - c, iv - b); **27.** (c); **28.** (d); **29.** (c); **30.** (b);

31. (b); **32.** (b); **33.** (b); **34.** (a); **35.** (d); **36.** (c); **37.** (d); **38.** (b); **39.** (a), (d); **40.** (a), (b); **41.** (a); **42.** (b); **43.** (b); **44.** (a); **45** (c); **46.** (c); **47.** (d); **48.** (b); **49.** (d); **50.** (c); **51.** (b); **52.** (c); **53.** (c); **54.** (a).

CONSUMER EQUILIBIRUM

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. At the point of satiety, marginal utility is _____.
2. The utility derived from the first unit of a commodity is known as _____.
3. As long as MU is positive, TU _____ with an increase in consumption of a commodity.
4. _____ means that a rational consumer always prefers more of a commodity as it offers him a higher level of satisfaction.
5. As Price Ratio is constant throughout, the _____ is a straight line.
6. MU_X of X is 50 and MU_Y of Y is 40. It the price of Y is ₹ 8, then price of X at equilibrium will be _____.
7. Any consumption beyond the point of satiety leads to _____.
8. Total utility is _____ when marginal utility is zero.
9. Indifference curves are convex to the origin because of _____ marginal rate of substitution.
10. If consumption of an additional unit of a commodity causes no change in TU, then the resultant MU is _____.
11. The consumer will be in equilibrium where there is tangency between price line and indifference curve because at this point _____ is equal to Price Ratio.
12. Indifference Map refers to _____ of indifference curves.
13. Higher indifference curve represents larger bundle of goods, i.e. more utility because of _____.
14. In case of single commodity, consumer is in equilibrium when marginal utility from a commodity equals _____ of the commodity.

15. The consumer is in equilibrium at a point where the budget line is _____ to an indifference curve.
16. Total Utility is _____ at the point of satiety.
17. Slope of an Indifference Curve is measured by _____.
18. The total utility derived by Kartik by eating 12 oranges is 400 utils. Marginal Utility of the 13th orange is 20 utils. The total utility for 13 oranges will be _____ utils.
19. According to Indifference Curve Approach, utility can be measured in terms of _____.

Ans. ***1.*** *Zero,* ***2.*** *Initial Utility,* ***3.*** *Increases,* ***4.*** *Monotonic Preference,* ***5.*** *Budget Line,* ***6.*** *₹ 10,* ***7.*** *Disutility,* ***8.*** *Maximum,* ***9.*** *Diminishing,* ***10.*** *Zero,* ***11.*** *Marginal Rate of Substitution,* ***12.*** *Family,* ***13.*** *Monotonic Preference,* ***14.*** *Price,* ***15.*** *Tangent,* ***16.*** *Maximum,* ***17.*** *Marginal Rate of Substitution,* ***18.*** *420,* ***19.*** *Ranks.*

TRUE OR FALSE *with REASONS*

1. Utility is directly linked with the usefulness of a commodity.
   False. A commodity may not be useful, yet it may have utility for a particular person. For example, chewing tobacco is harmful for health, yet many people derive high degree of utility from it.
2. Any consumption beyond the point of satiety leads to disutility.
   True. Point of satiety shows the stage of maximum satisfaction. Any consumption beyond this point leads to disutility as marginal utility becomes negative.
3. Different points on an indifference curve represent different satisfaction levels.
   False. All points on the indifference curve provide same level of satisfaction.
4. An indifference curve is convex to the origin because of the law of equi-marginal utility.
   False. Indifference curve is convex to the origin because of the law of diminishing marginal rate of substitution.
5. Marginal rate of substitution indicates the slope of budget line.
   False. Price ratio measures the slope of budget line.
6. When we add up utility derived from each successive unit, we get total utility.
   True. Utility derived from each successive unit (i.e. marginal utility) adds up to total utility.
7. All points below the budget line show the various possible bundles which cost exactly equal to consumer's money income.
   False. The bundles which cost exactly equal to consumer's money income lie on the budget line and not below it.
8. Marginal rate of substitution remains same along the indifference curve.
   False. It diminishes along the indifference curve.
9. The bundles of budget set lie either on or below the budget line.
   True. Budget set include all the possible bundles which cost less than or equal to consumer's money income. Bundles costing less than income lie below the budget line and bundles costing equal to income lie on the budget line.
10. Two indifference curves intersect each other when they represent same level of satisfaction.
    False. Two indifference curves cannot represent the same level of satisfaction. So, they can never intersect each other.
11. The law of diminishing marginal utility states that a rise in price of a product results in decline in its marginal utility.
    False. The law states that as we consume more and more units of a commodity, there is decline in marginal utility from it.

12. Total utility is minimum when marginal utility is zero.
False. Total utility is maximum when marginal utility is zero.

13. The slope of indifference curve is different at different points of the curve.
True. It happens because slope of indifference curve is measured by marginal rate of substitution, which diminishes along the curve.

14. Only one indifference curve will pass through a given point on an indifference map.
True. It happens because indifference curves can never intersect each other.

15. When the marginal utility starts falling, total utility also start decreasing.
False. Total utility starts decreasing only when marginal utility is negative.

16. A consumer buys a combination of two goods: X and Y with marginal utilities equal to 30 utils and 35 utils respectively. Price of X is ₹ 6 per unit. The consumer will be in equilibrium only when price of Y is 7 per unit.
True. Because equilibrium condition is met in this case as under:

$$\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y} \quad or \quad \frac{30}{6} = \frac{35}{7}$$

17. If $\frac{MU_X}{P_X} > \frac{MU_Y}{P_Y}$, then the consumer should buy more of commodity Y and less of commodity X to reach the equilibrium position.
False. Consumer should buy more of commodity X as marginal utility (MU) from last rupee spent on commodity X is greater than MU from last rupee spent on commodity Y.

18. Marginal utility can never be negative.
False. When consumption is increased beyond the point of satiety (saturation point), the marginal becomes negative.

19. A budget set is the collection of all bundles of goods that a consumer wants to buy.
False. Budget set consists of all those bundles of two goods, which a consumer can afford, given his income and prices in the market.

20. A budget set is a collection of such bundles of goods that give same satisfaction.
False. Budget set is collection of such bundles of goods which cost less than or equal to consumer's money income at the given prices.

21. In case of two commodities, MU of a commodity must fall to attain consumer's equilibrium.
True. If MU does not fall as consumption increases, the consumer will end up buying only one good which is unrealistic and consumer will never reach the equilibrium position.

22. A consumer in consumption of single commodity equates price of the commodity with total utility.
False. A consumer compares price (additional cost) with additional benefit (Marginal Utility) and not with Total Utility (TU). TU is the total satisfactions obtained from consumption of all the units of a commodity. As price is always related to one unit, it cannot be equated with TU.

23. When $P_x \neq P_y$, then consumer is at equilibrium when $MU_x = MU_y$.
False. Equilibrium condition of the consumer can be stated as $MU_x = MU_y$ only when $P_x = P_y$.

MATCHING TYPE QUESTIONS

Q. 1. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Point of satiety	(i) TU = 0
(b) Slope of Indifference Curve	(ii) Marginal Rate of Substitution
(c) MU_n	(iii) $TU_n - TU_{n+1}$
(d) Cardinal Utility Approach	(iv) Hicksian Analysis

Ans. (b) Slope of Indifference Curve – (ii) Marginal Rate of Substitution.

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Law of Equi-marginal utility	a. Gossen's first law of consumption
	b. Gossen's Second Law

Ans. (i) b.

Q. 3. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Slope of budget line	a. Marginal Rate of Substitution
(ii) Slope of Indifference Curve	b. Price Ratio

Ans. (i) b; (ii) a.

Q. 4. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Initial Utility	a. A rational consumer always prefers more of a commodity as it offers him a higher level of satisfaction
(ii) Indifference Curve Analysis	b. Additional utility derived from consumption of one more unit of given commodity
(iii) Slope of budget line	c. Hicksian Analysis
(iv) Marginal Utility	d. Utility derived from first unit of a commodity
(v) Monotonic Preferences	e. Price Ratio

Ans. (i) d; (ii) c; (iii) e; (iv) b; (v) a.

Q. 5. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Law of diminishing marginal utility	a. Slope of indifference curve
(ii) MU	b. Fundamental Psychological Law

(A)	(B)
(iii) Marginal Rate of Substitution	c. Point of satiety
(iv) Indifference Map	d. $\frac{\Delta TU}{\Delta Q}$
(v) Zero Marginal Utility	e. Family of indifference curves

Ans. (i) b; (ii) d; (iii) a; (iv) e; (v) c.

Q. 6. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) $\frac{MU_X}{P_X} > \frac{MU_Y}{P_Y}$	a. Consumer should buy more of both commodities X and Y
(ii) $\frac{MU_X}{P_X} < \frac{MU_Y}{P_Y}$	b. Consumer should buy less of both commodities X and Y
	c. Consumer should buy more of commodity X
	d. Consumer should buy more of commodity Y

Ans. (i) c; (ii) d.

Q. 7. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Budget Line is a straight line because	a. Price Ratio or MRE decreases
	b. Price Ratio or MRE is constant
	c. Price Ratio or MRE increases

**MRE = Market Rate of Exchange*

Ans. (i) b.

Q. 8. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Equation of Budget Line	a. $P_X Q_X - P_Y Q_Y = M$
	b. $P_X Q_X + P_Y Q_Y \leq M$
	c. $P_X Q_X + P_Y Q_Y = M$

**P_X = Price of commodity X; Q_X = Quantity of commodity X; P_Y = Price of commodity Y; Q_Y = Quantity of commodity Y; M = Money Income*

Ans. (i) c.

(MCQs) MULTIPLE CHOICE QUESTIONS *and* (MRQs) MULTIPLE RESPONSE QUESTIONS

In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. Which of these is a property of indifference curve?
   (a) Indifference curve slopes downwards
   (b) Indifference curve is concave to the origin
   (c) Indifference curve is convex to the origin
   (d) Higher indifference curve represents higher level of satisfaction.

2. Indifference curves are convex to the origin because of:
   (a) Increasing MRS
   (b) Diminishing MRS
   (c) Law of Diminishing Marginal Utility
   (d) Law of Equi-Marginal Utility

3. The necessary condition under utility approach to attain consumer's equilibrium in case of two commodity is:
   (a) $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$
   (b) $MRS_X = \frac{P_X}{P_Y}$
   (c) $MU_x = P_x$
   (d) None of these

4. When we add up utility derived from consumption of all the units of the commodities, we get:
   (a) Total Utility
   (b) Initial utility
   (c) Marginal Utility
   (d) None of these

5. Marginal Utility (MU) in terms of money is equal to:
   (a) $\frac{\text{Marginal Utility in utils}}{\text{Marginal Utility of one rupee}}$
   (b) $\frac{\text{Marginal Utility of one rupee}}{\text{Marginal Utility in utils}}$
   (c) $\frac{\text{Marginal Utility in utils}}{\text{Price of the Commodity}}$
   (d) None of these

6. According to the Law of diminishing marginal utility, satisfaction obtained from consumption of each successive unit:
   (a) Increases
   (b) Decreases
   (c) Remains same
   (d) Either increases or decreases

7. Indifference Map refers to:
   (a) Highest Indifference curve
   (b) Lowest Indifference curve
   (c) Family of indifference curves
   (d) None of these

8. Budget set includes:
   (a) All those combinations of two goods which a consumer already possesses
   (b) All those combinations of two goods which a consumer cannot afford
   (c) All those combinations of two goods which a consumer is willing to buy
   (d) All those combinations of two goods which a consumer can afford

9. Indifference curves are:
   (a) Concave to the origin
   (b) Convex to the origin
   (c) Upward sloping straight line passing from the origin
   (d) None of these

10. Which of these is a condition for consumer's equilibrium by indifference curve analysis?

(a) $MU_X = P_X$ (b) $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$

(c) $MRS_X = \frac{P_X}{P_Y}$ (d) $MU_x = MU_Y$

11. If $\frac{MU_X}{P_X} > \frac{MU_Y}{P_Y}$, then to reach the equilibrium position, consumer should:

(a) Stop buying any commodity. (b) Buy both the commodities in equal quantity.

(c) Buy more of X and less of Y. (d) Buy more of Y and less of X.

12. If the consumption of an additional unit of a commodity causes no change in TU, then the resultant MU is:

(a) Zero (b) Positive

(c) Negative (d) Constant

13. An indifference curve is best described as a series of points which show:

(a) Combinations of two commodities which give the consumer same satisfaction.

(b) Combinations of two goods, such that cost of each combination is equal to money income of the consumer.

(c) Combinations of the two goods which a consumer can afford, given his income and prices in the market.

(d) None of these.

14. Total Utility is _____ at the point of satiety:

(a) Minimum (b) Maximum

(c) Zero (d) None of these

15. Marginal Utility (MU) of n^{th} unit is calculated as:

(a) $MU_n = TU_n - TU_{n+1}$ (b) $MU_n = TU_n + TU_{n+1}$

(c) $MU_n = TU_n + TU_{n-1}$ (d) $MU_n = TU_n - TU_{n-1}$

16. In case of single commodity, consumer's equilibrium is achieved when:

(a) $MU_X > P_X$ (b) $MU_X < P_X$

(c) $MU_X \neq P_X$ (d) $MU_X = P_X$

17. _____ measures the slope of indifference curve.

(a) Budget Line (b) Marginal Rate of Substitution

(c) Marginal Rate of Transformation (d) None of these

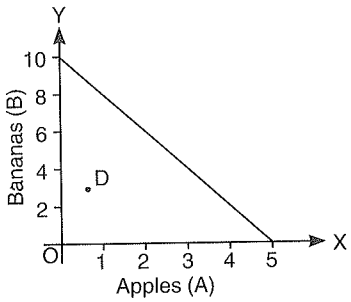
18. In the following diagram of budget line, point "D" represents:

(a) Bundle which cost equal to money income of consumer

(b) Bundle which cost less than money income of consumer

(c) Bundle which cost greater than money income of consumer

(d) None of these



19. How is TU derived from MU?
(a) $TU = \sum MU$
(b) $TU = U_1 + U_2 + U_3$ ---------- $+ U_N$
(c) $TU_n = MU_n + MU_{n-1}$
(d) $TU_n = MU_n - MU_{n-1}$

20. What happens to MU when TU is maximum?
(a) MU is negative
(b) MU is Zero
(c) MU is decreasing
(d) MU is increasing

21. An indifference curve always:
(a) Slopes downwards from left to right.
(b) Slopes upwards from left to right.
(c) Is parallel to the Y-axis.
(d) Is parallel to the X-axis.

22. In case of cardinal utility approach, utility is measured in:
(a) Rupees
(b) Ranks
(c) Utils
(d) None of these

23. The consumer will be in equilibrium where there is tangency between price line and indifference curve because at this point:
(a) MRS < Price Ratio
(b) MRS > Price Ratio
(c) MRS = Price Ratio
(d) Slope of Indifference Curve = Slope of Budget Line

24. "Cardinality" means utility can be:
(a) Measured
(b) Ranked
(c) Not measured
(d) none of these

25. The slope of price line (in case of commodities X and Y) is given by:
(a) Taste and preferences of consumer
(b) Prices of both the commodities
(c) Price of commodity X alone
(d) Price of commodity Y alone

26. Which Law states that: "When a consumer consumes more and more units of a product, the utility derived from each additional unit decreases"?
(a) Law of Equi-Marginal Utility
(b) Fundamental Law of Satisfaction
(c) Law of Cardinal Utility
(d) Law of Diminishing Marginal Utility

27. In the context of Indifference Curve Analysis, MRS stands for:
(a) Marginal Rate of Substitution
(b) Marginal Rate of Satisfaction
(c) Marginal Return of Substitution
(d) Marginal Return of Satisfaction

28. For consumer's equilibrium to be stable, the requirement is:
(a) Constant MRS
(b) Increasing MRS
(c) Diminishing MRS
(d) None of these

29. The total utility derived by Shyam by eating 6 apples is 300 utils. Marginal Utility of the 7th apple is 30 utils. The total utility for 7 apples will be _____ utils.

(a) 330 (b) 270
(c) 300 (d) 30

30. The assumption of "Constant marginal utility of money" means that importance of money to consumer is:
(a) Increasing (b) Decreasing
(c) Same (d) None of these

31. When Economists speak of the utility of a certain product, they are referring to:
(a) Demand for the product
(b) Usefulness of the product in consumption
(c) Satisfaction gained from consuming such product
(d) Rate at which consumers are willing to exchange one good for another

32. Utility:
(a) Differs from person to person (b) Differs from time to time
(c) Can be easily measured (d) All of these

33. A consumer in consumption of two commodities A and B is at equilibrium. The prices of A and B are ₹ 10 and ₹ 20 respectively and the marginal utility of product B is 50. What will be the marginal utility of product A?
(a) 100 (b) 25
(c) 250 (d) 4

34. The Law of Diminishing Marginal Utility will not hold good if Income of the consumer:
(a) Increases (b) Decreases
(c) Remains constant (d) Either (a) or (b)

35. As per Ordinal Approach:
(a) Measurement of Utility is not possible through money
(b) Measurement of Utility is possible but it can not be ranked
(c) Measurement of Utility is not possible in cardinal numbers but it can be ranked
(d) Ordinal utility is the utility expressed in ranks

36. Marginal Utility:
(a) Is always positive (b) Is always negative
(c) Can be positive or negative but not zero (d) Can be positive or negative or zero

37. Mollie derives total utility of 10 utils after having 4 mangoes and total utility on consuming 5 mangoes is 9. What is her marginal utility for the 5^{th} mango?
(a) +1 util (b) 0 util
(c) –1 util (d) 9 utils

38. After reaching the point of satiety, consumption of additional units of the commodity cause:
(a) TU falls and MU increases (b) Both TU and MU increase
(c) TU falls and MU falls and becomes negative (d) TU becomes negative and MU falls

39. According to one of the assumption of Law of Diminishing Marginal Utility, there should be _____ between the consumption of one unit and another unit.
(a) Equal time gap (b) No time gap
(c) Long time gap (d) Any of these

40. Budget line shows:
(a) Possible combination of two goods that a consumer can buy by spending his entire income at the given prices.
(b) Possible combination of two goods which cost less than or equal to consumer's money income.
(c) Possible combination of two goods among which the consumer is indifferent.
(d) All the these

41. MU_X of X is 40 and MU_Y of Y is 30. It the price of Y is ₹ 9, then price of X at equilibrium will be _____.
(a) ₹ 9 (b) ₹ 30
(c) ₹ 15 (d) ₹ 12

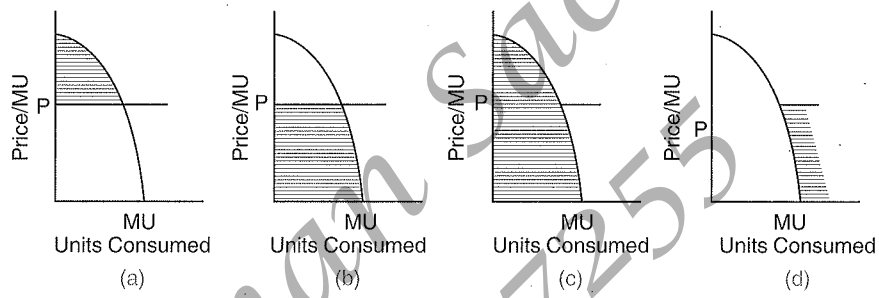
42. The farther the Indifference Curve is from the origin, then:
(a) Higher is the satisfaction level
(b) Lower is the satisfaction level
(c) Same satisfaction level will be obtained
(d) Nothing can be said about satisfaction

43. The consumer is in equilibrium when Marginal Utility from a Commodity equals:
(a) Demand for that Commodity (b) Supply of that Commodity
(c) Price of the Commodity (d) All of these

44. An Indifference Curve represents all those combinations of two goods which give:
(a) No satisfaction to the Consumer (b) Lower satisfaction to the Consumer
(c) Higher satisfaction to the Consumer (d) Equal satisfaction to the Consumer

45. The consumer is in equilibrium at a point where the budget line:
(a) Is above an indifference curve. (b) Is below an indifference curve.
(c) Is tangent to an indifference curve? (d) Cuts an indifference curve.

46. Which of the shaded area in the diagrams below represent total utility?



47. If Marginal Rate of Substitution is constant throughout, the Indifference curve will be: (choose the correct alternative)
(a) Parallel to the x-axis. (b) Downward sloping concave.
(c) Downward sloping convex. (d) Downward sloping straight line.

48. If Marginal Rate of Substitution is increasing throughout, the Indifference Curve will be: (Choose the correct alternative)
(a) Downward sloping convex (b) Downward sloping concave
(c) Downward sloping straight line (d) Upward sloping convex

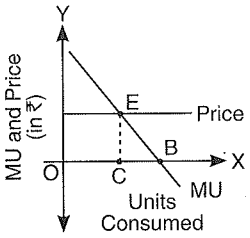
49. A consumer consumes only two goods. If price of one of the goods falls, the indifference curve: (Choose the correct alternative)
(a) Shifts upwards (b) Shifts downwards
(c) Can shift both upwards or downwards (d) Does not shift

50. A consumer consumes only two goods X and Y both priced at ₹ 4 per unit. If the consumer chooses a combination of these two goods with Marginal Rate of Substitution equal to 4, then the consumer will:
(a) Buy more units of X (b) Buy more units of Y
(c) Buy more units of both, X and Y (d) Buy less units of both, X and Y

51. A consumer consumes only two goods X and Y whose prices are ₹ 3 and ₹ 4 per unit respectively. If the consumer chooses a combination of the two goods with marginal utility of X equal to 4 and that of Y equal to 3, is the consumer in equilibrium, then the consumer will:

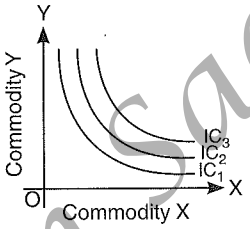
(a) Buy more units of both, X and Y
(b) Buy more units of Y and less of X
(c) Buy more units of X and less of Y
(d) Buy less units of both, X and Y

52. In the following diagram, the situation of Consumer's Equilibrium and Point of Satiety are represented by the points:



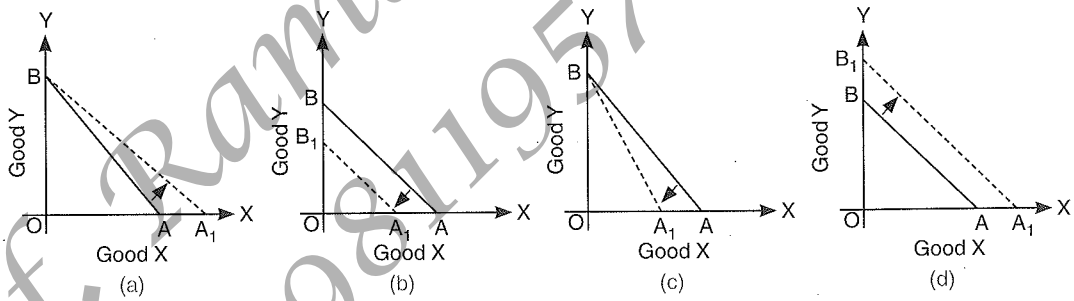
(a) Point C and Point E
(b) Point E and Point B
(c) Point B and Point E
(d) Point B and Point C

53. Which Indifference Curve represents the highest level of satisfaction?

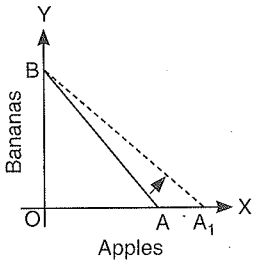


(a) IC_1
(b) IC_2
(c) IC_3
(d) None of these

54. An increase in income will lead to the following change in Budget Line:



55. The rotation of budget line in the following diagram is due to:



(a) Decrease in price of Apples
(b) Increase in price of Apples
(c) Increase in price of Bananas
(d) Decrease in price of Bananas

56. Marginal utility is:
(a) the utility from first unit of a commodity consumed.
(b) the utility from the last unit consumed.
(c) total utility divided by number of units consumed.
(d) always positive.

57. Total utility is _____:
(a) the sum of marginal utilities
(b) utility from first unit × number of units consumed
(c) always increasing
(d) utility from last unit × number of units consumed

58. Which of the following can be referred to as 'point of satiety'?
(a) Marginal Utility is negative
(b) Marginal utility is zero
(c) Total Utility is rising
(d) Total Utility is falling

59. At the Point of Satiety:
(a) MU is Negative
(b) MU is Zero
(c) MU is Rising
(d) None of these

60. A consumer consumes only two goods. If price of one of the goods falls, the indifference curve:
(a) Shifts leftward
(b) Shifts rightward
(c) Can shift both leftward and rightward
(d) Does not shift

61. Slope of an Indifference Curve is measured by:
(a) Marginal Rate of Substitution
(b) Marginal Rate of Transformation
(c) Marginal Opportunity Cost
(d) None of these

62. If $MU_y = 20$; $MU_x = 60$; Price of Y = ₹ 4, then what will be the Price of X at Equilibrium:
(a) ₹ 14
(b) ₹ 3
(c) ₹ 12
(d) ₹ 4

63. Market Rate of Exchange also denotes:
(a) Slope of PPC
(b) Slope of Budget Line
(c) Slope of Indifference Curve
(d) None of these

64. When marginal utility is zero, total utility is:
(a) Zero
(b) Minimum
(c) Maximum
(d) Negative

65. Suppose, Mayank consumes Burger and Garlic Bread. Which of the following bundle of Burger and Garlic Bread will Mayank choose if he has monotonic preference?
(a) Bundle A (5, 7)
(b) Bundle B (4, 7)
(c) Bundle C (5, 6)
(d) None of these

66. Which is the First Law of Gossen?
(a) Law of Equi-marginal Utility
(b) Law of Diminishing Marginal Utility
(c) Law of Supply
(d) Law of Demand

67. Which of the following is a characteristic of utility?
(a) Utility is Subjective
(b) Utility is a relative concept
(c) Utility is a Psychological phenomenon
(d) All of these

68. Which of the following statement is not true?
(a) As long as MU is positive , TU increases
(b) TU is zero when MU is zero
(c) TU starts decreasing when MU is negative
(d) After the point of satiety, MU becomes negative

Ans. **1.** (a), (c), (d); **2.** (b); **3.** (a); **4.** (a); **5.** (a); **6.** (b); **7.** (c); **8.** (d); **9.** (b); **10.** (c); **11.** (c); **12.** (a); **13.** (a); **14.** (b); **15.** (d); **16.** (d); **17.** (b); **18.** (b); **19.** (a), (b); **20.** (b); **21.** (a); **22.** (c); **23.** (c), (d); **24.** (a); **25.** (b); **26.** (b), (d); **27.** (a); **28.** (c); **29.** (a); **30.** (c); **31.** (c); **32.** (a), (b); **33.** (b); **34.** (d); **35.** (c), (d); **36.** (d); **37.** (c); **38.** (c); **39.** (b); **40.** (a); **41.** (d); **42.** (a); **43.** (c); **44.** (d); **45.** (c); **46.** (c); **47.** (d); **48.** (b); **49.** (d); **50.** (a); **51.** (c); **52.** (b); **53.** (c); **54.** (d); **55.** (a) **56.** (b); **57.** (a); **58.** (b); **59.** (b); **60.** (d); **61.** (a); **62.** (c); **63.** (b); **64.** (c); **65.** (a); **66.** (b); **67.** (d); **68.** (b).

— Notes —

DEMAND

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. If the given commodity is an inferior good, then a decrease in income leads to _____ in demand.
2. Law of demand states the _____ relationship between price and quantity demanded, keeping other factors constant.
3. Cross demand is positive in case of _____ goods, while negative in case of _____ goods.
4. Substitute goods have _____ demand.
5. Slope of Demand Curve = $\frac{\text{Change in Price } (\Delta P)}{?}$.
6. _____ is also known as Decrease in Quantity Demanded.
7. In case of expansion in demand, there is a _____ movement along the same demand curve.
8. _____ goods are those goods which are used together to satisfy a particular want.
9. The sum total of both the substitution and the income effects is called the _____.
10. If demand for a commodity rises even without any change in its price, then it is known as _____.
11. _____ goods are those goods which can be used in place of one another for satisfaction of a particular want.
12. If a fall in the price of one good raises the demand for another good, the two goods are called _____.
13. _____ goods refer to those goods whose demand increases with an increase in income.
14. In case of decrease in demand, there is a _____ shift in the demand curve.
15. Complementary goods have _____ demand.
16. _____ shows the tabular presentation of various quantities of a commodity a consumer is willing to buy at different prices, during a given period of time.
17. A rise in price of tea will lead to an _____ movement in the demand curve of tea.
18. Cross price effect occurs in case of both _____ goods and _____ goods.
19. If a household buys less of a commodity due to rise in income, then the given commodity must be an _____ one.
20. There will be a _____ in the demand curve of cars with an increase in the price of petrol.

Ans. ***1.*** *Rise,* ***2.*** *Inverse,* ***3.*** *Substitute, Complementary,* ***4.*** *Competitive,* ***5.*** *Change in Quantity (ΔQ),* ***6.*** *Contraction in Demand,* ***7.*** *Downward,* ***8.*** *Complementary,* ***9.*** *Price Effect,* ***10.*** *Increase in demand,* ***11.*** *Substitute,* ***12.*** *Complementary Goods,* ***13.*** *Normal,* ***14.*** *Leftward,* ***15.*** *Joint,* ***16.*** *Demand Schedule or Individual Demand Schedule,* ***17.*** *Upward,* ***18.*** *Substitute, Complementary,* ***19.*** *Inferior,* ***20.*** *Leftward Shift.*

TRUE OR FALSE *with REASONS*

1. If a fall in price of Good X leads to a rise in demand for Good Y, then X and Y are substitute goods.
   False. In case of substitute goods, fall in price of one good reduces the demand for another good. X and Y are complementary goods and not substitute goods.
2. Increase in price of bulbs will shift its demand curve towards left.
   False. There will be no shift in demand curve. Rather, there will be an upward movement along the same demand curve.
3. Demand of a given commodity can be specified irrespective of its price.
   False. Demand for a given commodity is always stated with reference to price.
4. A rise in price of tea will lead to an upward movement in the demand curve of coffee.
   False. Rise in price of tea lead to a rightward shift in demand curve of coffee as coffee will become relatively cheaper in comparison to tea.
5. Due to fall in cost of making bicycles, its price has reduced. It will shift the demand curve of bicycles towards right.
   False. Fall in price of given commodity (bicycles) will lead to downward movement along the same demand curve.
6. Demand of a commodity may rise or fall even when price of the given commodity remains constant.
   True. It is possible when there is change in other factors like change in price of substitute goods, change in price of complementary goods, change in income, etc.
7. Demand curve of Pepsi will not shift with rise or fall in its price.
   True. Rise or fall in price of Pepsi will lead to movement along the same demand curve and not shift in demand curve.
8. Cross price effect occurs in case of substitute goods only.
   False. It occurs in complementary goods also. Cross price effect shows effect on demand of a given commodity due to change in price of related commodity and both substitute and complementary goods are related goods.
9. Demand curve for automobiles shift towards right due to opening up of a new automobile dealer in the town.
   False. A new automobile dealer will not affect the demand for automobiles. So, there will be no change in demand or demand curve of automobiles.
10. A shift in demand curve of the given commodity may be caused by change in any determinant of demand function.
    False. It cannot be caused by change in price of the given commodity. Change in all other determinants lead to shift in demand curve.
11. Expansion in demand leads to an upward movement along the same demand curve.
    False. Expansion leads to a downward movement along the same demand curve.
12. Cross demand is positive in case of substitute goods.
    True. Because demand for given commodity varies directly with prices of substitute goods.
13. Market demand curve is obtained by vertical summation of individual demand curves.
    False. Market demand curve is obtained by horizontal summation of individual demand curves.
14. Market demand curve is flatter than individual demand curves.
    True. It happens because with change in price, proportionate change in market demand is more as compared to proportionate change in individual demands.
15. Due to increase in one more member, the family expenditure on milk increased. It is an example of extension in demand.

False. It is an example of 'Increase in Demand' as the resultant rise in expenditure (due to rise in demand) is due to a factor other than the price of milk.

16. The demand curve of a commodity may not obey the law of demand if price of its substitute rises.
True. With rise in price of substitutes, the demand curve of the commodity may not obey the law of demand because demand curve is drawn on an assumption that there is no change in other determinants of demand.

17. In case of giffen goods, demand curve slope upwards.
True. In case of giffen goods, demand varies directly with price, i.e. demand rises with increase in price and vice-versa.

18. Consumer's taste and preferences must change in order to apply Law of Demand.
False. Law of Demand states the inverse relationship between price and quantity demanded, keeping other factors constant. So, to apply the Law of Demand, consumer's taste and preferences (other factors) must not change.

19. Size and composition of population affect the demand for an individual.
False. It affects the market demand and not the individual demand.

20. Law of Demand indicates the direction and amount of change in demand of a commodity due to change in its price.
False. Law of Demand only indicates the direction of change in demand and not the amount or magnitude of change.

21. If a household buys more of a commodity due to rise in income, then the given commodity must be an inferior one.
False. The given commodity will be a normal good.

22. If X and Y are substitutes of one another, then relationship between the prices of good X and demand of good Y will be shown by a curve that will slope upwards.
True. In case of substitute goods, there exist a positive relation between price of good X and demand of good Y. So, the curve will slope upwards.

23. 'Ceteris paribus' clause in the law of Demand means that the price of the given commodity does not change.
False. It means that there is no change in factors other than price of the given commodity.

24. The exceptions to the law of demand may be true for an individual but not for the whole market.
True. Exceptions to the law may be true in case of certain individuals, but for the whole market, law of demand is applicable, assuming the normal conditions and assumptions.

25. If more is demanded at the same price or the same quantity is demanded at a higher price, it is known as extension of demand.
False. It is known as 'Increase in demand'.

26. Cross demand tells the relationship between the price and demand for a commodity.
False. Cross demand shows the relationship between demand for a commodity and prices of related commodities.

27. If the goods X and Y are substitutes, a rise in price of X will result in a rightward shift in demand curve of Y.
True. Rise in price of X will increase the demand for Y as Y becomes relatively cheaper than X.

28. The demand for a commodity always increases with increase in the price of other goods.
False. The demand for a commodity will increases with increase in the price of other goods, only when such other goods are substitute goods. However, demand for the commodity will fall with increase in the price of other goods, if such other goods are complementary goods.

29. An increase in the income of a consumer would lead to an increase in demand for all types of goods demanded by him.

False. The quantity of a good that a consumer demands can increase or decrease with rise in income. This depends upon the nature of the good, i.e. Normal Good or an Inferior Good. With increase in income of an individual, the demand for normal good rises, whereas, demand for inferior good falls.

MATCHING TYPE QUESTIONS

Q. 1. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Substitute Goods	(i) An increase in price of substitute leads to a decrease in the demand for given commodity
(b) Complementary Goods	(ii) An increase in price of complementary good leads to an Increase in the demand for given commodity
(c) Normal Goods	(iii) Goods whose demand does not change with an increase in income
(d) Inferior Goods	(iv) Goods whose demand decreases with an increase in income

Ans. (d) Inferior Goods – (iv) Goods whose demand decreases with an increase in income.

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Decrease in Price of Substitute Goods	a. Rightward shift in demand curve
	b. Leftward shift in demand curve

Ans. (i) b.

Q. 3. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Expansion in Demand	a. Upward movement along the same demand curve
(ii) Contraction in Demand	b. Downward movement along the same demand curve

Ans. (i) b; (ii) a.

Q. 4. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Substitute Goods	a. Car and Pen
(ii) Complementary Goods	b. Coke and Pepsi
	c. Bread and Butter

Ans. (i) b; (ii) c.

Q. 5. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Normal Goods	a. Demand decreases with an increase in income
(ii) Inferior Goods	b. Demand decreases with an increase in price
	c. Demand increases with an increase in price
	d. Demand increases with an increase in income

Ans.(i) d; (ii) a.

Q. 6. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Substitute Goods	a. Car and Petrol
(ii) Inferior Goods	b. Rightward shift in the demand curve
(iii) Expansion in Demand	c. Rice and Wheat
(iv) Complementary Goods	d. Increase in Quantity Demanded
(v) Increase in Demand	e. Demand decreases with an increase in income

Ans. (i) c; (ii) e; (iii) d; (iv) a; (v) b.

Q. 7. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Normal Good	a. Relationship between demand of given commodity and prices of related goods
(ii) Decrease in Demand	b. Decrease in Quantity Demanded
(iii) Substitute Goods	c. Demand increases with increase in income
(iv) Cross Demand	d. Leftward shift in the demand curve
(v) Contraction in Demand	e. Competitive Demand

Ans. (i) c; (ii) d; (iii) e; (iv) a; (v) b.

(MCQs) MULTIPLE CHOICE QUESTIONS *and* (MRQs) MULTIPLE RESPONSE QUESTIONS

In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. Which of the following is an example of substitute goods?
(a) Tea and Coffee (b) Coke and Pepsi
(c) Car and Petrol (d) Tea and Sugar

2. The demand for normal good _____ with an increase in income of the consumer.
(a) Increases (b) Decreases
(c) Remains same (d) Either increases or decreases

3. Increase in price of substitute good leads to:
(a) Expansion in Demand (b) Increase in Demand

(c) Decrease in Demand (d) Contraction in demand

4. A, B and C are three commodities, where A and B are complementary; whereas A and C are substitutes. With increase in price of commodity A:
   (a) Demand of all the commodities A, B and C will fall
   (b) Demand of commodities A and B will fall, whereas demand of C will rise
   (c) Demand of commodities A and C will fall, whereas demand of B will rise
   (d) Demand of commodities B and C will fall, whereas demand of A will rise

5. When two or more goods are demanded simultaneously, it is known as:
   (a) Joint Demand (b) Alternate Demand
   (c) Direct Demand (d) Composite Demand

6. There will be a _____ in the demand curve of cars with an increase in the price of petrol:
   (a) Rightward Shift (b) Upward Movement
   (c) Leftward Shift (d) Downward Movement

7. The demand curve for a commodity is generally drawn on the assumption that:
   (a) Prices of substitute goods do not change.
   (b) Tastes and preferences of the consumer remain the same.
   (c) Income of the consumer remains the same.
   (d) All of these.

8. Which one of these is not an example of complementary goods?
   (a) Tea and coffee (b) Coke and Pepsi
   (c) Pen and Refill (d) Bread and Butter

9. Law of Demand states the _____relationship between price and quantity demanded.
   (a) Inverse (b) Positive
   (c) Proportional (d) None of these

10. Expansion in demand leads to:
   (a) Rightward Shift in demand curve
   (b) Downward Movement along the demand curve
   (c) Upward Movement along the demand curve
   (d) None of these

11. Which one of these is not a determinant of Individual demand?
   (a) Size and composition of population (b) Tastes and Preferences
   (c) Distribution of Income (d) All of these

12. From the given demand schedule, determine the effect on demand curve:

Price (₹)	20	20
Demand (Units)	100	70

   (a) Rightward Shift in demand curve (b) Leftward Shift in Demand curve
   (c) Upward Movement along the demand curve (d) Downward Movement along the demand curve

13. Expansion in demand occurs due to:
   (a) Rise in price of the given commodity (b) Fall in price of the given commodity
   (c) Rise in price of substitute goods (d) Fall in price of complementary goods

14. There is a sudden change in climatic conditions resulting in hot weather. Assuming no change in the price of the cold drinks, it will lead to:
   (a) Upward movement along the same market demand curve

(b) Downward movement along the same market demand curve
(c) Rightward shift in the market demand curve
(d) Leftward shift in the market demand curve

15. A movement along the demand curve for soft drinks is best described as:
(a) Increase in demand
(b) Decrease in demand
(c) Change in quantity demanded
(d) Change in demand

16. If more is demanded at the same price or same quantity at a higher price, this fact of demand is known as:
(a) Extension of demand
(b) Increase in demand
(c) Contraction of demand
(d) Decrease in demand

17. Cross demand states the relationship between:
(a) Demand of given commodity and price of related goods.
(b) Demand of given commodity and Income of the consumer.
(c) Demand of given commodity and taste and preferences.
(d) None of these.

18. Which of the following is not an assumption of law of demand?
(a) Price of substitute goods do not change
(b) Income of the consumers remain same
(c) There is no change in tastes and preferences of the consumers
(d) Price of the given commodity does not change.

19. If change in price of good A affects the demand for good B, then:
(a) A is a substitute of good B.
(b) A is a complement of good B.
(c) Both (a) and (b)
(d) Either (a) or (b)

20. In a typical demand schedule, quantity demanded:
(a) Varies directly with price
(b) Varies proportionately with price
(c) Varies inversely with price
(d) Is independent of price.

21. Which of the following is a determinant of market demand?
(a) Income of the consumers
(b) Season and weather
(c) Price of related goods
(d) All of the above

22. Which of the following factors will lead to a leftward shift in the demand curve:
(a) Increase in income in case of inferior goods
(b) Increase in income in case of normal goods
(c) Decrease in Population
(d) Expectation of future increase in price

23. Decrease in the price of the complementary goods leads to:
(a) Upward movement along the same demand curve
(b) Downward movement along the same demand curve
(c) Rightward shift in the demand curve
(d) Leftward shift in the demand curve

24. If price of good 'X' rises and it leads to a fall in demand for good 'Y', then the two goods are:
(a) Substitute goods
(b) Complementary goods
(c) Normal goods
(d) Inferior goods

25. Market demand curve is obtained by _____ summation of the individual demand curves.
(a) Vertical
(b) Horizontal
(c) Both (a) and (b)
(d) Neither (a) nor (b)

26. Ceteris paribus means:
(a) Holding supply constant
(b) Holding demand constant
(c) Price being constant
(d) Other factors being constant

27. An increase in real income of a consumer induces him to buy more of a commodity whose prices has fallen. This is known as:
(a) Inducement Effect
(b) Substitution Effect
(c) Income Effect
(d) Utility Effect

28. Expansion of Demand is associated with:
(a) Rise in Price, Rise in quantity demanded
(b) Fall in Price, Fall in quantity demanded
(c) Fall in Price, Rise in quantity demanded
(d) Rise in Price, Fall in quantity demanded

29. If X and Y are Complementary Goods, then with increase in price of X:
(a) Demand of X will decrease and demand of Y will increase.
(b) Demand of X will increase and demand of Y will decrease.
(c) Demand of X and Y will increase.
(d) Demand of X and Y will decrease.

30. If Tea and Coffee are substitutes, a fall in the prices of Tea leads to:
(i) Rise in the demand for Tea
(ii) Fall in the demand of Tea
(iii) Fall in the demand for Coffee
(iv) Rise in the demand of coffee
(a) Both (ii) and (iv)
(b) Both (i) and (iii)
(c) Both (ii) and (iii)
(d) Both (iii) and (iv)

31. All except one of the following are assumed to remain same while drawing an individual's demand curve for a product. Which one is it?
(a) Tastes and Preferences of the individual
(b) Monetary income
(c) Price of the given product
(d) Price of related goods

32. With fall in price of a commodity, demand of the commodity increases as it becomes relatively cheaper in comparison to other commodities. This effect is known as:
(a) Substitution Effect
(b) Income Effect
(c) Law of Demand
(d) Law of Diminishing Returns

33. The demand function of a product X is given as: Dx = 12 – 2Px, where Px stands for price. The demand at price of ₹ 2 will be:
(a) 6
(b) 8
(c) 5
(d) 10

34. The demand function of a product X is given as: Dx = 20 – 3Px, where Px stands for price. If an Individual Y has a demand of 8 units, then market price of the product is:
(a) ₹ 4
(b) ₹ 5
(c) ₹ 3
(d) ₹ 4.5

35. The demand function of a product X is given as: Dx = 12 – 2Px, where Px stands for price. If there are 5,000 customers for the product, then market demand for the product at market price of ₹ 3 will be:
(a) 40,000
(b) 30,000
(c) 20,000
(d) 16000

36. Two commodities A and B can be inferred as close substitutes of each other if:
(a) Rise in price of one leads to an increase in demand of other and vice-versa
(b) Rise in price of one leads to a decrease in demand of other and vice-versa
(c) Fall in price of one lead to fall in demand of other one, but not the other way round
(d) Rise in price of one lead to rise in demand of other one, but not the other way round

37. A goods can be considered a normal good if an increase in income of the consumer causes _____ in demand of the given good:

(a) Increase (b) No change
(c) Decrease (d) less than proportionate increase

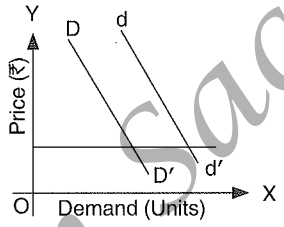
38. Expansion and contraction in demand are caused by:
(a) Change in price of the given good (b) Change in income
(c) Change in prices of related goods (d) Change in population

39. When income of the consumer falls, the impact on price-demand curve of an inferior good is: (choose the correct alternative)
(a) Shifts to the right (b) Shifts to the left
(c) There is upward movement along the curve (d) There is downward movement along the curve

40. If due to fall in the price of good X, demand for good Y rises, the two goods are: (Choose the correct alternative)
(a) Substitutes (b) Complements
(c) Not related (d) Competitive

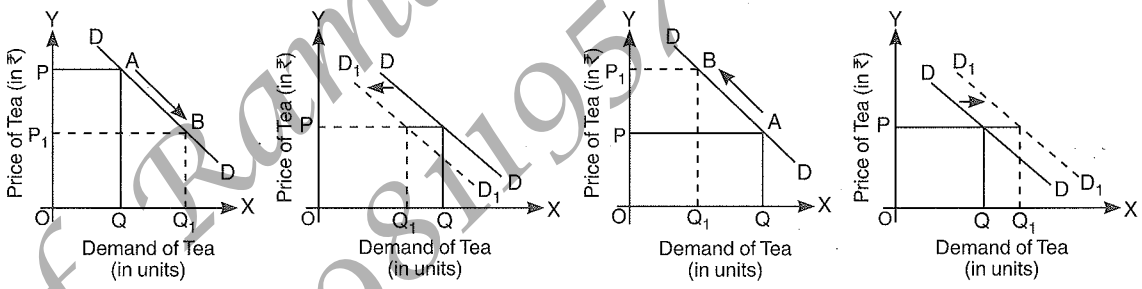
41. If with the rise in price of good Y, demand for good X rises, the two goods are: (Choose the correct alternative)
(a) Substitutes (b) Complements
(c) Not related (d) Jointly demanded

42. The demand curve of a good shifts from DD′ to dd′.

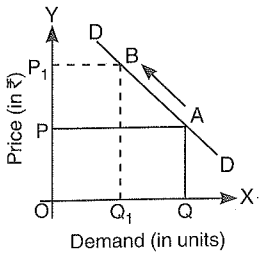


This shift can be caused by: (Choose the correct alternative)
(a) fall in the price of the good (b) rise in the price of the good
(c) rise in the price of substitute goods (d) rise in the price of complementary goods

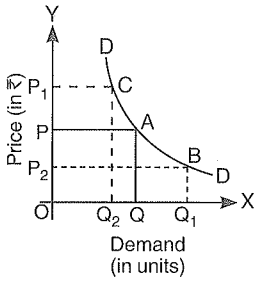
43. An increase in the price of Coffee will have the following effect on the demand curve of Tea:



44. The following movement in the demand curve is because of:
(a) Increase in price of given commodity
(b) Decrease in price of given commodity
(c) Increase in price of substitute good
(d) Decrease in price of complementary good

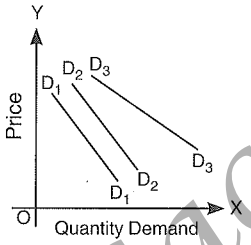


45. What does the following diagram represent?



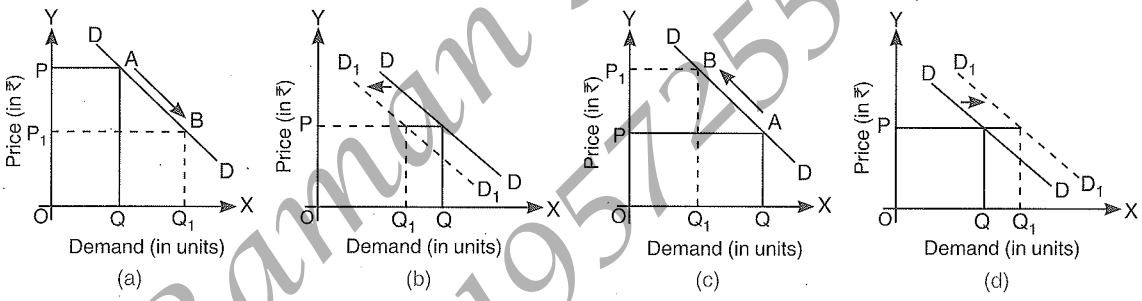
(a) Change in Demand
(b) Change in Quantity Demanded
(c) Both (a) and (b)
(d) Neither (a) nor (b)

46. Which of the following represents market demand curve?



(a) D_1D_1
(b) D_3D_3
(c) D_2D_2
(d) None of the above

47. Which of the following diagram represents the situation of 'Expansion in Demand'?



48. The slope of demand curve is generally:
(a) Negative
(b) Positive
(c) Constant
(d) Either (a) or (b)

49. Any statement about demand for a good is considered complete only when the following is/are mentioned in it (Choose the correct alternative):
(a) Price of the good
(b) Quantity of the good
(c) Period of time
(d) All of the above

50. Good X and good Y are complementary goods, while good X and good Z are substitute goods. What will happen to good Y and good Z, if price of good X decreases?
(a) The demand for both goods, Y and Z, will decrease
(b) The demand for both goods, Y and Z, will increase
(c) The demand for good Y will increase and for good Z will decrease
(d) The demand for good Y will decrease and for good Z will increase

51. Which of the following is a reason for 'Change in Demand'?

(a) Change in Income
(b) Change in Price of related goods
(c) Population increase
(d) All of these

Ans. **1.** (a), (b); **2.** (a); **3.** (b); **4.** (b); **5.** (a); **6.** (c); **7.** (d); **8.** (a), (b); **9.** (a); **10.** (b); **11.** (a), (c); **12.** (b); **13.** (b); **14.** (c); **15.** (c); **16.** (b); **17.** (a); **18.** (d); **19.** (d); **20.** (c); **21.** (d); **22.** (a), (c); **23.** (c); **24.** (b); **25.** (b); **26.** (d); **27.** (c); **28.** (c); **29.** (d); **30.** (b); **31.** (c); **32.** (a); **33.** (b); **34.** (a); **35.** (b); **36.** (a); **37.** (a); **38.** (a); **39.** (a); **40.** (b); **41.** (a); **42.** (c); **43.** (d); **44.** (a); **45.** (b); **46.** (b); **47.** (a); **48.** (a); **49.** (d); **50.** (c); **51.** (d).

— Notes —

ELASTICITY OF DEMAND

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. When percentage change in the quantity demanded is more than percentage change in price, then demand for such a commodity is said to be _____.
2. When two demand curves intersect each other, then the _____ curve is more elastic at the point of intersection.
3. Expensive goods have _____ demand, while demand for inexpensive goods is _____.
4. When quantity demanded of a commodity does not change with change in price, then coefficient of price elasticity of demand is _____.
5. A negative sign with coefficient of price elasticity of demand denotes _____ relation between price and quantity demanded.
6. A 4% fall in the price of X leads to a 9% rise in its demand. In case of Good Y, a 2% rise in price leads to a 8% fall in its demand. In the given case, commodity _____ is more elastic.
7. Elasticity of Demand (Ed) = $\frac{\text{Percentage Change in Demand}}{?}$.
8. If the demand for a good is made by a rich consumer, its demand is generally _____.
9. Medicines have _____ demand as their consumption cannot be postponed, while Coke has _____ demand as it has number of substitutes.
10. In case of _____ demand, percentage change in the quantity demanded is equal to percentage change in price.

Ans. **1.** *Highly Elastic,* **2.** *Flatter,* **3.** *Highly Elastic or Elastic, Inelastic,* **4.** *Zero,* **5.** *Inverse,* **6.** *Y,* **7.** *Percentage Change in Price,* **8.** *Less Elastic or Inelastic,* **9.** *Less Elastic or Inelastic, Highly Elastic or Elastic,* **10.** *Unitary Elastic.*

TRUE OR FALSE *with REASONS*

1. When quantity demanded of a commodity does not change with change in price, then coefficient of price elasticity of demand is zero.
   True. It is a case of perfectly inelastic demand.
2. A commodity with large number of close substitutes shows high elasticity of demand.
   True. Demand for a commodity with large number of substitutes will be more elastic as a small rise in price of such commodity will induce the buyers to go for its substitutes.
3. When the percentage increase in demand of a commodity is more than percentage increase in price, then demand curve is steeper.

False. The demand curve will be flatter as price elasticity of demand is more than one.

4. In case of horizontal straight line demand curve, demand does not change even with change in price.
False. In case of horizontal straight line demand curve, there is an infinite demand at a particular price and demand becomes zero with a slight rise in the price.

5. A flatter demand curve is more elastic than a steeper demand curve at the point of intersection.
True. Flatter demand curve is more elastic because with the same change in price, change in demand in case of flatter curve is more than change in demand in case of steeper curve.

6. In case of perfectly inelastic demand, expenditure on the commodity does not change with change in its price.
False. In case of perfectly inelastic demand, demand remains constant irrespective of change in price. It means, expenditure on the commodity will change with change in price.

7. If the proportionate change in the price of a commodity is more than the proportionate change in its quantity demand per unit of time, its price elasticity of demand is greater than unity.
False. Price elasticity of demand will be less than unity (Ed <1) as proportionate change in demand is less than proportionate change in price.

8. In measuring price elasticity, price is a dependent variable and quantity is an independent variable.
False. Price is an independent variable and quantity is a dependent variable.

9. The coefficient of price elasticity of demand is generally negative. However, minus sign is ignored for the sake of convenience.
True. The coefficient of price elasticity of demand is generally negative due to inverse relationship between price and quantity demanded. So, it is often ignored as it is always implied.

10. Commodity with diverse uses has generally less elastic demand.
False. The demand will be highly elastic because when price of such a commodity increases, then its demand falls considerably as it is put to urgent uses only.

11. Demand is more elastic in the long period than in the short period.
True. Because consumers find it difficult to change their habits in the short period, whereas, in the long period, it is easy to shift to other substitutes in case price of the given commodity rises.

12. Price Elasticity of Demand of two goods A and B is (–) 3 and (–) 4 respectively. Good A has higher elasticity.
False. B is more elastic because 1% fall (rise) in price will lead to higher percent rise (fall) in demand.

13. Price Elasticity of Demand is infinity in case of horizontal straight line demand curve.
True. In case of horizontal straight line demand curve, slope of demand curve is zero. As a result, price elasticity of demand is infinity. It is proved as under:

$$\text{Elasticity of Demand } (E_d) = \frac{1}{\text{Slope of Demand Curve}} \times \frac{P}{Q} = \frac{1}{0} \times \frac{P}{Q} = \infty$$

14. Price Elasticity of Demand is same for the two commodities x and y if slope of their demand curves are same.
False. When slope of demand curves of commodities x and y are same, then price elasticity of demand depends on their initial price and initial quantity. It happens because:

$$\text{Elasticity of Demand } (E_d) = \frac{1}{\text{Slope of Demand Curve}} \times \frac{P}{Q}$$

15. Price Elasticity of Demand is zero if with 20% increase in price, expenditure on the commodity also rises by 20%.
True. When 20% increase in price leads to 20% increase in expenditure on the commodity, it means that quantity demanded remains constant. As a result, Elasticity of Demand (E_d) = 0.

16. The coefficient of price elasticity of demand for the commodity is inversely related to the number of alternative uses of the commodity.

False. A commodity with a number of alternative uses carries positive relation with the coefficient of price elasticity of demand. With the fall in the price of such a commodity, the quantity demanded increases as people can put it for different uses.

17. Luxury goods often have lower price elasticity of demand.

False. If the price of luxury goods increases, people may postpone its consumption. Hence, the demand is elastic in nature.

18. – 6, – 4, – 1 is the correct order of increasing Price Elasticity of Demand.

False. Elasticity is always measured and compared in absolute terms (ignoring the negative sign). So, correct order will be – 1, – 4, – 6 (minus sign only represents the inverse relation between price and quantity demanded).

MATCHING TYPE QUESTIONS

Q. 1. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Inelastic demand	(i) Demand curve is flatter
(b) Perfectly Elastic demand	(ii) Demand curve is a vertical straight line parallel to Y-axis
(c) Highly Elastic demand	(iii) Demand curve is steeper
(d) Perfectly Inelastic demand	(iv) No change in demand with change in price

Ans. (d) Perfectly Inelastic demand – (iv) No change in demand with change in price.

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Unitary Elastic Demand	a. Demand curve is a rectangular hyperbola
	b. Demand curve is flatter

Ans. (i) a.

Q. 3. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Elastic demand	a. Expensive Goods
(ii) Inelastic demand	b. Inexpensive Goods

Ans. (i) a; (ii) b.

Q. 4. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Highly Elastic Demand	a. Less Elastic Demand
(ii) Inexpensive Goods	b. $\frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$
(iii) Perfectly Inelastic demand	c. Horizontal straight line parallel to X-axis
(iv) Flatter Demand Curve	d. % Change in Demand > % Change in Price

(A)	(B)
(v) Perfectly Elastic Demand	e. Highly Elastic
(vi) Proportionate Method	f. Quantity Demanded does not change with change in price

Ans. (i) d; (ii) a; (iii) f; (iv) e; (v) c; (vi) b.

Q. 5. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Rise in Price = 3%, Fall in Demand = 6%	a. Price Elasticity of Demand = (–) 0.2
(ii) Rise in Price = 8%, Fall in Demand = 4%	b. Price Elasticity of Demand = (–) 2
	c. Price Elasticity of Demand = (–) 5
	d. Price Elasticity of Demand = (–) 0.5

Ans. (i) b; (ii) d.

Q. 6. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) When it is not possible to postpone consumption	a. Demand is Highly Elastic
(ii) When large number of substitutes are available	b. Demand is Perfectly Elastic
	c. Demand is Less Elastic

Ans. (i) c; (ii) a.

(MCQs) MULTIPLE CHOICE QUESTIONS and (MRQs) MULTIPLE RESPONSE QUESTIONS

In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. If there is no change in demand for commodity 'X', even after rise in its price, then its demand is:
(a) Perfectly Elastic (b) Perfectly Inelastic
(c) Less Elastic (d) Highly Elastic

2. The elasticity of demand for a product will not be higher:
(a) When it is considered a necessity by its buyers.
(b) When less substitutes for the product are available.
(c) When it has several uses.
(d) When it is an expensive commodity.

3. Demand for a good is less elastic when:
(a) Percentage change in price > Percentage change in quantity demanded
(b) Percentage change in quantity demanded > Percentage change in price
(c) Percentage change in price = Percentage change in quantity demanded
(d) Demand curve is steeper

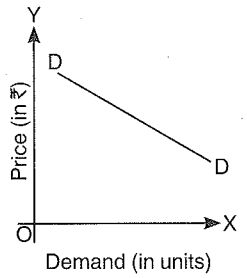
4. Which of the following will have elastic demand?
(a) Matchbox (b) Coke
(c) Medicines (d) Air Conditioners

5. If the price elasticity of demand for a commodity is less than unity, a decrease in price would result in:
(a) Proportionately less increase in the quantity demanded.

(b) Proportionately more increase in the quantity demanded.
(c) Increase in total expenditure on the product.
(d) None of these

6. Which one of the following statements is incorrect:
(a) Higher numerical value of elasticity indicates larger effect of a price change on the quantity demanded.
(b) Elasticity of demand can vary only between –1 and +1.
(c) The demand curves for all commodities which have unitary elastic demand will be rectangular hyperbola.
(d) Elasticity of demand establishes a qualitative relationship between quantity demanded of a commodity and its price, while other factors remain constant.

7. The following diagram represents _____ elastic demand for commodity X.



(a) Less (b) Highly (c) Unitary (d) Perfectly

8. If the percentage increase in the quantity demanded of a commodity is less than the percentage fall in its price, then elasticity of demand is:
(a) > 1 (b) = 1 (c) < 1 (d) = 0

9. Price elasticity of demand is best defined as:
(a) Change in the tastes of consumers at different prices.
(b) Change in demand when income of the consumer increases.
(c) The rate of response of demand to a change in price.
(d) The rate of response of demand to change in price of related goods.

10. Which of the following influence price elasticity of demand?
(a) Nature of the commodity (b) Income Level
(c) Availability of substitutes (d) All of these

11. A negative sign with coefficient of price elasticity of demand denotes:
(a) Direct relation between price and quantity demanded
(b) Inverse relation between price and quantity demanded
(c) No relation between price and quantity demanded
(d) None of these

12. A 5% fall in the price of X leads to a 10% rise in its demand. In case of Good Y, a 2% rise in price leads to a 6% fall in its demand. In the given case, _____ is more elastic.
(a) X (b) Y
(c) Both X and Y are equally elastic (d) Both X and Y are inelastic

13. In case of _____, there is an infinite demand at a particular price and demand becomes zero with a slight rise in price.
(a) Perfectly inelastic demand (b) Highly elastic demand
(c) Less elastic demand (d) Perfectly elastic demand

14. If a good takes up significant share of consumers' budget, it will be:
(a) Less elastic (b) Highly elastic
(c) Unitary elastic (d) Perfectly elastic

15. If there is no change in quantity demanded to any charge in price, then demand is _____ and demand curve is a _____.

(a) perfectly elastic, horizontal straight line
(b) perfectly elastic, vertical straight line
(c) perfectly inelastic, horizontal straight line
(d) perfectly inelastic, vertical straight line

16. If the demand for a good is made by a rich consumer, its demand is generally:

(a) Less elastic (b) Highly elastic
(c) Unitary elastic (d) Perfectly elastic

17. A firm is currently selling 10,000 units of its product per month. The firm plans to reduce the retail price from ₹ 1 to ₹ 0.90. From the previous experience, the firm knows that the price elasticity of demand for the product is (–) 1.5. Assuming no other changes, the firm can now expect the sales of:

(a) 8,500 units (b) 10,500 units
(c) 11,000 units (d) 11,500 units

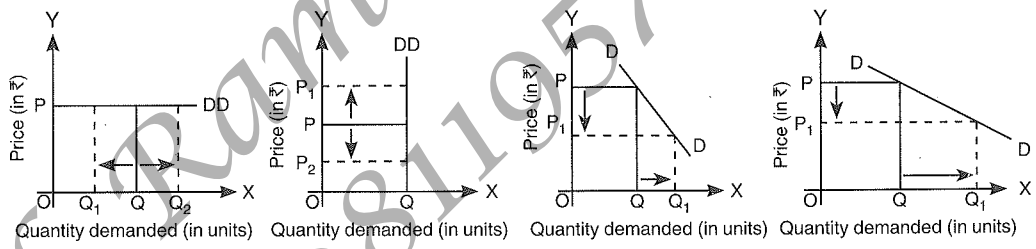
18. The demand for meals at a medium-priced restaurant is elastic. If the management of the restaurant is considering raising prices, it can expect a relatively:

(a) Proportionately large fall in quantity demanded
(b) No change in quantity demanded
(c) Proportionately small fall in quantity demanded
(d) Infinite change in quantity demanded

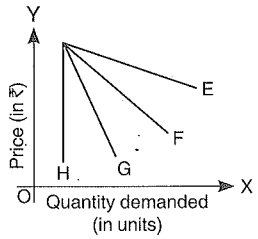
19. With increase in price of burgers by 22%, its demand falls by 25%. This indicates that demand for burgers is:

(a) Elastic (b) Inelastic
(c) Unitary elastic (d) Perfectly elastic

20. Which of the following diagram correctly depicts the situation of Less Elastic Demand?

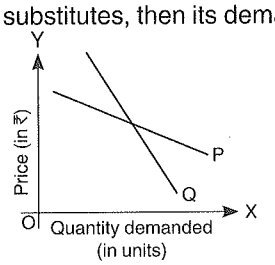


21. Among the following demand curves, which one is more elastic?



(a) F (b) E (c) G (d) H

22. If a commodity has large number of substitutes, then its demand curve will be:



(a) P (b) Q (c) Both (a) and (b) (d) Neither (a) nor (b)

23. Price Elasticity of Demand of a good is (–) 3. It shows that:

(a) When price falls by 1%, demand rises by 3% (b) When price rises by 1%, demand falls by 3%

(c) Either (a) or (b) (d) Neither (a) nor (b)

24. The Indian Government imposed heavy taxes on commodity to reduce its consumption by the public. Such heavy taxes will decrease the demand of the commodity only when:

(a) $E_d = 0$ (b) $E_d > 1$

(c) $E_d < 1$ (d) $E_d = 1$

25. If the percentage change in quantity supplied of commodity X is more than the percentage change in price of the commodity X, the coefficient of price elasticity of supply would be _____: (Choose the correct alternative)

(a) $E_s = 1$ (b) $E_s < 1$

(c) $E_s = 0$ (d) $E_s > 1$

26. The coefficient of price elasticity of supply of a good is 3. It is known as _____. (Choose the correct alternative)

(a) Unitary Elastic Supply (b) Perfectly Inelastic Supply

(c) Elastic Supply (d) Inelastic Supply

Ans. **1.** (b); **2.** (a), (b); **3.** (a), (d); **4.** (b), (d); **5.** (a); **6.** (b), (d); **7.** (b); **8.** (c); **9.** (c); **10.** (d); **11.** (b); **12.** (b); **13.** (d); **14.** (b); **15.** (d); **16.** (a); **17.** (d); **18.** (a); **19.** (a); **20.** (c); **21.** (b); **22.** (a); **23.** (c); **24.** (b); **25.** (d); **26.** (c)

— Notes —

PRODUCTION FUNCTION

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. _____ Factors refer to those factors, which can be changed in the short run.
2. Average Product is also known as _____ or _____.
3. Marginal Product = $\frac{?}{\text{Change in units of Variable Factor}}$.

4. A rational producer will always seek to operate in Phase _____ of Law of Variable Proportions.
5. _____ refers to the functional relationship between inputs and output for a given state of technology.
6. When average product is less then marginal product, then average product _____.
7. When total product is constant, average product will _____.
8. TP, AP and MP are _____ shaped curves.
9. _____ refers to addition to total product, when one more unit of variable factor is employed.
10. When TP increases at a _____ rate, MP starts decreasing.
11. Production function establishes a relation between inputs and output, which is _____ and not _____ in nature.
12. Rising average product is possible only when MP is _____ than AP.
13. MP curve cuts AP curve at its _____ point.

Ans. ***1.*** *Variable,* ***2.*** *Average Physical Product, Average Return,* ***3.*** *Change in Total Product,* ***4.*** *II,* ***5.*** *Production Function,* ***6.*** *Increases,* ***7.*** *Fall or Decrease,* ***8.*** *Inversely U,* ***9.*** *Marginal Product,* ***10.*** *Diminishing or Decreasing,* ***11.*** *Technical, Economical,* ***12.*** *More,* ***13.*** *Maximum.*

TRUE OR FALSE *with REASONS*

1. When there are diminishing returns to a factor, total product always decreases.
   False. When there are diminishing returns to a factor, total product increases at a decreasing rate.
2. Total product will increase only when marginal product increases.
   False. Total product also increases when marginal product decreases but remains positive.
3. Increase in total product always indicates that there are increasing returns to a factor.
   False. Increase in total product also indicates diminishing returns to a factor.
4. When marginal product falls, average product will also fall.
   False. AP falls only when MP < AP. If MP is more than AP, then AP will rise even if MP falls.
5. The distinction between short and long run is based on a fixed time period.
   False. It depends on production conditions and is not based on fixed time period.
6. When there are diminishing returns to a factor, marginal and total product both always fall.
   False. In case of diminishing returns to a factor, only marginal product falls and not total product.
7. Production function establishes a relation between inputs and output, which is technical and not economical in nature.
   True. Production function establishes only a technical relation between inputs and output. It is not economical in nature as we do not consider the value of inputs and output.
8. When marginal product is zero, total product is at its maximum point.
   True. Zero marginal product signifies that change in total product is zero, i.e. total product has stopped increasing and has attained its maximum point.
9. Both average product and marginal product can be negative.
   False. Marginal product (MP) can be negative but not average product (AP). MP is negative when TP falls with increase in variable input. However, AP cannot be negative as TP is always positive and never negative.
10. Both average product and marginal product can be zero.
    True. Marginal product can be zero when total product remains same with increase in variable input. Average product can also be zero when total product is zero.

11. In the operation of the Law of Variable Proportions, all the factors are assumed to be variable.
False. Law of Variable Proportions operates when one input is variable and all other inputs are fixed.

12. Average product curve and Marginal product curve are 'U-shaped' curve.
False. As per Laws of Returns to a Factor, Average Product Curve and Marginal Product Curve both rise and then tend to fall. Thus, the two curves are inverted (or inversely) 'U' shaped curves and not 'U' shaped curves.

13. In the long run, all factors of production are variable.
True. In the long run, firm can adjust all its inputs to make changes in the output.

14. Only variable factors are used for production in the short period.
False. In the short period, both variable and fixed factors are used for production.

15. Both variable and fixed factors exist in case of zero output.
False. Fixed factors may exist at zero level of output, but not the variable factors.

16. A rational producer aims to operate in first phase of Law of Variable Proportions as total product increases at increasing rate.
False. A rational producer aims to operate in second phase as total product is maximum and marginal product of each variable factor is positive.

17. When average product is maximum, marginal product is greater than average product.
False. When average product is maximum, marginal product will be equal to average product.

18. Under 'Law of Variable Proportions', factor ratio keeps on changing.
True. The proportion or ratio between fixed and variable factor keeps on changing, when additional units of variable factor are employed.

19. Average product can rise even when marginal product starts declining.
True. It can happen as long as falling marginal product is more than average product.

20. Marginal product cuts average product from its top.
True. It happens because when average product (AP) rises, marginal product (MP) is more than AP. When AP falls, MP is less than AP. So, MP cuts AP from its top (Refer Fig. 5.5).

21. When marginal product is less than average product, average product falls.
True. Marginal product (MP) pulls the average product (AP) up or down. So, AP falls when MP is less than AP. In Fig. 5.5, it happens after point E.

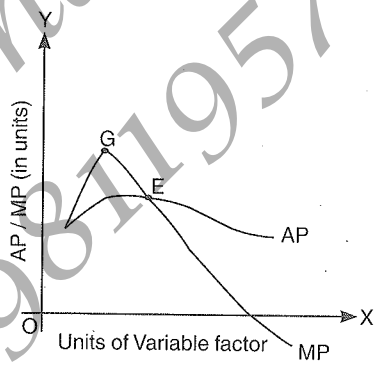


Fig. 5.5

22. Rising average product is possible only when MP is more than AP.
True. When MP is more than AP, MP pulls AP up. So, rising AP is possible only when MP > AP, i.e. before point E in Fig. 5.5.

23. Marginal product always rises when average product is increasing.

False. Marginal product can fall when average product is increasing as long as marginal product is more than average product. In Fig. 5.5, it happens from point G to E.

24. The production function does not depend on the state of technology.

False. Production function is always defined with respect to a given state of technology. Any change in technology will change the production function.

25. Average product will increase only when marginal product increases.

False. Average product will increase only when marginal product is greater than average product whether MP is rising or falling.

26. Under diminishing returns to a factor, total product continue to increase till marginal product reaches zero.

True. Under diminishing returns MP falls. TP increases till MP is positive.

27. Under diminishing returns to a factor, marginal product and total product both increase at a diminishing rate.

False. Although TP increases at a diminishing rate, but MP falls under diminishing returns to a factor.

28. When total product is constant, average product will fall.

True. Because Average Product $= \frac{TP}{\text{Variable input}}$ *and since TP is constant and variable input increases, AP will fall.*

29. Average Product falls only when marginal product is less than average product.

True, because AP, like an average, fall if the MP, the marginal value, is lower than AP.

30. 'Law of Variable Proportions' operates in the long period.

False, Law of Variable Proportions operates in the short period and not in the long period as in the short period, a firm can not vary all the inputs, as some of the them remain fixed. Under this law, output is increased by changing only one input while keeping other inputs unchanged.

MATCHING TYPE QUESTIONS

Q. 1. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Short run	(i) Period in which output can be changed by changing only fixed factors
(b) Variable factors	(ii) They vary directly with output
(c) Long run	(iii) Period in which output can be changed by changing only variable factors
(d) Fixed factors	(iv) Such factors can be changed in the short run

Ans. (b) Variable factors – (ii) They vary directly with output.

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Diminishing Returns to a Factor	a. TP falls
	b. TP increases at diminishing rate

Ans. (i) b.

Q. 3. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Short Run Production Function	a. When output is increased by increasing all the inputs simultaneously and in the same proportion
(ii) Long Run Production Function	b. When output is increased by changing only one input while keeping other inputs unchanged

Ans. (i) b; (ii) a.

Q. 4. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Short Run	a. Average Physical Product
(ii) TP	b. Such factors cannot be changed in the short run
(iii) Fixed factors	c. AP × Units of Variable Factor
(iv) Average Return	d. Period in which output can be changed by changing only variable factors

Ans. (i) d; (ii) c; (iii) b; (iv) a.

Q. 5. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Production function	a. Refer to those factors, which can be changed in the short run
(ii) Marginal Return	b. Period in which output can be changed by changing all factors
(iii) Variable Factors	c. Technological relation between physical inputs and output of a good
(iv) Law of Returns	d. Marginal Physical Product
(v) Long Run	e. Law of Variable Proportions

Ans. (i) c; (ii) d; (iii) a; (iv) e; (v) b.

Q. 6. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) When TP starts falling	a. AP is constant and minimum
(ii) When MP = AP	b. MP starts rising
	c. AP is constant and maximum
	d. MP become negative

Ans. (i) d; (ii) c.

Q. 7. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) When TP is maximum	a. MP is maximum
	b. MP = 0
	c. MP is minimum

Ans. (i) b.

Q. 8. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Short Run Production Function	a. Variable Proportion Type explained by Law of Returns to Scale
(ii) Long Run Production Function	b. Constant Proportion Type explained by Law of Variable Proportions
	c. Variable Proportion Type explained by Law of Variable Proportions
	d. Constant Proportion Type explained by Law of Returns to Scale

Ans. (i) c; (ii) d.

(MCQs) MULTIPLE CHOICE QUESTIONS *and* (MRQs) MULTIPLE RESPONSE QUESTIONS

In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. Which of the following statements accurately describe the relationship between AP and MP?
(a) AP rises when MP is above it and falls when MP is below it.
(b) AP and MP are always parallel to each other.
(c) MP intersects AP at its maximum point.
(d) AP is always rising when MP is falling and vice-versa.

2. When MP is zero, what can you say about TP?
(a) TP is increasing (b) TP is maximum
(c) TP is falling (d) None of the above

3. Marginal Product refers to addition to total output when one more:
(a) Unit is produced (b) Unit is sold
(c) Unit is consumed (d) Unit of variable factor is employed

4. The period of time in which the plant capacity can be varied is known as:
(a) Short run (b) Long run
(c) Both (a) and (b) (d) Neither (a) nor (b)

5. _____ is the extension of "Law of Diminishing Returns".
(a) Law of Variable Proportions (b) Law of Demand
(c) Law of Equi-marginal utility (d) Law of Diminishing Marginal Utility

6. Law of Variable Proportions is also known as:
(a) Law of Returns to Scale (b) Returns to Variable Factor
(c) Law of Returns to Factor (d) All of these

7. The maximum possible output for a firm with two units of labour (L) and ten units of capital (K), if its production function is given as: 5L + 2K
(a) 0 units (b) 30 units
(c) 200 units (d) 50 units

8. Identify the phase in which TP increases at an increasing rate and MP also increases.
(a) Increasing returns to a factor (b) Diminishing returns to a factor
(c) Negative returns to a factor (d) None of these

9. Which of the following is not a reason for operation of increasing returns to a factor?
(a) Better utilisation of fixed factor (b) Limitation of fixed factor

(c) Increase in the Qty. of variable factor (d) None of these

10. When average product increases, the marginal product is:
    (a) Less than average product (b) Equal to the average product
    (c) More the average product (d) None of these

11. What happens to AP, when MP is more than AP?
    (a) AP rises (b) AP falls
    (c) AP remains constant (d) None of these

12. What is the behaviour of TP, when MP becomes negative?
    (a) TP increases at an increasing rate (b) TP increases at diminishing rate
    (c) TP is at its maximum point (d) TP decreases

13. According to Law of Variable Proportions, there are _____ phases.
    (a) 1 (b) 3
    (c) 2 (d) 4

14. Average product cannot be negative because:
    (a) Total product can never be zero (b) Total product can never be negative
    (c) Neither (a) nor (b) (d) Both (a) and (b)

15. The law of diminishing returns refers to an eventual fall in:
    (a) Productivity of factors of production (b) Total earnings of the firm
    (c) Marginal product of the variable factor (d) None of these

16. The 2nd phase (diminishing returns to a factor) is exhibited by the following total product sequence:
    (a) 50, 50, 50, 50 (b) 50, 110, 180, 260
    (c) 50,100,150, 200 (d) 50, 90, 120, 140

17. Which phase of Law of Variable Proportions has been ruled out on the grounds of technical inefficiency:
    (a) Increasing returns to a factor (b) Diminishing returns to a factor
    (c) Negative returns to a factor (d) None of these

18. A rational producer always aims to operate in _____ of Law of Variable Proportions:
    (a) 1st Phase (Increasing returns to a factor) (b) 2nd Phase (Diminishing returns to a factor)
    (c) 3rd Phase (Negative returns to a factor) (d) Either 1st Phase or 2nd Phase

19. In general, most of the production functions measures:
    (a) Productivity of factors of production
    (b) Economical relation between the factors of production
    (c) Technical relation between inputs and output.
    (d) None of these

20. Product per unit of labour employed is termed as:
    (a) Average product (b) Marginal product
    (c) Total product (d) None of these

21. When AP is maximum, MP is equal to:
    (a) AP (b) TP
    (c) Zero (d) One

22. Variable factors refer to those factors of production:
    (a) Which can be only changed in the long run (b) Which can be changed in the short run
    (c) Which can never be changed (d) Which vary directly with output

23. Both AP and MP curves are generally:
    (a) U-shaped (b) Inversely U-shaped
    (c) Rising (d) Falling

24. In describing a given production technology, the short run is best described as lasting:
(a) Up to six months from now
(b) Upto five years from now
(c) As long as all inputs are fixed
(d) As long as at least one input is fixed

25. _____ is the period of time in which all the factors of production are variable.
(a) Short-run
(b) Long-run
(c) Medium-run
(d) None of these

26. The 'Marginal Product' of a variable input is best described as:
(a) Product divided by the number of units of variable input
(b) Additional output resulting from a unit increase in the variable input
(c) Change in total product when one more unit of variable factor is employed
(d) Additional output resulting from a unit increase in the units produced

27. On the basis of following schedule, answer the following questions:

Units of Labour	Total Product (TP)	Marginal Product (MP)
1	10	10
2	?	12
3	36	?

(i) What is TP at 2 units of labour?
(a) 10
(b) 12
(c) 22
(d) 20

(ii) What is MP at 3rd unit of labour?
(a) 22
(b) 12
(c) 36
(d) 14

(iii) The given schedule indicates the phase of:
(a) Diminishing Returns to a Factor
(b) Increasing Returns to a Factor
(c) Negative Returns to a Factor
(d) None of these

28. What is the maximum point of TP?
(a) When AP becomes zero
(b) When MP becomes zero
(c) When MP cuts AP
(d) None of these

29. Average Product can have:
(a) Positive values only
(b) Negative values only
(c) Both positive as well as negative values
(d) Neither positive nor negative values

30. Which of the following is correct?
(a) When MP is positive and falling, TP rises at a decreasing rate.
(b) When MP is rising, TP rises at an increasing rate.
(c) When MP is negative, TP rises.
(d) All of these

31. At the Point of Inflexion:
(a) Total Product is maximum
(b) Average Product is maximum
(c) Marginal Product is maximum
(d) Marginal Product is zero

32. When AP falls due to increase in quantity of variable input:
(a) MP < AP
(b) MP = AP
(c) MP > AP
(d) None of these

33. The Law of _____ deals with input-output relationship, when the output is increased by varying the quantity of one input.

(a) Variable Proportions (b) Supply
(c) Demand (d) Equi-marginal utility

34. According to Law of Variable Proportions, when we increase quantity of only one input keeping other inputs fixed, _____ initially increases at an increasing rate, then at a decreasing rate and finally at a negative rate.

(a) Total Product (b) Average Product
(c) Marginal Product (d) None of these

35. Which of the following is not a phase in the Law of Variable Proportions?

(a) Increasing returns to a factor (b) Constant returns to a factor
(c) Diminishing returns to a factor (d) Negative returns to a factor

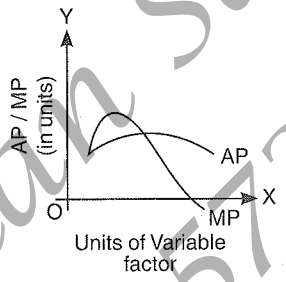
36. The total output generated by the first four units of variable input is 200 units, 350 units, 450 units and 500 units. The marginal product of the third unit of input is:

(a) 50 units (b) 100 units
(c) 150 units (d) 200 units

37. If TP of employing one unit of variable factor is 12 units and that of 2 units of variable factor is 16 units, the marginal product of 2 units of variable factor is:

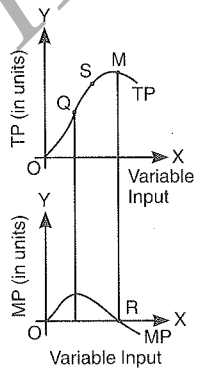
(a) 3 units (b) 4 units
(c) 8 units (d) 16 units

38. Which of the following is correct statement showing the relationship between AP and MP?



(a) When MP > AP, AP increases (b) When MP = AP, AP is constant
(c) When MP < AP, AP falls (d) All of these

39. 'Point of Inflexion' is represented by:



(a) Point M
(b) Point Q
(c) Point R
(d) Point S

40. When marginal product rises, total product: (Choose the correct alternative)
(a) Falls
(b) Rises
(c) Can rise or can fall
(d) Remains constant

41. The average product curve in the input-output plane, will be _____. (Choose the correct alternative)
(a) an 'S' shaped curve
(b) an inverse 'S' shaped curve
(c) a 'U' shaped curve
(d) an inverse 'U' shaped curve

Ans. **1.** (a), (c); **2.** (b); **3.** (d); **4.** (b); **5.** (a); **6.** (b), (c); **7.** (b); **8.** (a); **9.** (b), (d); **10.** (c); **11.** (a); **12.** (d); **13.** (b); **14.** (b); **15.** (c); **16.** (d); **17.** (c); **18.** (b); **19.** (c); **20.** (a); **21.** (a); **22.** (b), (d); **23.** (b); **24.** (d); **25.** (b); **26.** (b), (c); **27.** (i - c, ii - d, iii - b); **28.** (b); **29.** (a); **30.** (a), (b); **31.** (c); **32.** (a); **33.** (a); **34.** (a); **35.** (b); **36.** (b); **37.** (b); **38.** (d); **39.** (b); **40.** (b) ; **41.** (d)

COST

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. In Economics, cost is the sum total of _____ cost and _____ cost.
2. Minimum point of MC curve comes _____ the minimum points of AC and AVC curves.
3. TVC curve is _____ shaped.
4. _____ refer to those costs which do not vary directly with the level of output.
5. At zero level of output, total fixed cost is equal to _____ cost.
6. _____ refers to addition to total cost when one more unit of output is produced.
7. _____ refers to the functional relationship between cost and output.

8. When AC is more than MC, AC _____ with increase in the output.
9. _____ Cost is the cost of self supplied factors.
10. Both AVC and MC curves are U-shaped due to the _____.
11. _____ Cost is the payment made to outsiders for hiring factor services.
12. _____ is also known as Supplementary Cost.
13. Area under MC Curve is equal to _____.
14. Normal Profits earned by a firm are included in _____.
15. Salary of Permanent staff is an example of _____ cost.
16. Average variable cost curve is a _____ shaped curve.

Ans. ***1.*** *Explicit, Implicit,* ***2.*** *Before,* ***3.*** *Inversely S,* ***4.*** *Fixed Costs,* ***5.*** *Total,* ***6.*** *Marginal cost,* ***7.*** *Cost Function,* ***8.*** *Falls or Decreases,* ***9.*** *Implicit,* ***10.*** *Law of Variable Proportions,* ***11.*** *Explicit,* ***12.*** *Fixed Cost,* ***13.*** *TVC,* ***14.*** *Implicit Cost,* ***15.*** *Fixed,* ***16.*** *U.*

TRUE OR FALSE *with REASONS*

1. Average variable cost can fall even when marginal cost is rising.
   True, provided MC < AVC.
2. The difference between total cost and total variable cost falls with increase in output.
   False. The difference between total cost and total variable cost is total fixed cost, which remains same with increase in output.
3. Average cost can rise even when marginal cost is falling.
   False. Marginal cost pulls the average cost up or down. So, when marginal cost falls, average cost also falls.
4. If a machinery has no possible alternative use, its opportunity cost will be very high.
   False. The opportunity cost of such machinery will be zero.
5. Average variable cost falls when it is more than marginal cost.
   True. When average variable cost is more than marginal cost (or marginal cost curve is below average variable cost curve), average variable cost will fall.
6. The minimum point of average cost curve lies to the right of average variable cost curve?
   True. It happens because average cost continues to fall due to decreasing average fixed cost even after average variable cost starts rising.
7. Average cost and average variable cost curves coincide when average fixed cost is zero.
   False. Average cost and average variable cost cannot coincide as difference between them is average fixed cost, which can never be zero.
8. Total fixed cost remains same even if output is zero.
   True. Total fixed cost is incurred on fixed factors. The payment to such factors remains fixed even if output is zero.
9. Total fixed cost is more than total variable cost at zero level of output.
   True. Because total fixed cost exists even at zero level of output, whereas, total variable cost is zero at zero output.
10. Total fixed cost curve is a vertical straight line, parallel to Y-axis.
    False. TFC curve is a horizontal straight line parallel to the X-axis.
11. Total cost can be obtained as summation of marginal costs.
    False. Marginal cost does not include total fixed cost. So, summation of marginal cost indicates total variable cost and not total cost.

12. Total cost of production is the sum total of variable cost and marginal cost.
False. Total cost is the sum total of variable cost and fixed cost.

13. If 10 units cost ₹ 36 to produce and 12 units cost ₹ 50, then marginal cost is equal to ₹ 14.
False. $MC = \frac{\Delta TC}{\Delta Q} = \frac{TC_{12} - TC_{10}}{12 - 10} = \frac{50 - 36}{12 - 10} = \frac{14}{2} = ₹ 7$

14. Average variable cost curve is a U-shaped curve.
True. Average variable cost is a U-shaped curve as it initially falls, then remains constant for a while and finally starts increasing. It happens due to three phases of Law of Variable Proportions.

15. Marginal cost is not affected by total fixed cost.
True. As total fixed cost does not change with change in output, marginal cost is independent of total fixed cost and is affected only by change in total variable cost.

16. AFC curve is a rectangular hyperbola curve.
True. Since TFC remains unchanged/constant.

17. Both total cost and total fixed cost curves start from the same point.
True. Both the curves start from the Y-axis as both are same at zero level of output.

18. Marginal cost changes at a rate faster than average cost.
True. It happens because marginal cost is calculated on the basis of additional unit only, whereas, average cost is calculated on the basis of all the units.

19. When we consider costs in economics, we include explicit cost only.
False. Costs in economics include both explicit and implicit costs.

20. Average cost falls only when marginal cost falls.
False. Average cost (AC) can also fall when marginal cost (MC) rises, provided MC is less than AC.

21. Total cost can never be constant.
True. Total Cost can be constant only when Marginal Cost is zero, which is not possible.

22. Costs that have been already incurred are important factors in making production decisions.
False. Costs that are still to be incurred are important factors in making production decisions.

23. As output is increased, the difference between average total cost and average variable cost falls and ultimately becomes zero.
False. The difference between average total cost and average variable cost is average fixed cost, which never becomes zero as total fixed cost is never zero.

24. The marginal cost curve can intersect the average cost curve at any point.
False. Marginal cost curve can intersect average cost curve only at its minimum point.

25. The difference between average total cost and average variable cost decreases with decrease in the level of output.
False. The difference between average total cost (ATC) and average variable cost (AVC) is average fixed cost (AFC), which rises with decrease in output level.

26. Explicit cost includes opportunity cost of resources owned and used by the firm's owners.
False. It is the 'Implicit Cost' and not the explicit cost. Explicit cost is the actual payment made to outsiders for hiring their factor services.

27. When marginal cost rises, average cost also rises.
False. Average Cost rises only when Marginal Cost is greater than Average Cost.

28. MC is minimum at point where TC start increasing at an increasing rate.
False. MC is minimum when the rate of increase in TC stops diminishing.

29. As soon as marginal cost starts rising, average variable cost also starts rising.
False. AVC will rise only when MC > AVC, whether MC is rising or falling.

30. Average cost must exceed marginal cost at the point when average cost is minimum.
False. When average cost is minimum, it is equal to marginal cost.

31. Insurance premium on factory building paid to Oriental Insurance is a fixed cost.
True. Insurance premium is a fixed cost as same amount of premium has to be paid irrespective of level of output.

32. Average fixed cost curve touches the Y-axis because at zero output, average fixed cost is zero.
False. Average fixed cost can never touch the Y-axis because at zero output, it is infinite.

33. The MC curve may be rising or falling just before it becomes equal to AVC and ATC curves.
False. MC curve is always rising before it becomes equal to AVC and ATC curves.

34. All per unit cost curves (i.e. AC, AVC and AFC curves) are U-shaped.
False. AC and AVC curves are U-shaped, but AFC is a rectangular hyperbola.

35. With increase in level of output, average fixed cost goes on falling till it reaches zero.
False. $AFC = \frac{TFC}{Output}$. *TFC is contant and positive. So, with an increase in output AFC will fall but can never be zero.*

36. Total cost rises only when marginal cost rises.
False. Total cost rises at a diminishing rate when marginal cost falls and total cost rises at an increasing rate when marginal cost increases.

37. Average cost will rise only when marginal cost rises.
False. Rise in AC takes place when MC is greater than AC and not necessarily when MC rises.

38. The difference between average cost and average variable cost is always constant.
False. The difference between AC and AVC is due to AFC. As output is increased, AFC falls, so the difference between AC and AVC falls.

39. As output increases the difference between average cost and average variable cost decreases.
True. The difference between average cost and average variable cost is due to average fixed cost. As output increases, average fixed cost decreases. So, the difference between average cost and average variable cost decreases.

40. Average cost curve cuts Average variable cost curve at its minimum level.
False. Average Cost curve is the vertical summation of Average Variable Cost and Average Fixed Cost (AC = AFC + AVC). Since, Average Fixed Cost cannot be zero, the two curves would never touch each other.

41. Total cost curve and Total variable cost curve are parallel to each other.
True. The difference of the two is represented by Total Fixed Cost (TFC). TFC remains constant at all levels of output. It represents the vertical distance between the two curves making them parallel to each other.

MATCHING TYPE QUESTIONS

Q. 1. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Total Variable Cost	(i) Horizontal straight line parallel to the X-axis
(b) Average Fixed Cost	(ii) Rectangular Hyperbola
(c) Total Fixed Cost	(iii) Inversely S-shaped Curve
(d) Average Variable Cost	(iv) Inversely U-shaped Curve

Ans. (b) Average Fixed Cost – (ii) Rectangular Hyperbola.

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Marginal Cost	a. $TC_n - TC_{n+1}$
	b. $TC_n - TC_{n-1}$

Ans. (i) b.

Q. 3. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Total Variable Cost	a. It cannot be changed in the short run
(ii) Total Fixed Cost	b. It can be changed in the short run

Ans. (i) b; (ii) a.

Q. 4. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Explicit Cost	a. Supplementary Cost
(ii) Cost Function	b. $\frac{\Delta TC}{\Delta Q}$
(iii) MC	c. Wages paid to the employees
(iv) Fixed Cost	d. Functional relationship between cost and output

Ans. (i) c; (ii) d; (iii) b; (iv) a.

Q. 5. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Variable cost	a. Cost of self supplied factors.
(ii) TC	b. Rectangular Hyperbola
(iii) Implicit Cost	c. Horizontal straight line parallel to X-axis
(iv) AFC Curve	d. Prime Cost
(v) TFC Curve	e. AC × Q

Ans. (i) d; (ii) e; (iii) a; (iv) b; (v) c.

Q. 6. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) TFC	a. $TVC_n + TVC_{n-1}$
(ii) MC	b. TC – TVC
	c. TVC – TC
	d. TVC + TC
	e. $TVC_n - TVC_{n+1}$
	f. $TVC_n - TVC_{n-1}$

Ans. (i) b; (ii) f.

(MCQs) MULTIPLE CHOICE QUESTIONS *and* (MRQs) MULTIPLE RESPONSE QUESTIONS

In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. Identify the two cost curves which start from the same point on the Y-axis:
(a) TVC and TFC
(b) TFC and AVC
(c) TFC and TC
(d) TFC and AFC

2. "Salary of Permanent staff" is which type of cost?
(a) Variable and Implicit Cost
(b) Fixed and Implicit Cost
(c) Fixed and Explicit Cost
(d) Variable and Explicit Cost

3. The cost curve, which is inversely S-shaped is:
(a) Average Cost Curve
(b) Total Fixed Cost Curve
(c) Total Variable Cost Curve
(d) Marginal Cost Curve

4. Which curve is not affected by fixed cost?
(a) MC Curve
(b) TC Curve
(c) AC Curve
(d) AFC Curve

5. The cost schedule of a firm is given as:

Output (units)	1	2	3	4
Marginal Cost (₹)	70	60	62	72

In the given case, average variable cost at 3rd level of output will be:
(a) 70
(b) 66
(c) 65
(d) 64

6. Marginal cost refers to addition to the total cost when one more unit of output is _____:
(a) Wasted
(b) Produced
(c) Employed
(d) Sold

7. MC can be derived from:
(a) TC
(b) TVC
(c) AC
(d) AFC

8. Average fixed cost:
(a) Remain same at all levels of output
(b) Increase as output increases
(c) Decreases as output increases
(d) Refers to per unit fixed cost of production

9. All the curves except_____ are U shaped curves:
(a) Average Fixed Cost Curve
(b) Average Variable Cost Curve
(c) Average Cost Curve
(d) Marginal Cost Curve

10. Cost schedule is given as:

Output (in units)	6	5	4	3	2
Total Cost (₹)	120	75	55	45	40

In the given case, marginal cost at 4th level of output will be:
(a) 10
(b) 5
(c) 45
(d) 20

11. Area under MC Curve is equal to:
(a) TVC
(b) AFC
(c) AVC
(d) AC

12. Which formula is incorrect to determine the value of TC:

(a) TC = TVC + TFC
(b) TC = ΣMC
(c) TC = AVC × Output
(d) TC = ΣMC + TFC

13. The cost schedule of a firm, whose total fixed cost is ₹ 12, is given as:

Output (units)	1	2	3	4	5	6
Marginal Cost (₹)	9	7	2	4	8	12

In the given case, total cost at 2nd level of output will be:

(a) 16
(b) 28
(c) 9
(d) 7

14. Normal Profits earned by a firm are included in:

(a) Implicit cost
(b) Explicit cost
(c) Fixed cost
(d) Variable cost

15. The shape of total fixed cost curve is:

(a) U-shaped
(b) Downward sloping
(c) Inversely S- Shaped
(d) Horizontal straight line parallel to x-axis

16. Cost function is a _____ concept:

(a) Economical
(b) Functional
(c) Financial
(d) Technical

17. Nishant, Tavleen and Manas are confused with the formula for deriving TC:

- Nishant says: TC = TVC + TFC
- Tavleen says: TC = AC × Output
- Manas says: TC = ΣMC + TFC

Identify who amongst them is correct.

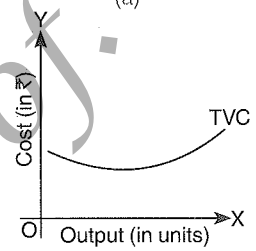
(a) Nishant
(b) Manas
(c) Tavleen
(d) All of them

18. TFC is ₹ 20 at 2nd unit of output and MC at 3rd unit is ₹ 5. TFC at 3rd unit of output will be:

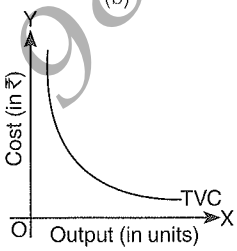
(a) ₹ 15
(b) ₹ 20
(c) ₹ 25
(d) ₹ 5

19. Which diagram correctly depicts total variable cost curve:

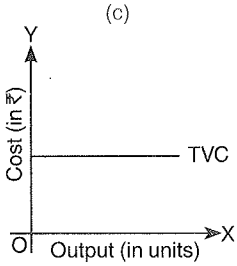
(a)



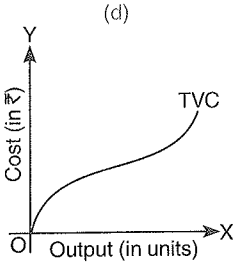
(b)



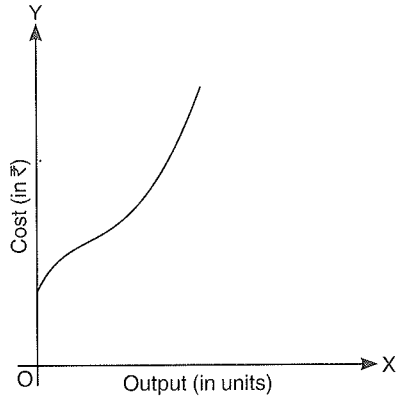
(c)



(d)



20. The curve in the following diagram is the most similar to a typical:



(a) Total Variable Cost Curve
(b) Marginal Cost Curve
(c) Total Cost Curve
(d) Average Variable Cost Curve

21. MC curve intersects AC curve at its _____ point and AVC curve at its _____ point.
(a) Maximum, Minimum
(b) Minimum, Minimum
(c) Minimum, Maximum
(d) Maximum, Maximum

22. AC, AVC and MC curves are 'U' shaped because of:
(a) Law of Diminishing Marginal Utility
(b) Law of Diminishing Returns
(c) Law of Variable Proportions
(d) None of these

23. Which two curves are intersected by MC curve at their minimum points:
(a) AC and AVC
(b) AVC and AFC
(c) AC and AFC
(d) AC and TVC

24. Minimum point of MC curve comes before the minimum point of:
(a) AC Curve
(b) AVC Curve
(c) Both (a) and (b)
(d) Neither (a) nor (b)

25. AVC can fall even when MC is rising, provided:
(a) MC < AVC
(b) MC > AVC
(c) MC = AVC
(d) None of these

26. Which condition is correct:
(a) AC can rise when MC is falling
(b) AC can fall when MC is rising
(c) AVC can fall when MC is rising
(d) AC can rise when MC is rising

27. Ishaan, Piyush and Bhavya are three friends talking about the relationship between marginal cost (MC) and average cost (AC).
- Ishaan says, "MC curve intersects AC curve from above".
- Bhavya says, "MC curve does not intersect AC curve at all".
- Piyush says, "MC curve intersects AC curve from below".

Out of the three, who is correct?
(a) Piyush
(b) Ishaan
(c) Bhavya
(d) All of them

28. Which one of the following is also known as fixed cost?
(a) Supplementary Cost
(b) Prime Cost
(c) Indirect Cost
(d) Avoidable Cost

29. The cost which is never zero even when production is stopped is known as:
(a) Supplementary Cost
(b) Prime Cost

(c) Explicit cost (d) Implicit cost

30. AC is obtained by dividing TC by the level of:
(a) Labour employed (b) Output produced
(c) Units consumed (d) Output sold

31. When change in total cost is divided by change in output, we get:
(a) Average cost (b) Total variable cost
(c) Marginal cost (d) Average variable cost

32. Which of the following cost curves is rectangular hyperbola?
(a) Average cost curve (b) Marginal cost curve
(c) Average variable cost curve (d) Average fixed cost curve

33. When AC is rising MC is:
(a) Equal to AC (b) More than AC
(c) Less than AC (d) Constant

34. Minimum point of AC occurs to the right of minimum point of:
(a) TC (b) TVC
(c) AFC (d) AVC

35. MC curve is common to both:
(a) AFC and TFC (b) AC and AVC
(c) AVC and AFC (d) AC and AFC

36. In the short run, total cost curve starts from:
(a) Origin (b) Positive vertical intercept
(c) Positive horizontal intercept (d) None of these

37. Identify the correct mathematical expression.
(a) TC = TFC – TVC (b) TVC = TFC – TC
(c) TFC = TC – TVC (d) TC = ΣMC + TFC

38. AFC curve:
(a) Touches the X-axis (b) Touches the Y-axis
(c) Touches both X-axis and Y-axis (d) Does not touch either of the axes

39. As output arises:
(a) AVC curve and AC curve move away from each other
(b) AVC curve and AC curve come closer and closer to each other
(c) AVC curve and AC curve meet after sometime
(d) AVC curve and AC curve come closer and closer to each other, but do not meet

40. A firm producing 6 units of output has average total cost of ₹ 150 and has to pay ₹ 240 to its fixed factors of production. In the given case, average variable cost at 6 units of output will be:
(a) ₹ 150 (b) ₹ 900
(c) ₹ 110 (d) ₹ 1,440

41. Which cost increases continuously with increase in production?
(a) Average cost (b) Marginal cost
(c) Variable cost (d) Fixed cost

42. Which of the following is true with respect to relationship between AC and MC?
(a) When MC > AC, AC rises
(b) AC curve intersects MC curve at minimum MC
(c) MC curve intersects AC curve at minimum AC
(d) When MC < AC, ATC rises

43. A firm has a variable cost of ₹ 1,000 at five units of output. If fixed costs are ₹ 400, what will be the average total cost at five units of output?
(a) ₹ 280 (b) ₹ 80

(c) ₹ 200 (d) ₹ 1400

44. Which of the following is a variable cost for a firm?
(a) Payment for raw material (b) Monthly rent
(c) Insurance premium (d) Wages to employees

45. A firm's average fixed cost (AFC) is ₹ 20 at six units of output. What will be AFC at four units of output?
(a) ₹ 20 (b) ₹ 30
(c) ₹ 40 (d) ₹ 50

46. Which of the following statements is true?
(a) ATC = AFC + AVC (b) AVC = AFC + ATC
(c) AFC = ATC + AVC (d) AFC = ATC – AVC

47. _____ cost refers to actual payment made by the entrepreneur to the providers of factor services.
(a) Explicit (b) Implicit
(c) Variable (d) Fixed

48. The distinction drawn between fixed and variable costs is based on:
(a) Whether the costs can or cannot be changed during the life of the plant
(b) Whether the costs do or do not vary with the output produced in the long run
(c) Whether the costs do not enter the calculation of total costs
(d) Whether the costs do or do not vary with the output produced in the short run

49. Which of the following is an example of "Implicit cost"?
(a) Interest that could have been earned on retained earnings used by the firm to finance expansion
(b) Payment of Rent by the Firm
(c) Imputed rent of shop owned by the owner
(d) Interest Payment made by the Firm for funds borrowed from a Bank

50. If a resource can be put only to a particular use, then opportunity cost is:
(a) Applicable and quantifiable (b) Applicable but not quantifiable
(c) Not applicable at all (d) None of these

51. If a Firm produces zero output in the short period, then:
(a) Total Cost will be zero (b) Variable Cost will be positive
(c) Fixed Cost will be positive (d) Marginal Cost will be positive

52. With which of the following, the concept of marginal cost is closely related?
(a) Variable Cost (b) Fixed Cost
(c) Opportunity Cost (d) Implicit cost

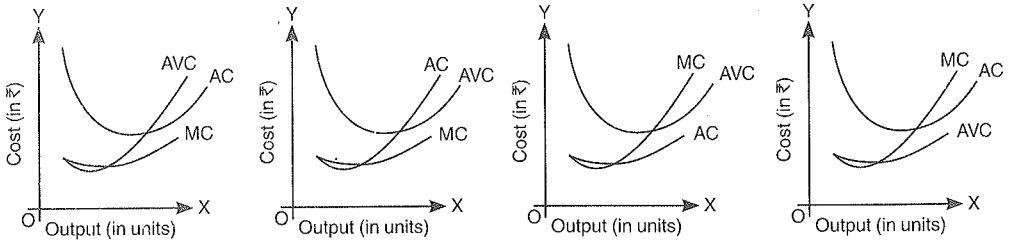
53. Initially, even when there is an increase in AVC, AC may still decline because:
(a) Fall in AFC < Rise in AVC (b) Fall in AFC > Rise in AVC
(c) Fall in AFC = Rise in AVC (d) None of these

54. MC Curve cuts the AVC and ATC Curves:
(a) From above (b) From below
(c) Either (a) or (b) (d) Neither (a) nor (b)

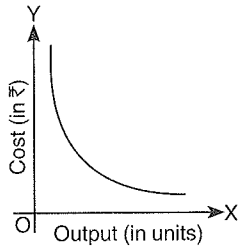
55. The total cost at 5 units of output is ₹ 30. The fixed cost is ₹ 5. The average variable cost at 5 units of output is:
(a) ₹ 25 (b) ₹ 6
(c) ₹ 5 (d) ₹ 1

56. The average fixed cost at 4 units of output is ₹ 20. Average variable cost at 5 units of output is ₹ 40. Average cost of producing 5 units is: (Choose the correct alternative)
(a) ₹ 20 (b) ₹ 40
(c) ₹ 56 (d) ₹ 60

57. The relationship between AC, AVC and MC is rightly shown by:

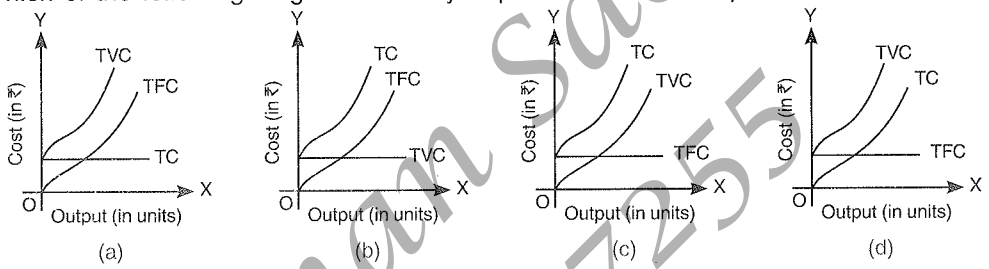


58. Identify the following curve:

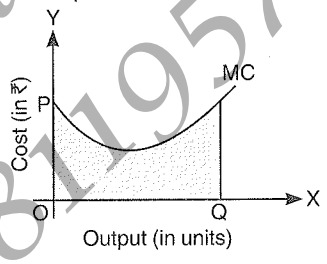


(a) Average Variable Cost Curve
(b) Total Variable Cost Curve
(c) Average Fixed Cost Curve
(d) Average Cost Curve

59. Which of the following diagram correctly depicts the relationship between TC, TFC and TVC?

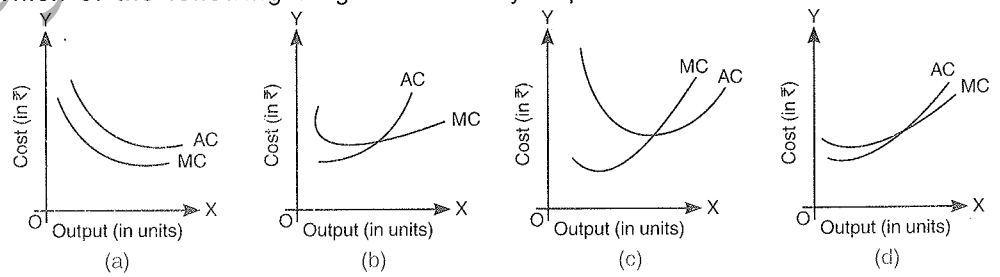


60. The area under the following curve is equal to:



(a) Total Cost
(b) Average Cost
(c) Average Variable Cost
(d) Total Variable Cost

61. Which of the following diagram correctly depicts the relation between AC and MC?



62. When AC > MC, then MC can:
(a) Fall (b) Rise
(c) Both (a) and (b) (d) None of these

63. Out of the following costs, which cost can never be zero:
(a) AFC (b) AVC
(c) TVC (d) None of these

64. If a firm's production department data says that the TVC for producing 8 units and 10 units of output is ₹ 2,500 and ₹ 3,000 respectively, marginal cost of 10^{th} unit will be:
(a) ₹ 100 (b) ₹ 150
(c) ₹ 500 (d) ₹ 250

65. When average cost falls, marginal cost: (Choose the correct alternative)
(a) Falls (b) Rises
(c) May fall or may rise (d) Neither falls nor rises

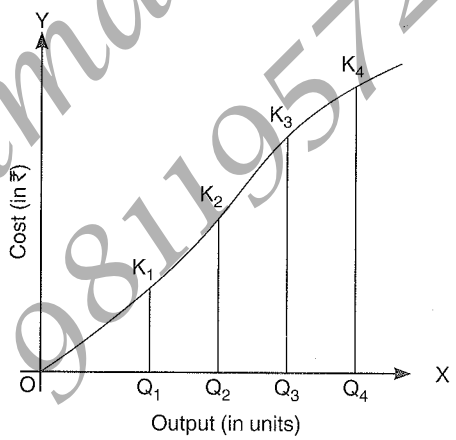
66. Average fixed cost curve _____, (Choose the correct alternative)
(a) is a straight line parallel to X-axis (b) is straight line parallel to Y-axis
(c) falls, as more units are produced (d) rises, as more units are produced

67. Which of the following formula is correct for calculating marginal cost? (Choose the correct alternative)
(a) $MC_n = TFC_n - TFC_{n-1}$ (b) $MC_n = AC_n - AC_{n-1}$
(c) $MC_n = AVC_n - AVC_{n-1}$ (d) $MC_n = TC_n - TC_{n-1}$

68. Which of the following is an example of implicit cost? (Choose the correct alternative)
(a) Wages paid (b) Cost of Raw material
(c) Interest on owner's capital (d) None of the above

69. When AC is decreasing, then status of MC in comparison to AC is:
(a) MC > AC (b) MC = AC
(c) MC < AC (d) None of these

70. The following figure shows:



(a) Total Cost (b) Total Variable Cost
(c) Total Fixed Cost (d) Marginal Cost

Ans. **1.** (c); **2.** (c); **3.** (c); **4.** (a); **5.** (d); **6.** (b); **7.** (a), (b); **8.** (c), (d); **9.** (a); **10.** (a); **11.** (a); **12.** (b), (c); **13.** (b); **14.** (a); **15.** (d); **16.** (b); **17.** (d); **18.** (b); **19.** (d); **20.** (c); **21.** (b); **22.** (c); **23.** (a); **24.** (c); **25.** (a); **26.** (b), (c), (d); **27.** (a); **28.** (a), (c); **29.** (a); **30.** (b); **31.** (c); **32.** (d); **33.** (b); **34.** (d); **35.** (b); **36.** (b);

37. (c), (d); **38.** (d); **39.** (d); **40.** (c); **41.** (c); **42.** (a), (c); **43.** (a); **44.** (a), (d); **45.** (b); **46.** (a), (d); **47.** (a); **48.** (d); **49.** (a), (c); **50.** (c); **51.** (c); **52.** (a); **53.** (b); **54.** (b); **55.** (c); **56.** (c); **57.** (d); **58.** (c); **59.** (c); **60.** (d); **61.** (c); **62.** (c); **63** (a); **64** (d); **65** (c); **66** (c); **67** (d); **68.** (c); **69** (c); **70.** (b).

— Notes —

REVENUE

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. As long as MR is positive, TR _____.
2. _____ is defined as the revenue per unit of output sold.
3. Total revenue curve always starts from the _____.
4. AR increases as long as MR is _____ than AR.
5. If total revenue is ₹ 30,000 when 12,000 units are sold, then average revenue is equal to _____.
6. When MR is _____, TR is at its maximum point.
7. _____ is the additional revenue generated from the sale of an additional unit of output.
8. If a seller gets ₹ 6,000 by selling 50 units and ₹ 7,500 by selling 65 units, his Marginal Revenue is _____.
9. When MR becomes _____, TR starts falling.
10. When total revenue is constant, average revenue _____.

Ans. 1. Increases, 2. Average Revenue, 3. Origin, 4. More or Higher, 5. ₹ 2.50, 6. Zero, 7. Marginal Revenue, 8. ₹ 100, 9. Negative, 10. Falls or Decreases.

TRUE OR FALSE *with REASONS*

1. Average revenue and marginal revenue curves slope downwards when more output can be sold by reducing the prices.
   True. Average revenue (AR or price) falls with increase in sale and revenue from every additional unit (i.e. MR) is less than AR. As a result, both AR and MR curves slope downwards from left to right.
2. AR and price are one and the same thing.
   True. $AR = \frac{TR}{Quantity} = \frac{Quantity \times Price}{Quantity} = Price.$
3. In case of constant prices, average revenue is more than marginal revenue.
   False. Average revenue is equal to marginal revenue in case of constant prices.
4. Average revenue can become negative when price falls with rise in output.
   False. Average revenue cannot be negative as total revenue can never be negative.
5. Total revenue curve is a positively sloped straight line when price remains same at all levels of output.
   True. It happens because in case of constant prices, total revenue increases at a constant rate.
6. Marginal Revenue can never be negative.
   False. When a firm sell more only by lowering the price, it is possible that marginal revenue becomes negative after a level of output.
7. Total revenue curve always starts from the origin.
   True. Total revenue curve starts from the origin as it is zero at zero level of output.
8. Marginal revenue is zero when every additional unit is sold at the same price.
   False. In such case, marginal revenue = average revenue (or price).
9. Total revenue can be obtained by adding up revenue generated from every additional unit.
   True. $TR = MR_1 + MR_2 + ... + MR_n = \Sigma MR$
10. Total revenue is at its maximum point when marginal revenue is zero.
    True. Total revenue rises as long as marginal revenue is positive and reaches its maximum point when marginal revenue is zero.
11. When marginal revenue is positive and constant, average and total revenue will both increase at constant rate.
    False. Only total revenue will increase at constant rate, whereas, average revenue will be constant.
12. When total revenue is constant average revenue will also be constant.
    False. When total revenue is constant, average revenue will fall.
13. When marginal revenue falls to zero, average revenue becomes maximum.
    False, as when MR falls to zero TR becomes constant and so AR will fall as, $AR = \frac{TR}{Output}$.
14. When marginal revenue is zero, average revenue will be constant.
    False. Marginal revenue is zero when total revenue is constant and when total revenue is constant, average revenue falls.
15. Marginal revenue is always the price at which last unit of a commodity is sold.
    False. It is possible only when price is constant at all levels of output. If price falls with rise in output, then marginal revenue is less than the price (or average revenue).
16. When total revenue is maximum, marginal revenue is also maximum.

False. When total revenue is maximum, marginal revenue is zero.

17. TR starts declining when MR is less than zero.

True. When every additional unit generates negative revenue, i.e. when MR is negative or less than zero, TR starts declining.

18. AR curve always remain above MR curve.

False. AR curve remains above MR curve only when price falls with rise in output. If price remains same, then both AR and MR curves coincide in a horizontal straight line parallel to the X-axis.

19. When marginal revenue is constant and not equal to zero, then total revenue will also be constant.

False. When MR is constant and not equal to zero, it may be positive or negative. TR increases when MR is positive and decreases when it is negative.

20. When total revenue is constant, average revenue falls.

True. $AR = \frac{TR}{Output}$. *When TR is constant, AR falls with rise in output.*

21. Total Revenue increases with every increase in output.

False. When a firm sell more only by lowering the price, it is possible that total revenue falls after a level of output.

22. Marginal Revenue can never be zero.

False. Marginal Revenue can be zero at a level of output in a market when a firm can sell more only by lowering price.

23. When MR is falling but positive, TR will also be falling and positive.

False. When MR is falling but positive, TR will be rising.

24. Under all market conditions, Average revenue and Marginal revenue are equal to each other.

False. This condition is obtained in perfect competition only when price remains constant.

25. MR represents the slope of TR Curve.

True. Slope of TR Curve is represented by Marginal Revenue (MR) as $MR = \frac{\Delta TR}{\Delta Q}$

MATCHING TYPE QUESTIONS

Q. 1. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Total Revenue	(i) Quantity × Cost Price
(b) Average Revenue	(ii) $TR_n - TR_{n-1}$
(c) Marginal Revenue	(iii) $\frac{\text{Change in Total Revenue}}{\text{Change in Number of Units}}$

Ans. (c) Marginal Revenue – (iii) $\frac{Change\ in\ Total\ Revenue}{Change\ in\ Number\ of\ Units}$

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Marginal Revenue	a. Revenue per unit of output sold
	b. Additional revenue from sale of an additional unit of output

Ans. (i) b.

Q. 3. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Monopoly	a. AR and MR curves are more elastic
(ii) Monopolistic Competition	b. AR and MR curves are less elastic

Ans. (i) b; (ii) a.

Q. 4. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Average Revenue	a. When price remains constant
(ii) MR = 0	b. Quantity × Price
(iii) Marginal Revenue	c. When price falls with rise in output
(iv) MR < AR	d. $\frac{\Delta TR}{\Delta Q}$
(v) Total Revenue	e. Price
(vi) AR = MR	f. TR is maximum

Ans. (i) e; (ii) f; (iii) d; (iv) c; (v) b; (vi) a.

(MCQs) MULTIPLE CHOICE QUESTIONS *and* (MRQs) MULTIPLE RESPONSE QUESTIONS

In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. If average revenue curve is a horizontal straight line, then marginal revenue curve will be:
(a) Downward sloping
(b) Horizontal straight line
(c) Upward Sloping
(d) Inversely S-shaped

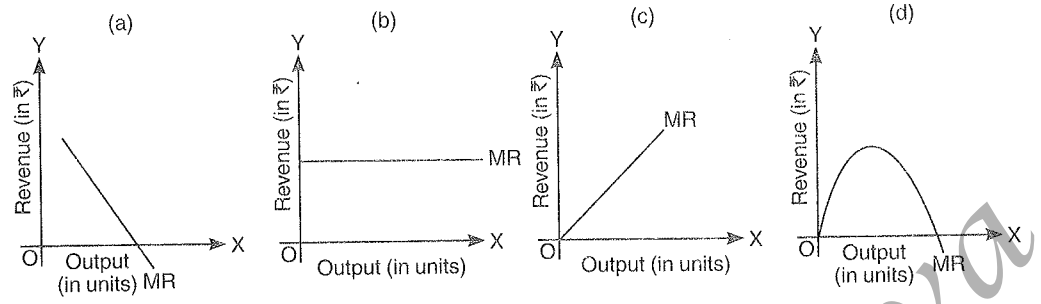
2. AR curve is downward sloping:
(a) When price falls with rise in output
(b) When price initially rises at an increasing rate, then at a diminishing rate
(c) When price remains same at all levels of output
(d) In case of Imperfect Competition

3. When MR remains same, TR increases at a:
(a) Constant rate
(b) Decreasing rate
(c) Increasing rate
(d) None of these

4. When price remains same with rise in output, AR curve:
(a) Is vertical straight line parallel to Y-axis
(b) Is horizontal straight line parallel to X-axis
(c) Is downward sloping
(d) Coincide with MR curve

5. When price falls with rise in output, TR is _____ when MR is zero.
(a) Maximum
(b) Minimum
(c) Zero
(d) None of these

6. Identify the correct MR curve from the following options when price remains same with rise in output:



7. When price falls with rise in output, then:
   (a) MR curve is steeper than AR curve
   (b) AR curve is steeper than MR curve
   (c) MR and AR curves coincide in a horizontal straight line parallel to the X-axis
   (d) MR curve lies below AR curve

8. (i) TR = ∑MR; and (ii) TC = ∑MC. Tick the correct option
   (a) Both (i) and (ii) are correct
   (b) Only (ii) is correct
   (c) Only (i) is correct
   (d) Both are incorrect

9. A balloon seller has decided that he will sell all his balloons at a fixed price of ₹ 10 each. In such a case, TR curve will be:
   (a) Horizontal straight line parallel to the X-axis
   (b) Vertical straight line parallel to the Y-axis
   (c) Positively sloped straight line passing from the origin
   (d) Downward sloping straight line

10. What happens to TR when MR is positive?
   (a) TR increases
   (b) TR decreases
   (c) TR is Maximum
   (d) TR remains same

11. When total revenue is constant, what will be the effect on average revenue?
   (a) AR will fall
   (b) AR will increase
   (c) AR will also be constant
   (d) No effect on AR

12. If TR curve is a horizontal straight line parallel to the X-axis, then MR curve will:
   (a) Coincide with X-axis
   (b) Slope downwards
   (c) Slope upwards
   (d) horizontal straight line parallel to the X-axis

13. When the rate of fall in MR is more than fall in AR:
   (a) Price increases with increase in output
   (b) Price decreases with increase in output
   (c) Price remains constant with increase in output
   (d) None of these

14. If a firm's total revenue curve takes the form of a straight line which passes through the origin, then:
   (a) Price > Marginal Revenue
   (b) Price = Marginal Revenue
   (c) Price < Marginal Revenue
   (d) None of these

15. At any given level of a firm's output, marginal revenue is the revenue earned by selling:
   (a) Entire output
   (b) Additional unit of output
   (c) Both (a) and (b)
   (d) Neither (a) nor (b)

16. Marginal revenue refers to:
   (a) Addition to total revenue when one more unit of output is produced
   (b) Addition to total revenue when one more unit of output is sold

(c) Addition to total revenue when one more unit of variable factor is employed

(d) Change in total revenue with sale of one more unit

17. At a price of ₹ 20, 15 units are sold and at price of ₹ 19, 16 units are sold. Based on this information, what is the marginal revenue resulting from an increase in output from 15 units to 16 units?

(a) ₹ 6 (b) ₹ 4

(c) ₹ 5 (d) ₹ 300

18. If TR = Total Revenue and Q = Quantity sold, then TR ÷ Q refers to:

(a) Zero Revenue (b) Average Revenue

(c) Marginal Revenue (d) None of these

19. If total revenue is ₹ 1,00,000 when 20,000 units are sold, then average revenue is equal to:

(a) ₹ 1,00,000 (b) ₹ 20,000

(c) ₹ 5 (d) ₹ 1,20,000

20. If a seller gets ₹ 10,000 by selling 100 units and ₹ 14,000 by selling 120 units, his Marginal Revenue is:

(a) ₹ 4,000 (b) ₹ 450

(c) ₹ 200 (d) ₹ 100

21. When price falls with rise in output, then as quantity sold increases:

(a) MR falls quickly than AR (b) MR falls slowly than AR

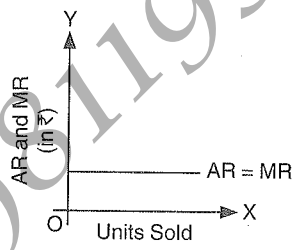
(c) Both MR and AR fall at the same rate (d) Both MR and AR slope downwards

22. When 5 units of a good is sold, total revenue is ₹ 100. When 6 units are sold, marginal revenue is ₹ 8. At what price are 6 units sold? (Choose the correct alternative)

(a) ₹ 28 per unit (b) ₹ 20 per unit

(c) ₹ 18 per unit (d) ₹ 12 per unit

23. The relationship between AR and MR depicted in the following diagram is possible when:



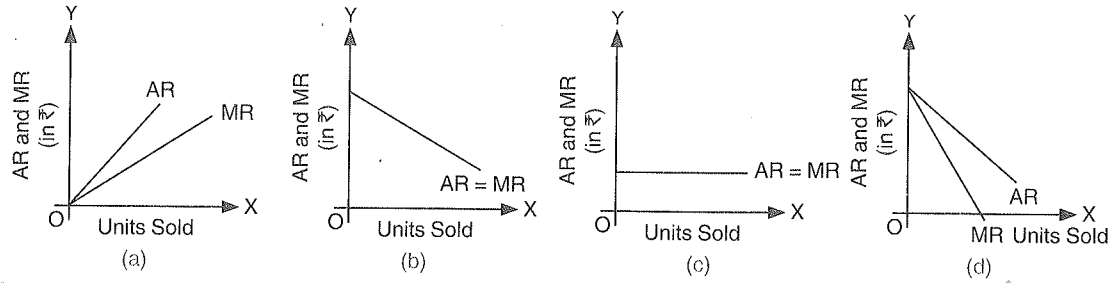
(a) Price remains constant with rise in output

(b) Price falls with rise in output

(c) Price initially falls and then remains constant with rise in output

(d) None of these

24. Which of the following diagram correctly depicts the relation between AR and MR when price falls with rise in output?



25. Suppose total revenue is rising at a constant rate as more and more units of a commodity are sold, marginal revenue would be:
(a) Greater than Average Revenue
(b) Equal to Average Revenue
(c) Less than Average Revenue
(d) Rising

26. A firm is able to sell any quantity of a good at a given price. The firm's marginal revenue will be:
(a) Greater than Average Revenue
(b) Less than Average Revenue
(c) Equal to Average Revenue
(d) Zero

27. A firm is able to sell more quantity of a good only by lowering the price. The firm's marginal revenue, as he goes on selling, would be:
(a) Greater than Average Revenue
(b) Less than Average Revenue
(c) Equal to Average Revenue
(d) Zero

28. Average revenue equals: (Choose the correct alternative)
(a) Total revenue divided by the quantity produced
(b) Price
(c) Both (a) and (b)
(d) None of the above

29. Let TR be total revenue, Q be quantity of output, and 'n' the number of units, then marginal revenue equals: (choose the correct alternative)
(a) $TR_n - TR_{n-1}$, only
(b) $\frac{\text{Change in TR}}{\text{Change in Q}}$ only
(c) Both (a) and (b)
(d) None of the above

30. The Total Revenue earned by selling 20 units is ₹ 700. Marginal Revenue earned by selling 21st unit is ₹ 70. The value of Total Revenue earned by selling total 21 units will be _____. (Choose the correct alternative)
(a) ₹ 721
(b) ₹ 630
(c) ₹ 770
(d) ₹ 720

31. If the Marginal Revenue curve is parallel to the X-axis, the price of the commodity would be _____. (Choose the correct alternative)
(a) Equal to Marginal Revenue
(b) More than Marginal Revenue
(c) Zero
(d) Less than Marginal Revenue

32. Which of the following is a true statement?
(a) AR indicates Price
(b) AR Curve and Demand Curve are the same
(c) TR is maximum when MR = 0
(d) All of the above

33. The product of 'quantity' and 'AR' at every unit sold is the firm's:
(a) TR
(b) TVC
(c) MR
(d) None of these

Ans. **1.** (b); **2.** (a), (d); **3.** (a); **4.** (b), (d); **5.** (a); **6.** (b); **7.** (a), (d); **8.** (c); **9.** (c); **10.** (a); **11.** (a); **12.** (a); **13.** (b); **14.** (b); **15.** (b); **16.** (b), (d); **17.** (b); **18.** (b); **19.** (c); **20.** (c); **21.** (a), (d); **22.** (c); **23.** (a); **24.** (d); **25.** (b); **26.** (c); **27.** (b); **28.** (c); **29.** (c); **30.** (c); **31.** (a); **32.** (d); **33.** (a)

— Notes —

PRODUCER'S EQUILIBRIUM

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. Profit refers to the excess of _____ over _____.
2. Producer's Equilibrium refers to that price and output combination which brings _____ profit to the producer and profit _____ as more is produced.
3. "For a firm to be in equilibrium, Marginal Revenue (MR) and Marginal Cost (MC) must be _____ and beyond that level of output Marginal Cost must be _____."
4. The state of Producer's equilibrium either reflects _____ profits or _____ losses.
5. When MC is greater than MR after equilibrium, it means producing more will lead to _____ in profits.
6. If MC is more than MR at a particular level of output, then producer will _____ the production to maximise the profits.

Ans. 1. Revenue, Cost, 2. Maximum, Declines or Falls or Decreases, 3. Equal, Rising, 4. Maximum, Minimum, 5. Decline or Fall or Decrease, 6. Reduce or Decrease.

TRUE OR FALSE with REASONS

1. At the state of producer's equilibrium, marginal cost of the firm should be rising.
   True. If marginal cost (MC) is falling, then it is possible to increase profits by producing more. So, MC should be rising at the state of producer's equilibrium.
2. To maximize the profits of a firm, the only condition needed is equality between marginal cost and marginal revenue.
   False. Profits are maximized when two conditions are satisfied: (i) Marginal cost (MC) is equal to marginal revenue (MR); and (ii) MC curve cuts the MR curve from below.
3. If marginal cost is equal to marginal revenue at two output levels, then any one of the output level can be taken as state of producer's equilibrium.
   False. Only that output level is the state of producer's equilibrium when marginal cost becomes greater than marginal revenue after the equilibrium.
4. Excess of marginal revenue over marginal cost is always better than equality between the two in order to achieve the equilibrium for a producer.
   False. Producer will not be at equilibrium when marginal revenue (MR) is more than marginal cost (MC) as it will be possible to increase profits by producing more. So, equality between MR and MC is a better situation.

MATCHING TYPE QUESTIONS

Q. 1. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) When Price remains Constant	a. Price > MC at the equilibrium level
(ii) When Price falls with rise in output	b. Price = MC at the equilibrium level

Ans. (i) b; (ii) a.

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Profit	a. MC = MR and MC is greater than MR after MC = MR output level
(ii) When price remains constant	b. When Price Falls with rise in output
(iii) At Producer's Equilibrium	c. Excess of receipts from the sale of goods over the expenditure incurred on producing them
(iv) Price is more than MC at the equilibrium level	d. Price is equal to MC at the equilibrium level

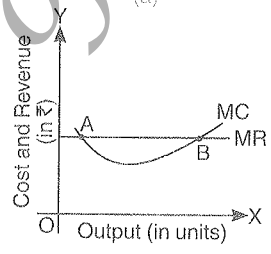
Ans. (i) c; (ii) d; (iii) a; (iv) b.

(MCQs) MULTIPLE CHOICE QUESTIONS *and* (MRQs) MULTIPLE RESPONSE QUESTIONS

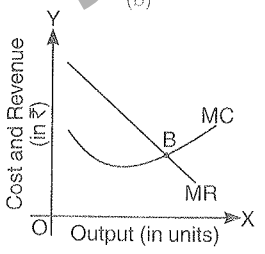
In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. Producer's Equilibrium under MR-MC approach is achieved when:
   (a) MR = MC
   (b) MC > MR after the equality between MR and MC
   (c) Either (a) or (b)
   (d) Both (a) and (b)
2. _____ refers to a situation when a firm has no intention to expand or contract the output.
   (a) Producer's Equilibrium
   (b) Market Equilibrium
   (c) Consumer's Equilibrium
   (d) None of these
3. Excess of receipts from sale of goods over expenditure incurred on producing them is termed as:
   (a) Average Revenue
   (b) Revenue
   (c) Profits
   (d) Marginal Revenue
4. Producer is not at equilibrium when MC > MR because:
   (a) Profits can be increased by producing more
   (b) Benefit is less than cost
   (c) Both (a) and (b)
   (d) None of these
5. The following diagram correctly depicts the producer's equilibrium in case of constant prices:

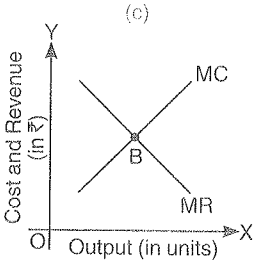
(a)



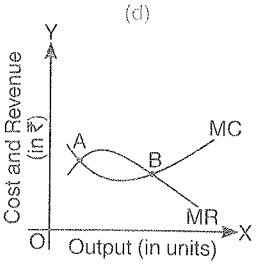
(b)



(c)



(d)



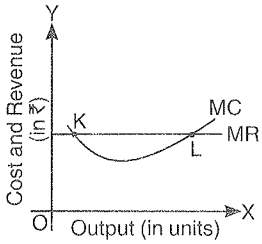
6. In the following schedule, producer's equilibrium is at _____.

Output (Units)	1	2	3	4	5
MR (₹)	10	10	10	10	10
MC (₹)	12	10	8	10	15

(a) 2 units (b) 4 units
(c) 3 Units (d) 5 units

7. If MR is more than MC at a particular level of output, then producer will:
(a) Reduce production (b) Increase production
(c) Keep the production at current level (d) None of these

8. In the following diagram, producer's equilibrium is achieved at point _____:



(a) K (b) L
(c) Both (a) and (b) (d) Neither (a) nor (b)

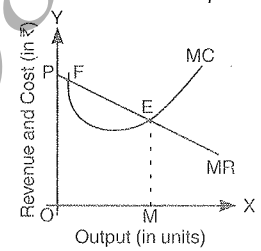
9. Producer's equilibrium refers to stage of that output level when:
(a) Firm earns maximum profits
(b) Firm bears minimum losses
(c) Firm has inclination to expand or contract the output
(d) All of these

10. In case of perfect competition, a firm is in equilibrium when:
(a) MC = MR (b) MC cuts MR from below
(c) MC is rising when it cuts MR (d) All of these

11. The profits of a firm diminishes when _____ exceeds _____:
(a) Marginal Revenue, Marginal Cost (b) Marginal Cost, Marginal Revenue
(c) Marginal Revenue, Average Cost (d) Average Revenue, Average Cost

12. If Marginal Cost = MC and Marginal Revenue = MR, then for achieving equilibrium output:
(a) MC Curve should cut MR Curve from above (b) MC Curve should cut MR Curve from below
(c) MC Curve should not cut MR Curve at all (d) MC Curve should be tangent to MR Curve

13. When price falls with rise in output, then Producer's Equilibrium is achieved at:



(a) Point E (b) Point F
(c) Both (a) and (b) (d) Neither (a) nor (b)

Ans. 1. (d); 2. (a); 3. (c); 4. (b); 5. (a); 6. (b); 7. (b); 8. (b); 9. (a), (b); 10. (d); 11. (b); 12. (b); 13. (a)

— Notes —

SUPPLY

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. Supply relates to a _____ of time, while stock relates to a particular _____ of time.
2. _____ refers to a graphical representation of supply schedule.
3. Law of supply states the _____ relationship between price and quantity supplied, _____.
4. Slope of Supply Curve = $\frac{\text{Change in Price } (\Delta P)}{?}$.
5. Fall in productivity of rice due to a cyclone will lead to _____ the supply curve of rice.
6. All the supply curves, which pass through the origin are _____ elastic.
7. In case of zero elastic supply, supply curve is a _____ straight line.
8. Style Ltd. produces both Trousers and Shirts. An increase in the price of Trousers will lead to a _____ shift in the supply curve of shirts.
9. If quantity supplied increases by 75% due to a 50% increase in price, then elasticity of Supply is _____.
10. A cost saving technology shifts the supply curve of a commodity towards _____.
11. The supply function of a product X is given as: Sx = 4Px + 2, where Px stands for price. The firm will be willing to supply 22 pieces in the market at a price of _____.
12. Individual supply curves are _____ as compared to market supply curve.

13. The supply function of a product X is given as: Sx = 9Px + 2, where Px stands for price. The supply at price of ₹ 4 will be _____ units.
14. A supply curve forms an angel of 45° at the origin. Its price elasticity of supply will be equal to _____.
15. If quantity supplied does not change at all as price changes, then price elasticity of supply is _____.
16. With decrease in GST from 28% to 18%, the tax liability of the producers have decreased. As a result, supply curve of the good will _____ towards _____.
17. When price of a commodity becomes twice the original price, the quantity supplied increased by an amount equal to 3 times of original quantity supplied. The coefficient of price elasticity of supply will be _____.
18. When percentage change in the quantity supplied is more than percentage change in price, then demand for such a commodity is said to be _____.
19. When two supply curves intersect each other, then the _____ curve is more elastic at the point of intersection.
20. A positive sign with coefficient of price elasticity of supply denotes _____ relation between price and quantity supplied.
21. A 5% rise in the price of X leads to a 20% rise in its supply. In case of Good Y, a 3% rise in price leads to a 9% rise in its supply. In the given case, commodity _____ is more elastic.
22. Elasticity of Supply = $\frac{\text{Percentage Change in Supply}}{?}$.

Ans. ***1.*** *Period, Point,* ***2.*** *Supply Curve,* ***3.*** *Direct, Keeping other factors constant or Ceteris Paribus,* ***4.*** *Change in Quantity (ΔQ),* ***5.*** *Leftward shift in,* ***6.*** *Unitary,* ***7.*** *Vertical,* ***8.*** *Leftward,* ***9.*** *1.5,* ***10.*** *Right,* ***11.*** *₹ 5,* ***12.*** *Steeper,* ***13.*** *38,* ***14.*** *One,* ***15.*** *Zero,* ***16.*** *Shift, Right,* ***17.*** *3,* ***18.*** *Highly Elastic or Elastic,* ***19.*** *Flatter,* ***20.*** *Direct,* ***21.*** *X,* ***22.*** *Percentage Change in Price.*

TRUE OR FALSE with REASONS

1. Contraction of supply occurs due to change in factors other than price of the given commodity.
   False. Contraction of supply occurs due to fall in price of the given commodity, assuming no change in other factors.
2. Supply is always unitary elastic for all supply curves starting from the origin.
   True. Any supply curve, which passes through the origin, has unitary elastic supply (irrespective of the angle it makes with the origin).
3. A producer changes supply of a commodity only when there is change in price of the given commodity.
   False. Producer will also change the supply if there is change in other factors, like change in price of factors of production, change in state of technology, change in taxation policy, etc.
4. In case of zero elastic supply, supply curve is a horizontal straight line.
   False. In case of zero elastic supply, supply curve is a vertical straight line parallel to the Y-axis.
5. Fall in productivity of wheat due to a cyclone will lead to a downward movement along the same supply curve of wheat.
   False. It will lead to a leftward shift in supply curve of wheat as fall in productivity will decrease its supply at the same price.
6. Law of Supply does not indicate the magnitude of change in quantity supplied of a commodity due to change in its price.

True. Law of Supply is a qualitative statement. It indicates the direction of change in quantity supplied and not the magnitude of change.

7. A cost saving technology shifts the supply curve of a commodity towards left.
False. Cost saving technology will raise the profit margin and will shift the supply curve of the commodity towards right.

8. An increase in excise tax leads to fall in supply of the given commodity, without any change in its market price.
True. It happens because increase in excise tax increases the cost of production and reduces the profit margin. It leads to fall in supply even at the same market price.

9. A supply curve cutting quantity axis in its positive range has highly elastic supply.
False. The supply curve, which cuts quantity axis (X-axis) in its positive range has less elastic supply.

10. A fall in price of wheat will shift the supply curve of rice towards left.
False. The supply curve of rice will shift towards right as rice will become more profitable after fall in price of wheat.

11. Individual supply curves are steeper as compared to market supply curve.
True. It happens because with a change in price, the proportionate change in market supply is more than the proportionate change in individual supplies.

12. An increase in number of firms leads to 'Expansion in Supply'.
False. It leads to 'Increase in Supply' as supply will rise at the same price.

13. An infinitely elastic supply curve is parallel to the price axis.
False. Infinitely elastic supply curve is parallel to the quantity axis (X-axis) and not to price axis (Y-axis).

14. The following supply schedule is unitary elastic.

Price in ₹	1	2	3	4	5
Supply in units	100	200	300	400	500

True. It is a case of unitary elastic supply because percentage change in quantity supplied is equal to percentage change in price throughout the schedule.

15. An increase in the price of Limca may reduce the supply of Coke.
True. Increase in prices of Limca (other good of the same producer) will make its production more profitable in comparison to Coke (given commodity). It will lead to fall in supply of Coke.

16. If the proportionate change in the quantity supplied of a commodity is less than the proportionate change in its price, price elasticity is greater than unity.
False. In such case, price elasticity is less than unity.

17. Discoveries, innovations and technological development will lead to fall in supply of the given commodity.
False. Discoveries, innovations and technological development will reduce the cost of production. It will raise the profit margin and supply will increase.

18. In market period, supply can adjust itself to the changing demand.
False. Market period is a very short period and supply cannot be changed in response to the change in demand.

19. The supply curve of a good shifts to the right when prices of other goods rise.
False. When price of other goods rise, it becomes more profitable to produce them in place of the given good, so supply curve will shift to left.

20. Price elasticity of supply is equal to one only when the supply curve forms an angel of 45° at the origin.
False. Price elasticity of supply is equal to one in all the cases when supply curve passes through the origin, irrespective of the angle it makes with the origin.

MATCHING TYPE QUESTIONS

Q. 1. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Decrease in Supply	(i) Rightward shift in supply curve
(b) Contraction in Supply	(ii) Downward movement along the supply curve
(c) Increase in Supply	(iii) Leftward shift in supply curve
(d) Expansion in Supply	(iv) Quantity supplied rises due to decrease in price

Ans. (b) Contraction in Supply – (ii) Downward movement along the supply curve.

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Slope of Supply Curve	a. $\frac{\text{Change in Quantity } (\Delta Q)}{\text{Change in Price } (\Delta P)}$
	b. $\frac{\text{Change in Price } (\Delta P)}{\text{Change in Quantity } (\Delta Q)}$

Ans. (i) b.

Q. 3. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Change in Quantity Supplied	a. When supply for the given commodity changes due to factors other than price
(ii) Change in Supply	b. When supply of the given commodity changes due to change in its own price

Ans. (i) b; (ii) a.

Q. 4. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Stock	a. Upward Movement
(ii) Increase in Supply	b. Total quantity available at a particular point of time
(iii) Expansion in Supply	c. States direct relationship between price and quantity supplied, ceteris paribus
(iv) Law of Supply	d. Supply rises at the same price

Ans. (i) b; (ii) d; (iii) a; (iv) c.

Q. 5. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Decrease in Supply	a. Decrease in Quantity Supplied
(ii) Movement along Supply Curve	b. Straight line passing through the origin

(iii) Fall in price of factors of production	c. Supply remains same even at higher price
(iv) Contraction in Supply	d. Change in Quantity Supplied
(v) Unitary Elastic Supply	e. Rightward shift in the supply curve

Ans. (i) c; (ii) d; (iii) e; (iv) a; (v) b

Q. 6. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) $E_s > 1$	a. Supply curve has an intercept on the X-axis
(ii) $E_s < 1$	b. Supply curve is a horizontal straight line
(iii) $E_s = 1$	c. Supply curve has an intercept on the Y-axis
	d. Supply curve passes through the origin

Ans. (i) c; (ii) a; (iii) d.

Q. 7. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Price (₹) / Supply: 10 / 100; 10 / 70	a. Contraction in Supply
(ii) Price (₹) / Supply: 10 / 100; 12 / 120	b. Increase in Supply
(iii) Price (₹) / Supply: 10 / 80; 8 / 70	c. Expansion in Supply
(iv) Price (₹) / Supply: 10 / 120; 10 / 140	d. Decrease in Supply

Ans. (i) d; (ii) c; (iii) a; (iv) b.

Q. 8. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) % Change in Supply > % Change in Price	a. Highly Elastic Supply
(ii) % Change in Supply = % Change in Price	b. Perfectly Elastic Supply
	c. Less Elastic Supply
	d. Unitary Elastic Supply

Ans. (i) a; (ii) d.

(MCQs) MULTIPLE CHOICE QUESTIONS *and* (MRQs) MULTIPLE RESPONSE QUESTIONS

In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. In the long period, the supply for a commodity is:
   (a) Perfectly Inelastic (b) Less Elastic
   (c) Highly Elastic (d) Perfectly Elastic
2. All the supply curves, which pass through the origin are:
   (a) Highly elastic (b) Unitary elastic
   (c) Perfectly inelastic (d) Less elastic
3. Which one of the following is an essential element of supply?
   (a) Price of the commodity (b) Period of time
   (c) Willingness to buy (d) Quantity of the commodity
4. Which one of the following is not the result of increase in price of factors of production?
   (a) Rightward shift in supply curve (b) Leftward shift in supply curve
   (c) Expansion in supply (d) Contraction in supply
5. Market period is a time period during which:
   (a) Supply cannot be adjusted to meet changed demand conditions.
   (b) Supply can be fully adjusted to meet changed demand conditions.
   (c) Change in supply is limited to available capacity.
   (d) Any change in supply is possible.
6. In case of _____, supply falls at the same price.
   (a) Decrease in supply (b) Contraction in supply
   (c) Increase in supply (d) Expansion in supply
7. In case of _____, supply curve is a vertical straight line parallel to the Y-axis.
   (a) Perfectly Elastic Supply (b) Unitary Elastic Supply
   (c) Perfectly Inelastic Supply (d) Less Elastic Supply
8. Which one of the following is not a determinant of Individual supply?
   (a) Price of the given commodity (b) Taxation Policy
   (c) Means of Transportation and Communication (d) Number of Firms
9. A straight line supply curve cuts the Y-axis in its negative range. What is the elasticity of supply?
   (a) Highly elastic (b) Unitary elastic
   (c) Less elastic (d) Perfectly Inelastic Supply
10. Change in the price of the given commodity will lead to:
    (a) Expansion in Supply (b) Either (a) or (c)
    (c) Contraction in Supply (d) Neither (a) nor (b)
11. The given supply schedule represents _____

Price (₹)	20	20
Supply (Units)	100	120

(a) Expansion in supply
(b) Increase in supply
(c) Contraction in supply
(d) Decrease in supply

12. Price Elasticity of Supply of a good is 2. It shows that:
(a) When price falls by 1%, supply falls by 2%
(b) When price rises by 1%, supply rises by 2%
(c) When supply falls by 1%, price rises by 2%
(d) Either (a) or (b)

13. Elasticity of supply is said to be perfectly inelastic when:
(a) Supply doesn't change with change in price.
(b) There is an infinite supply at a particular price.
(c) When percentage change is supply is equal to percentage change is price.
(d) When percentage change is supply is more than percentage change is price.

14. Which of the following statement is valid with respect to 'Law of Supply'?
(a) Indicates the magnitude of change in supply due to change in price.
(b) States one sided between price and quantity supplied.
(c) Establishes proportional relationship between change in price and change in supply
(d) States the direct relationship between price and quantity supplied

15. Supply is said to be unitary elastic, when:
(a) Supply curve is a straight line passing through the origin
(b) Supply curve makes an intercept on the positive Y-axis
(c) Supply curve makes an intercept on the positive X-axis
(d) Supply curve is a horizontal straight line parallel to the X-axis

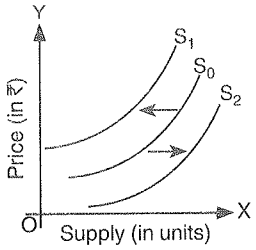
16. Due to installation of a machine with latest technology, the cost of production has decreased. It will lead to:
(a) Expansion in supply
(b) Increase in supply
(c) Contraction in supply
(d) Decrease in supply

17. The market supply of a commodity is affected by:
(a) State of Technology
(b) Number of firms
(c) Government policy
(d) All of the above

18. In case of less elastic supply, supply curve:
(a) Makes an intercept on the positive X-axis
(b) is a vertical straight line parallel to the Y-axis
(c) Makes an intercept on the positive Y-axis
(d) is a horizontal straight line parallel to the X-axis

19. "Increase in Supply" of a product is caused by:
(a) Improvement in Technology
(b) Fall in the Prices of other goods
(c) Fall in Prices of Factors of Production
(d) All of these

20. The supply curve of a given commodity is given to be S_0. On the basis of this diagram, answer the following questions:



(i) Movement from S_0 to S_1 is termed as:

(a) Contraction in Supply (b) Expansion in Supply

(c) Decrease in Supply (d) Increase in Supply

(ii) Movement from S_0 to S_2 is caused by:

(a) Increase in price of given product (b) Increase in the price of inputs

(c) Technological Upgradation (d) Decrease in price of given product

(iii) Increase in cost of production of this commodity will lead to:

(a) Movement from S_0 to S_1 (b) Movement from S_0 to S_2

(c) Upward movement along the S_0 (d) No change at all

21. If quantity supplied increases by 60% due to a 50% increase in price, then elasticity of Supply is:

(a) (–) 1.2 (b) (+) 1.2

(c) (–) 0.83 (d) (+) 0.83

22. The supply function of a product X is given as: Sx = 6Px + 3, where Px stands for price. The supply at price of ₹ 5 will be:

(a) 18 (b) 9 (c) 33 (d) 14

23. The supply function of a product X is given as: Sx = 6Px + 3, where Px stands for price. At what price the firm will be willing to supply 27 pieces in the market?

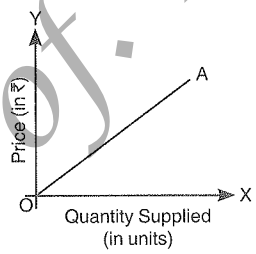
(a) ₹ 2 (b) ₹ 5 (c) ₹ 3 (d) ₹ 4

24. The supply function of a product X is given as: Sx = 6Px + 3, where Px stands for price. If there are 1,000 firms in the market, then market supply for the product at market price of ₹ 4 will be:

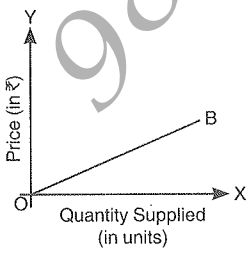
(a) 20,000 units (b) 23,000 units

(c) 27,000 units (d) 21000 units

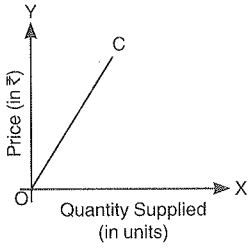
25. Which of the following diagram correctly depicts the situation of Unitary Elastic Supply?



(a)

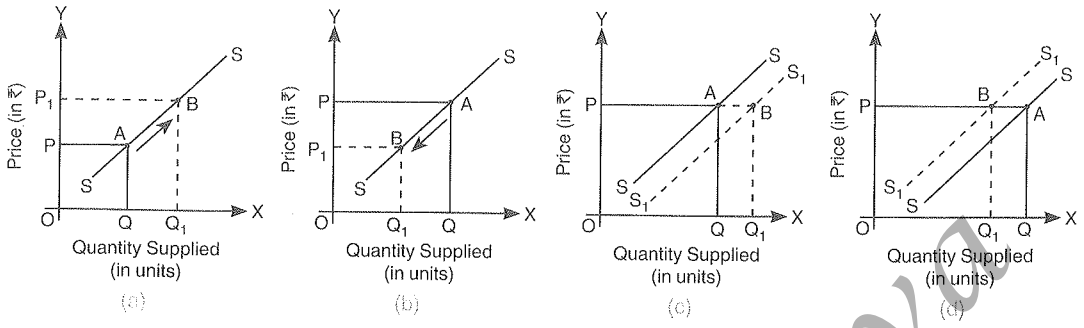


(b)

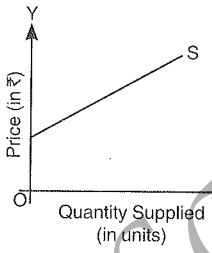


(c) (d) All of these

26. Expansion in Supply is shown in:

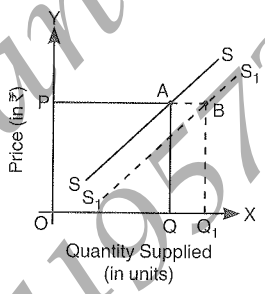


27. The given diagram is a case of ..... Supply



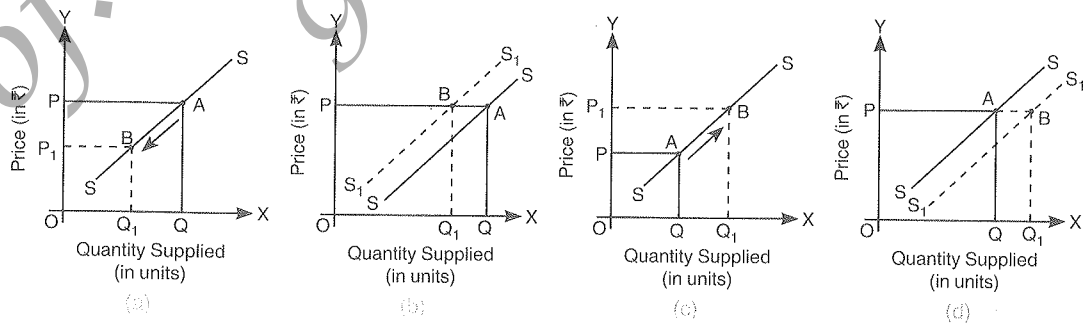
(a) Less Elastic Supply
(b) Highly Elastic Supply
(c) Unitary Elastic Supply
(d) Perfectly Elastic Supply

28. The following supply curve shifts from SS to S_1S_1 due to:



(a) Decrease in Taxes
(b) Upgradation of technology
(c) Fall in the price of inputs
(d) All of the above

29. Degradation of technology will have the following effect on the supply curve:



30. Which of the following measures of price elasticity shows elastic supply? (Choose the correct alternative)

(a) 0 (b) 0.5

(c) 1 (d) 1.5

31. Which of the following does not cause shift of supply curve of a good? (Choose the correct alternative)

(a) Price of input (b) Price of the good

(c) Goods and Services Tax (d) Subsidy

32. If the supply curve is a straight line parallel to the vertical axis (Y-axis), supply of the good is called as _____.

(a) Unitary Elastic Supply (b) Perfectly Elastic Supply

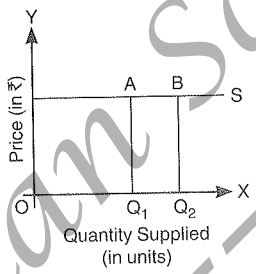
(c) Perfectly Inelastic Supply (d) Perfectly Elastic Demand

33. Which of the following statement is correct with respect to supply?

(a) Price and quantity have direct relationship (b) Supply curve rises from left to right

(c) Supply is affected by many factors (d) All the above

34. The following figure depicts the case of:



(a) Highly Elastic Supply (b) Perfectly Inelastic Supply

(c) Perfectly Elastic Supply (d) Unitary Elastic Supply

Ans. **1.** (c); **2.** (b); **3.** (a), (b), (d); **4.** (a), (c), (d); **5.** (a); **6.** (a); **7.** (c); **8.** (c), (d); **9.** (c); **10.** (b); **11.** (b); **12.** (d); **13.** (a); **14.** (b), (d); **15.** (a); **16.** (b); **17.** (d); **18.** (a); **19.** (d); **20.** (i - c, ii - c, iii - a); **21.** (b); **22.** (c); **23.** (d); **24.** (c); **25.** (d); **26.** (a); **27.** (b); **28.** (d); **29.** (b); **30.** (d); **31.** (b); **32.** (c); **33.** (d); **34.** (c)

MAIN MARKET FORMS

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. In case of Perfect Competition, Firm is a price _____ and Industry is the Price _____.
2. MR is _____ AR under Perfect Competition.

3. The demand curve for a firm under _____ is indeterminate.
4. _____ refers to differentiating the products on the basis of brand, size, colour, shape, etc.
5. In case of Perfect Competition, product is _____, while products are _____ in case of Monopolistic Competition.
6. If the firms cooperate with each other in determining price or output or both, it is called _____.
7. Firms under _____ are interdependent.
8. The demand curve under monopolistic competition is more _____ as compared to demand curve under monopoly.
9. If the firms produce homogeneous products, then it is called _____ or _____ oligopoly.
10. Demand curve is _____ in case of both monopoly and monopolistic competition.
11. A firm under monopolistic competition has _____ control over the price, while a monopolist has _____ control over the price.
12. In case of _____, firm has no control over the price of the product.
13. _____ refers to a market situation where there is a single seller selling a product which has no close substitutes.
14. The firms under oligopoly may produce _____ or _____ product.
15. Under Perfect Competition, each firm faces a _____ demand curve.
16. MR is _____ AR under Monopoly.
17. If the firms produce differentiated products, then it is called _____ or _____ oligopoly.
18. A firm under _____ follows the policy of price rigidity.

Ans. ***1.*** *Taker, Maker,* ***2.*** *Equal to,* ***3.*** *Oligopoly,* ***4.*** *Product differentiation,* ***5.*** *Homogeneous, Differentiated,* ***6.*** *Collusive Oligopoly,* ***7.*** *Oligopoly,* ***8.*** *Elastic,* ***9.*** *Pure, Perfect,* ***10.*** *Downward Sloping,* ***11.*** *Partial, Complete,* ***12.*** *Perfect Competition,* ***13.*** *Monopoly,* ***14.*** *Homogeneous, Differentiated,* ***15.*** *Perfectly Elastic,* ***16.*** *Less than,* ***17.*** *Differentiated, Imperfect,* ***18.*** *Oligopoly.*

TRUE OR FALSE *with REASONS*

1. A perfectly competitive firm has no control over the price of the product.
   True. A perfectly competitive firm is a price taker and has to accept the price as fixed by market forces of demand and supply.
2. There is no selling cost under monopoly due to presence of single seller.
   False. Selling costs are incurred under monopoly. However, they are of small amount as they are meant only for informative purpose.
3. The demand curve for a firm under oligopoly is indeterminate.
   True. The demand curve is indeterminate because exact behaviour pattern of a firm cannot be determined with certainty due to high degree of interdependence between different firms.
4. Monopolistic competitive firm is a price taker.
   False. Monopolistic competitive firm is not a price taker as it can influence the price by creating a differentiated image of its product through heavy selling costs.
5. A monopoly firm can make abnormal profits in the long run, but not a firm under monopolistic competition and perfect competition.
   True. A monopoly firm can make abnormal profits in the long run due to restrictions on entry and exit. However, a firm under perfect competition and monopolistic competition cannot make abnormal profits due to freedom of entry and exit.

6. Firms under oligopoly are interdependent.
True. There exists high degree of interdependence as each firm considers the action and reaction of rival firms while determining its price and output levels.

7. Like price, quantity to be sold by a firm under perfect competition is also fixed by the market.
False. Firm is free to sell any quantity. Generally, a perfectly competitive firm produces that level of output at which there is minimum average cost.

8. The demand curve under monopolistic competition is more elastic as compared to demand curve under monopoly.
True. It happens because there exists close substitutes under monopolistic competition, whereas, there are no close substitutes in case of monopoly.

9. A monopolist firm has full control over price and demand for his product.
False. A monopolist firm has full control over price, but demand of the product is not in his control. The monopolist faces a downward sloping demand curve, which indicates that demand varies inversely with price.

10. Under perfect competition, market price can be influenced by both buyers and sellers.
False. Neither sellers nor buyers can influence the market price under perfect competition.

11. The firm's demand curve and industry demand curve is same in case of monopoly market.
True. Under monopoly, there is a single seller selling the product. So, the monopoly firm and industry are one and the same thing and firm's demand curve and industry demand curve is same.

12. Price discrimination is associated with monopolistic competition.
False. It is associated with monopoly.

13. The horizontal straight line demand curve under perfect competition indicates that an individual firm has no control over price of his product.
True. An individual firm under perfect competition is a price taker and has to accept the price fixed by the market forces of demand and supply.

14. An oligopoly firm faces a downward sloping demand curve.
False. The demand curve under oligopoly is indeterminate as exact behaviour pattern of a firm cannot be determined with certainty.

15. Under monopolistic competition, a firm faces a perfectly elastic demand curve.
False. A firm under monopolistic competition faces a downward sloping demand curve as it can sell more output only by lowering the price of the product.

16. A monopolist can sell any quantity he likes at a price.
False. A monopolist can sell more quantity only by lowering the price because the monopolist controls only the supply and not the demand.

MATCHING TYPE QUESTIONS

Q. 1. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Pure Oligopoly	(i) Firms produce differentiated products
(b) Monopoly	(ii) Firm is a price-taker
(c) Collusive Oligopoly	(iii) Firms cooperate with each other in determining price or output
(d) Monopolistic Competition	(iv) Restriction on entry and exit

Ans. (c) Collusive Oligopoly – (iii) Firms cooperate with each other in determining price or output.

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Perfect Competition	a. Homogeneous Products
	b. No Close Substitutes

Ans. (i) a.

Q. 3. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Monopoly	a. Demand curve is more elastic
(ii) Monopolistic Competition	b. Demand curve is less elastic

Ans. (i) b; (ii) a.

Q. 4. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Cooperative Oligopoly	a. Firms in an oligopoly market compete with each other
(ii) Non-cooperative Oligopoly	b. Firms produce homogeneous products
	c. Firms cooperate with each other in determining price or output or both

Ans. (i) c; (ii) a.

Q. 5. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Monopoly	a. Perfect Competition
(ii) Oligopoly	b. Partial control over the price
(iii) Price Taker	c. Restrictions on Entry and Exit
(iv) Monopolistic Competition	d. Firms produce differentiated products
(v) Differentiated Oligopoly	e. Indeterminate Demand Curve

Ans. (i) c; (ii) e; (iii) a; (iv) b; (v) d.

Q. 6. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Price Discrimination	a. Absence of Selling Costs
(ii) Highly Elastic Demand Curve	b. Firms cooperate with each other in determining price or output or both
(iii) Group Behaviour	c. Monopolistic Competition

(iv) Perfect Competition	d. Monopoly
(v) Collusive Oligopoly	e. Oligopoly

Ans. (i) d; (ii) c; (iii) e; (iv) a; (v) b.

Q. 7. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) In Perfect Competition	a. MR > AR
(ii) In Monopolistic Competition	b. MR = AR
	c. MR < AR

Ans. (i) b; (ii) c.

(MCQs) MULTIPLE CHOICE QUESTIONS *and* (MRQs) MULTIPLE RESPONSE QUESTIONS

In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. Identify the market form which has indeterminate demand curve:
(a) Monopoly (b) Monopolistic Competition
(c) Perfect Competition (d) Oligopoly

2. 'Toothpaste' is a product of which type of market form:
(a) Monopolistic Competition (b) Monopoly
(c) Oligopoly (d) Perfect Competition

3. A firm is a price taker under:
(a) Perfect Competition (b) Oligopoly
(c) Monopolistic Competition (d) Monopoly

4. Which form of market is also known as price-maker firm?
(a) Monopoly (b) Oligopoly
(c) Perfect Competition (d) Monopolistic Competition

5. 'No close substitutes' is a distinguishing feature of which form of market?
(a) Monopolistic Competition (b) Oligopoly
(c) Perfect Competition (d) Monopoly

6. What is the nature of demand curve in case of monopolistic competition?
(a) Perfectly Elastic (b) Downward sloping and less elastic
(c) Downward sloping and more elastic (d) Indeterminate demand curve

7. How much selling costs are incurred in case of perfect competition?
(a) Very High (b) Very Less (c) Negligible (d) Zero

8. Few large firms collectively decide the level of output and prices and still retain their individual identity. Identify the type of market form:
(a) Monopoly (b) Oligopoly
(c) Perfect Competition (d) Monopolistic Competition

9. Demand curve in case of Monopolistic competition is more elastic as compared to demand curve under Monopoly due to:
(a) Huge Selling Costs (b) Freedom of Entry and Exit
(c) Presence of Close Substitutes (d) Large Number of Firms

10. Which of these is a characteristic feature of Monopoly?
(a) Single seller
(b) Price-maker
(c) Barriers on entry and exit of firms
(d) Product Differentiation

11. Demand curve of perfectly competitive market form is a horizontal straight line parallel to X-axis. It happens because:
(a) Selling costs are zero
(b) There is freedom of entry and exit
(c) Firm is a price-taker
(d) None of these

12. On what basis, monopoly, monopolistic competition and oligopoly are similar to each other:
(a) Number of Sellers
(b) Price Determination
(c) Selling cost
(d) Level of Knowledge

13. Demand curve of a firm under monopoly is:
(a) Downward Sloping
(b) Indeterminate
(c) Upward Sloping
(d) Perfectly Elastic

14. In which market form, marginal revenue is equal to price?
(a) Monopoly
(b) Oligopoly
(c) Perfect Competition
(d) Monopolistic Competition

15. Under which market form, the demand curve is steeper as compared to monopolistic competition?
(a) Monopoly
(b) Oligopoly
(c) Perfect Competition
(d) None of these

16. 'Interdependence Between Firms' is a feature of which type of market form:
(a) Oligopoly
(b) Monopolistic Competition
(c) Monopoly
(d) Perfect Competition

17. When a producer charges different prices from different customers for the same product and at the same time, then the firm is exercising:
(a) Price Competition
(b) Non-price Competition
(c) Price Discrimination
(d) None of these

18. Firms cooperate with each other in determining price or output or both. It is a feature of:
(a) Cooperative Oligopoly
(b) Non-Collusive Oligopoly
(c) Imperfect Oligopoly
(d) Collusive Oligopoly

19. In monopolistic competition, there are:
(a) Few firms selling differentiated products.
(b) Large number of firms selling differentiated products.
(c) Large number of firms selling homogeneous product.
(d) Few firms selling a homogeneous product.

20. If the demand curve of a individual firm is perfectly elastic, then:
(a) Firm is a price-taker
(b) Firm can influence the price
(c) Firm is a price-maker
(d) Firm has partial control over price

21. Which of the following is not a condition of the perfect market?
(a) Homogeneous Product
(b) Very large number of sellers
(c) High selling cost
(d) Downward sloping demand curve

22. Highly elastic negatively sloped demand curve is related to:
(a) Perfect competition
(b) Monopolistic competition
(c) Both (a) and (b)
(d) None of these

23. In case of perfect competition, AR curve is:
(a) Downward sloping
(b) Positively sloped
(c) Horizontal straight line parallel to the X-axis
(d) Vertical straight line parallel to the Y-axis

24. In which market form, there is perfect knowledge among buyers and sellers?
(a) Oligopoly
(b) Monopolistic competition
(c) Monopoly
(d) None of the above

25. Under Monopoly, selling costs are incurred for:
(a) Persuading customers for not buying competitor's product
(b) Informative purpose
(c) Promoting sales of the product
(d) None of these

26. Under Perfect Competition, each firm is a:
(a) Price-maker
(b) Neither Price-maker nor Price-taker
(c) Price-taker
(d) None of these

27. Demand curve under Oligopoly is:
(a) Less Elastic
(b) Perfectly Elastic
(c) Highly Elastic
(d) Indeterminate

28. Consumers get maximum variety of goods under:
(a) Perfect Competition
(b) Monopolistic Competition
(c) Monopoly
(d) Pure Competition

29. In which of the following market structure, advertising expenses are the least?
(a) Monopoly
(b) Duopoly
(c) Monopolistic Competition
(d) Oligopoly

30. Under perfect competition, the firm earns normal profit in the long-run because of:
(a) Large number of buyers and seller;
(b) Absence of selling cost
(c) Free entry and exit
(d) Homogeneous commodity

31. In which of the following types of market structures, a firm can earn abnormal profits in the long run?
(a) Perfect Competition
(b) Monopolistic competition
(c) Monopoly
(d) None of these

32. Which of these is not a market structure in Economics?
(a) Perfect Competition
(b) Monopoly
(c) Monopolistic Competition
(d) Intense Competition

33. Freedom of entry and exit is possible in the:
(a) Short-run
(b) Long-run
(c) Both (a) and (b)
(d) Neither (a) nor (b)

34. Railways is an example of:
(a) Perfect Competition
(b) Monopolistic Competition
(c) Monopoly
(d) Oligopoly

35. Free entry and exit is a characteristic feature of:
(a) Perfect Competition
(b) Monopoly
(c) Duopoly
(d) Oligopoly

36. Which of the following types of market structure is the exact opposite of Perfect Competition?
(a) Monopolistic competition
(b) Monopoly
(c) Oligopoly
(d) Duopoly

37. In a Perfectly competitive market:
(a) Firm is a price maker and industry is the price taker
(b) Firm is a price taker and industry is the price maker
(c) Both are price takers
(d) Both are price makers

38. In case of Perfect Competition, price is determined at:
(a) Equilibrium price of the firm
(b) Equilibrium price of the Industry
(c) Equality between MR and MC
(d) None of these

39. Which of the following is not an essential condition of 'Pure Competition'?
(a) Large number of Buyers and Sellers
(b) Homogeneous Product
(c) Absence of Selling Costs
(d) Absence of Transport Cost

40. In perfect competition, since the firm is a price-taker, _____ curve is a horizontal straight line parallel to the X-axis.
(a) Marginal Cost
(b) Total Cost
(c) Total Revenue
(d) Marginal Revenue

41. Which of the following is a characteristic of a price taker firm?
(a) $TR = P \times Q$
(b) AR = Price
(c) Negatively sloped demand curve
(d) Marginal Revenue = Price

42. If a perfectly competitive firm doubles its output, then its total revenue:
(a) Doubles
(b) More than doubles
(c) Less than doubles
(d) Cannot be determined

43. In Monopoly, entry of new firms:
(a) is restricted at all times
(b) is possible only in the short-run
(c) is possible only in the long-run
(d) Both (b) and (c)

44. Under monopoly, price elasticity of demand is:
(a) Less than one
(b) Equal to one
(c) Greater than one
(d) Infinity

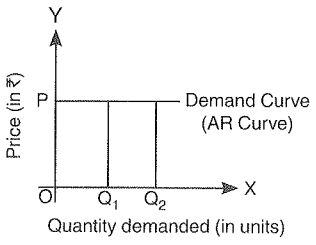
45. Oligopoly is the market structure in which there are:
(a) Many sellers and many buyers
(b) One seller and many buyers
(c) Few sellers and many buyers
(d) None of these

46. Monopolistic competition constitutes:
(a) Single firm producing close substitutes
(b) Many firms producing close substitutes
(c) Many firms producing differentiated substitutes
(d) Few firms producing differentiated substitutes

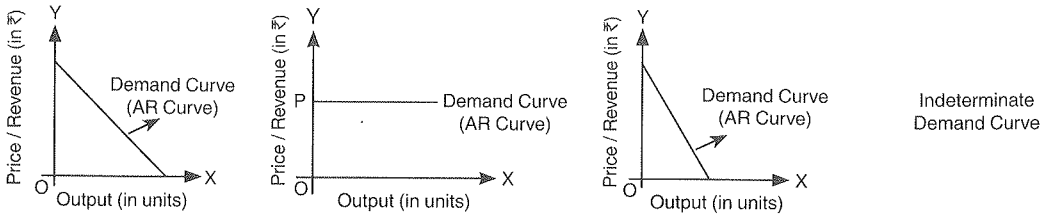
47. The market in which the numbers of sellers is small and there is interdependence in decision making by the firms is known as:
(a) Perfect competition
(b) Oligopoly
(c) Monopoly
(d) Monopolistic competition

48. In _____, a firm faces an infinitely elastic demand curve which means that the firm can sell any amount of a good at the prevailing market price.
(a) Oligopolistic market
(b) Monopoly market
(c) Perfect competition
(d) Monopolistic competition

49. The following diagram represents the demand curve of:
(a) Perfect Competition
(b) Monopolistic Competition
(c) Monopoly
(d) Oligopoly



50. The correct sequence for demand curves of Monopolistic Competition, Monopoly, Perfect Competition and Oligopoly is:



(a) (iv), (ii), (i) and (iii)
(b) (ii), (i), (iii) and (iv)
(c) (i), (iii), (ii) and (iv)
(d) (iii), (iv), (i) and (ii)

51. 'Homogeneous Products' is a characteristic of:
(a) Perfect Competition only
(b) Perfect Oligopoly only
(c) Both (a) and (b)
(d) None of the above

52. There is inverse relation between price and demand for the product of a firm under:
(a) Monopoly only
(b) Monopolistic Competition only
(c) Both under Monopoly & Monopolistic Competition
(d) Perfect Competition only

53. Differentiated Products is a characteristic of:
(a) Monopolistic Competition only
(b) Oligopoly only
(c) Both Monopolistic Competition and Oligopoly
(d) Monopoly

54. Demand curve of a firm is Perfectly Elastic under:
(a) Perfect Competition
(b) Monopoly
(c) Monopolistic Competition
(d) Oligopoly

55. 'A few big sellers' is a characteristics of:
(a) Perfect Competition
(b) Monopolistic Competition
(c) Oligopoly
(d) None of the above

56. Marginal revenue of a firm is constant throughout under:
(a) Perfect Competition
(b) Monopolistic Competition
(c) Oligopoly
(d) All the above

57. Average revenue and price are always equal under: (choose the correct alternative)
(a) Perfect competition only
(b) Monopolistic competition only
(c) Monopoly only
(d) All market forms

58. A seller cannot influence the market price under (Choose the correct alternative):
(a) Perfect Competition
(b) Monopoly
(c) Monopolistic Competition
(d) All of the above

59. A perfectly competitive firm faces: (Choose the correct alternative)
(a) Constant price
(b) Constant average revenue
(c) Constant marginal revenue
(d) All the above

60. There are large number of buyers and sellers in: (choose the correct alternative)
(a) Perfect Competition only
(b) Monopolistic Competition only
(c) Both in (a) and (b)
(d) Oligopoly

61. Expenditure incurred by the producers to promote sale of their products is termed as:
(a) Explicit Cost
(b) Implicit Cost
(c) Selling Cost
(d) Fixed Cost

62. In perfect competition, which of the following remains constant?
(a) AR (b) MR
(c) Both (a) and (b) (d) None of the both

63. In case of perfect competition, since the firm is a price taker, the _____ curve is a straight line.
(a) Total Revenue (b) Marginal Revenue
(c) Total Cost (d) Marginal Cost

64. Which of the following is true in case of Perfect Competition?
(a) Firm is a Price-taker (b) Firm's demand curve is perfectly elastic
(c) AR = MR (d) All of the above

65. The firm and the industry are one and the same in:
(a) Monopolistic Competition (b) Monopoly
(c) Perfect Competition (d) Oligopoly

Ans. **1.** (d); **2.** (a); **3.** (a); **4.** (a); **5.** (d); **6.** (c); **7.** (d); **8.** (b); **9.** (c); **10.** (a), (b), (c); **11.** (c); **12.** (d); **13.** (a); **14.** (c); **15.** (a); **16.** (a); **17.** (c); **18.** (a), (d); **19.** (b); **20.** (a); **21.** (c), (d); **22.** (b); **23.** (c); **24.** (d); **25.** (b); **26.** (c); **27.** (d); **28.** (b); **29.** (a); **30.** (c); **31.** (c); **32.** (d); **33.** (b); **34.** (c); **35.** (a); **36.** (b); **37.** (b); **38.** (b); **39.** (c), (d); **40.** (d); **41.** (a), (b), (d); **42.** (a); **43.** (a); **44.** (a); **45.** (c); **46.** (c); **47.** (b); **48.** (c); **49.** (a); **50.** (c); **51.** (c); **52.** (c); **53.** (c); **54.** (a); **55.** (c); **56.** (a); **57.** (d); **58.** (a); **59.** (d); **60.** (c); **61.** (c); **62.** (c); **63.** (b); **64.** (d); **65.** (b)

PRICE DETERMINATION & SIMPLE APPLICATIONS

OBJECTIVE QUESTIONS

FILL IN THE BLANKS

1. _____ refers to an industry for which supply curve and demand curve intersect each other in positive axes.
2. Excess demand refers to a situation, when quantity demanded is _____ than quantity supplied at the prevailing market price.

3. Market Equilibrium is determined when the quantity demanded of a commodity becomes equal to the _____.
4. When there is an increase in supply, demand remaining unchanged, Equilibrium price _____ and equilibrium quantity _____.
5. _____ refers to fixing the maximum price of a commodity at a level lower than the equilibrium price.
6. _____ is an important tool in the hands of government to ensure price floor.
7. When increase in demand is proportionately less than increase in supply, Equilibrium price _____, while equilibrium quantity _____.
8. _____ may be termed as a direct consequence of price ceiling.
9. When the supply decreases, demand remaining unchanged, Equilibrium price _____ and equilibrium quantity _____.
10. _____ refers to the minimum price fixed by the government, which is above the equilibrium price and the producers must be paid for their produce.
11. _____ refers to a situation, when the quantity supplied is more than the quantity demanded at the prevailing market price.
12. When decrease in demand is proportionately less than increase in supply, Equilibrium price _____, while equilibrium quantity _____.
13. Price Floor is also known as _____ or _____.
14. For a non-viable industry, supply curve lies _____ the demand curve.
15. An increase in price of Pepsi will lead to _____ in equilibrium price of Coke.
16. With _____ in price of inputs, equilibrium price of the commodity will decrease.
17. When equilibrium price of a good is less than its market price, there will be competition among the _____.
18. As fixed by government, maximum price of a commodity is known as _____.
19. If market demand function is given as $Q_d = 50 - 2P$ and market supply as $Q_s = 40 + 3P$, then equilibrium price will be ₹ _____ and equilibrium quantity will be _____ units.

Ans. **1.** *Viable Industry,* **2.** *More,* **3.** *Quantity Supplied,* **4.** *Falls, Rises,* **5.** *Price Ceiling,* **6.** *Buffer Stock,* **7.** *Falls, Rises,* **8.** *Black Marketing,* **9.** *Rises, Falls,* **10.** *Price Floor,* **11.** *Excess Supply,* **12.** *Falls, Rises,* **13.** *Minimum Support Price, Minimum Price Ceiling,* **14.** *Above,* **15.** *Rise,* **16.** *Fall or Decrease,* **17.** *Sellers,* **18.** *Price Ceiling or Maximum Price Ceiling,* **19.** *2, 46.*

TRUE OR FALSE *with REASONS*

1. Excess supply leads to fall in equilibrium price.
   False. Excess supply leads to fall in market price and not equilibrium price. During excess supply, market price is more than equilibrium price and in order to sell the excess stock, market price continues to fall till equilibrium price is achieved.
2. For a non-viable industry, supply curve lies above the demand curve.
   True. It happens because the price, at which producers are ready to produce, is so high that consumers are not willing to buy even a single unit.

3. Change in supply will not change the equilibrium quantity in case of perfectly elastic demand.
False. In case of perfectly elastic demand, equilibrium quantity will vary directly with change in supply (However, there will be no change in equilibrium price).
4. An increase in price of coffee will lead to rise in equilibrium price of tea.
True. Increase in price of coffee (substitute good) will lead to increase in demand of tea (given commodity), which will lead to rise in its equilibrium price.
5. If both demand and supply increase simultaneously, the equilibrium price will also change.
False. If increase in demand is proportionately equal to increase in supply, then equilibrium price will remain same.
6. Equilibrium quantity and equilibrium price remain same even with increase or decrease in demand in case of perfectly inelastic supply.
False. There will be no change in equilibrium quantity, but the equilibrium price will rise with increase in demand and will fall with decrease in demand.
7. If income of the consumers rises then equilibrium price of the inferior commodity will also rise.
False. An increase in income will decrease the demand for inferior goods, which will reduce the equilibrium price.
8. A simultaneous increase in demand and supply for a given commodity will result in more of the commodity being purchased.
True. As both demand and supply increase, the commodity being purchased (i.e. equilibrium quantity) will rise.
9. With rise in price of inputs, equilibrium price of the commodity will increase.
True. Equilibrium price will increase as supply will decrease due to rise in cost of production.
10. At a price higher than the equilibrium price, there is an excess demand.
False. There is excess supply at a price higher than the equilibrium price.
11. If productivity of a commodity improves due to technological upgradation, then equilibrium price tends to increase.
False. Improvement in productivity will increase the supply of the commodity, which will reduce the equilibrium price.
12. Excess supply of a commodity exists when its market price is greater than its equilibrium price.
True. When market price is greater than the equilibrium price, then there is excess supply as market supply is more than the market demand.
13. When equilibrium price of a good is less than its market price, there will be competition among the sellers.
True, because when the prevailing market price is higher than the equilibrium price, there will be excess supply and since the sellers will not be able to sell all they want to sell, there will be competition among sellers.
14. When equilibrium price is greater than market price, there will be excess supply in the market.
False, because market price is lower than equilibrium price, market demand will be higher than market supply leading to excess demand.

MATCHING TYPE QUESTIONS

Q. 1. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Buffer Stock	(i) Tool of Price Ceiling
(b) Decrease in demand > Decrease in supply	(ii) Equilibrium Price and Equilibrium Quantity rise

Column I	Column II
(c) Black Marketing	(iii) Direct consequence of Price Floor
(d) Increase in demand = Increase in supply	(iv) Equilibrium Price remains the same

Ans. (d) Increase in demand = Increase in supply – (iv) Equilibrium Price remains the same.

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Decrease in demand < Decrease in supply	a. Equilibrium price falls and Equilibrium Quantity rises
	b. Equilibrium Price rises and Equilibrium Quantity falls

Ans. (i) b.

Q. 3. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Price Ceiling	a. Price is fixed above the equilibrium price
(ii) Price Floor	b. Price is fixed below the equilibrium price

Ans. (i) b; (ii) a.

Q. 4. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Excess Supply	a. Price at which Quantity Demanded = Quantity Supplied
(ii) Decrease in Demand	b. Supply curve and demand curve intersect each other in positive axes
(iii) Equilibrium Price	c. Both Equilibrium price and equilibrium quantity falls
(iv) Viable Industry	d. Situation when Quantity Demanded < Quantity Supplied at the prevailing market price

Ans. (i) d; (ii) c; (iii) a; (iv) b.

Q. 5. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Decrease in Demand = Decrease in Supply	a. Situation when Quantity Demanded > Quantity Supplied at the prevailing market price
(ii) Excess Demand	b. Equilibrium price remains same
(iii) Price Floor	c. Black Marketing is its direct consequence
(iv) Price Ceiling	d. Equilibrium quantity remains same
(v) Decrease in Demand = Increase in Supply	e. Minimum Support Price

Ans. (i) b; (ii) a; (iii) e; (iv) c; (v) d.

Q. 6. Match the statements [Market Demand Functions (Q_d) and Supply Functions (Q_s)] given under A with the correct options given under B.

(A)	(B)
(i) $Q_d = 100 - P$; $Q_s = 40 + 2P$	a. Equilibrium Price = ₹ 90; Equilibrium Quantity = 10
(ii) $Q_d = 100 - P$; $Q_s = 60 + 3P$	b. Equilibrium Price = ₹ 60; Equilibrium Quantity = 40
	c. Equilibrium Price = ₹ 10; Equilibrium Quantity = 90
	d. Equilibrium Price = ₹ 20; Equilibrium Quantity = 80

Ans. (i) d; (ii) c.

(MCQs) MULTIPLE CHOICE QUESTIONS *and* (MRQs) MULTIPLE RESPONSE QUESTIONS

In the following Questions, there may be one or more than one correct answer. You have to mark all the correct answers.

1. Which of the following statements about Price Ceiling is accurate?
(a) An effective Price Ceiling must be at a price below the equilibrium price.
(b) Price Ceiling will increase the quantity of good supplied.
(c) An effective Price Ceiling must be at a price more than the equilibrium price.
(d) Price Ceiling will decrease the quantity demanded.

2. When market demand is more than market supply, it refers to a situation of:
(a) Excess Supply (b) Equilibrium Level
(c) Excess Demand (d) None of these

3. _____ refers to the minimum price, fixed by the government, which is above the equilibrium price.
(a) Price Floor (b) Minimum support price
(c) Both (a) and (b) (d) Neither (a) nor (b)

4. Equilibrium price is determined when:
(a) Market Demand for a commodity is zero
(b) Market Supply for a commodity is zero
(c) Market Demand and Market Supply are equal
(d) Market Demand is either more or less than Market supply

5. Which of the following statement is correct in case of non-viable industry?
(a) Supply curve lies above the demand curve
(b) Supply curve lies below the demand curve
(c) Supply curve and demand curve never intersect each other in the positive axes
(d) Supply curve coincide with the demand curve

6. What would happen to be Market Equilibrium of a good if decrease in demand is equal to increase in supply.
(a) Equilibrium quantity rises (b) Equilibrium price rises
(c) Equilibrium quantity remains same (d) Equilibrium price remains same

7. What will be the effect of increase in price of factor inputs on the equilibrium price and equilibrium quantity?
(a) Equilibrium price will rise and equilibrium quantity will fall
(b) Both equilibrium price and quantity will fall
(c) Equilibrium price will fall and equilibrium quantity will rise
(d) Both equilibrium price and quantity will remain same

8. Both equilibrium price and quantity rise when:
   (a) Increase in demand > Increase in supply
   (b) Decrease in supply when the demand is perfectly inelastic
   (c) Increase in supply when the demand is perfectly elastic
   (d) Increase in demand > Decrease in supply

9. In case of _____, an increase in demand will lead to rise in equilibrium quantity, but no change in equilibrium price.
   (a) Perfectly elastic supply
   (b) Perfectly inelastic supply
   (c) Highly elastic supply
   (d) Less elastic supply

10. Equilibrium price remains the same when:
   (a) Increase in Demand = Increase in Supply
   (b) Increase in Demand > Decrease in Supply
   (c) Decrease in demand > Increase in Supply
   (d) Decrease in demand = Decrease in Supply

11. What will be the effect on equilibrium price and equilibrium quantity when income increases in case of normal goods?
   (a) Both equilibrium price and quantity falls
   (b) Both equilibrium price and quantity rises
   (c) Equilibrium price rises and equilibrium quantity falls
   (d) Equilibrium price falls and equilibrium quantity rises

12. How does cost saving technology affect the equilibrium price and equilibrium quantity?
   (a) Equilibrium price will fall and equilibrium quantity will fall
   (b) Equilibrium price will fall and equilibrium quantity will rise
   (c) Both equilibrium price and quantity will fall
   (d) Both equilibrium price and quantity will rise

13. Price Floor can also be described as:
   (a) Minimum support price
   (b) Minimum price above the equilibrium price
   (c) Price at which quantity supplied exceeds the quantity demanded
   (d) All of these

14. Equilibrium price falls and equilibrium quantity rises when:
   (a) Decrease in demand < Decrease in supply
   (b) Increase in demand = Increase in supply
   (c) Decrease in demand < Increase in supply
   (d) Decrease in demand = Increase in supply

15. If increase in demand is greater than the increase in supply, then the equilibrium price:
   (a) Decreases
   (b) Increases
   (c) Does not change at all
   (d) Cannot be determined

16. If decrease in supply is less than the decrease in demand, then:
   (a) Both equilibrium price and quantity increase.
   (b) Both equilibrium price and quantity decrease.
   (c) Equilibrium price increases and quantity decreases.
   (d) Equilibrium price increases and quantity increases.

17. The individual demand and supply functions of a product are given as: Dx = 10 – 2Px, Sx = 10 + 2Px, where Px stands for price and Dx and Sx respectively stands for quantity demanded and quantity supplied. If there are 4,000 consumers and 1,000 firms in the market, then equilibrium price will be:
   (a) ₹ 4 (b) ₹ 4.25 (c) ₹ 3 (d) ₹ 5

18. The individual demand and supply functions of a product are given as: Dx = 10 – 2Px, Sx = 20 + 2Px, where Px stands for price and Dx and Sx respectively stands for quantity demanded and quantity supplied. If there are 4,000 consumers and 1,000 firms in the market, then quantity demanded and supplied at the equilibrium price of ₹ 2.
   (a) 20,000
   (b) 22,000

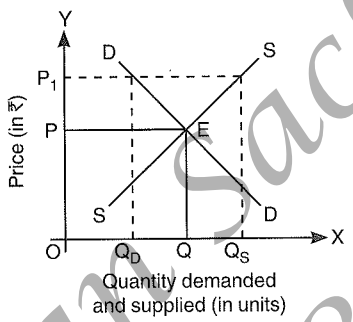
(c) 21,000 (d) 24,000

19. Which of the following situation does not lead to an increase in equilibrium price?
(a) An increase in demand without a change in supply.
(b) A decrease in supply accompanied by proportionately equal increase in demand.
(c) A decrease in supply without a change in demand.
(d) An increase in supply accompanied by proportionately equal decrease in demand.

20. Suppose consumer taste shifts in favour of apples. As a result, equilibrium quantity will _____ and equilibrium price will _____.
(a) Increase, decrease (b) Decrease, increase
(c) Increase, increase (d) Decrease, decrease

21. If the price of a commodity is below the equilibrium price, then quantity supplied is _____ than the quantity demanded. However, if the price is above the equilibrium price, then quantity supplied is _____ than the quantity demanded.
(a) Less; more (b) Less, less
(c) More; less (d) More; More

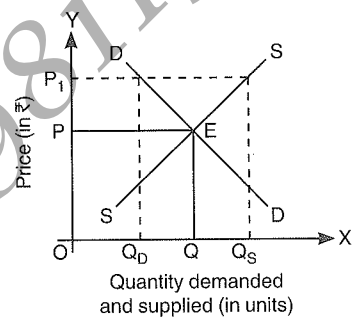
22. The following diagram depicts the situation of:



(a) Excess Supply (b) Excess Demand
(c) Equilibrium Condition (d) None of these

23. Price Floor is the price fixed by the government, which is:
(a) Equal to Equilibrium Price (b) Below the Equilibrium Price
(c) Above the Equilibrium Price (d) None of these

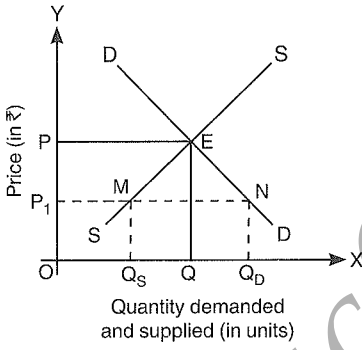
24. Government has fixed the price as OP_1, while the equilibrium price is OP as seen in the following diagram:



The price fixed by the government is known as:
(a) Price Floor (b) Minimum Support Price
(c) Price Ceiling (d) Both (a) and (b)

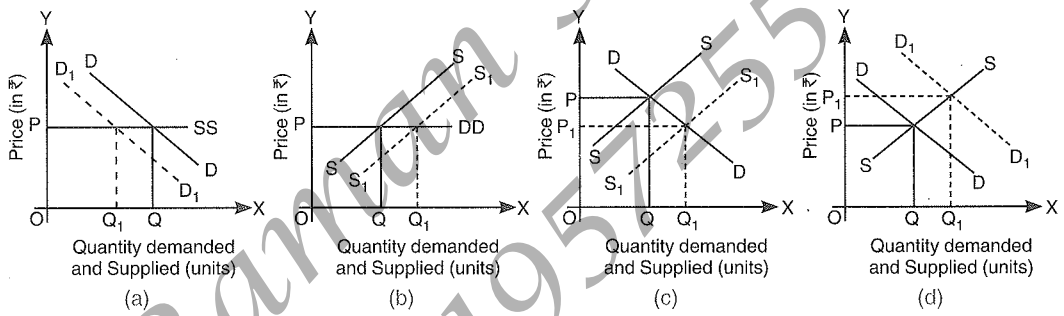
25. Maximum Price Ceiling leads to a situation of:
(a) Excess Demand (b) Excess Supply
(c) Either (a) or (b) (d) Neither (a) nor (b)

26. The following diagram represents the situation of:



(a) Price Floor (b) Price Ceiling
(c) Either (a) or (b) (d) Neither (a) nor (b)

27. Choose the correct option, when supply increases and demand is perfectly elastic:



28. When actual price of a commodity is less than equilibrium price, its price:
(a) starts rising (b) starts falling
(c) starts fluctuating (d) remains constant

29. In a commodity market, excess demand exists when:
(a) market price is greater than equilibrium price (b) equilibrium price is greater than market price
(c) equilibrium price is not equal to market price (d) government fixes the price

Ans. **1.** (a); **2.** (c); **3.** (c); **4.** (c); **5.** (a), (c); **6.** (c); **7.** (a); **8.** (a), (d); **9.** (a); **10.** (a), (d); **11.** (b); **12.** (b); **13.** (d); **14.** (c); **15.** (b); **16.** (b); **17.** (c); **18.** (d); **19.** (d); **20.** (c); **21.** (a); **22.** (a); **23.** (c); **24.** (d); **25.** (a); **26.** (b); **27.** (b); **28.** (a); **29.** (b)

Part A: Statistics for Economics

1 INTRODUCTION

Important Terms and Concepts

1. **Economics** is the study of how people and society choose to employ scarce resources, having alternative uses in order to produce various commodities that satisfy their wants and to distribute these commodities for consumption among various people and groups in the society.
2. A **consumer** is the person who uses goods for his/her satisfaction of wants.
3. A **seller** is the person who sells the goods for making profit.
4. A **producer** is the person who manufactures the goods with the motive of sale in the market.
5. **Scarcity** refers to a situation when resources are not enough to satisfy all the human wants.
6. **Economic activities** are the activities undertaken for earning a monetary reward in return.
7. **Consumption** is the act of using goods and services for the satisfaction of wants.
8. **Production** is the act of manufacturing goods and services for the satisfaction of wants.
9. **Distribution** means division of national income among various factors of production as per their contribution.
10. **Non-economic activities** are the activities which are not concerned with creation of money or wealth.
11. **Data** is a set of numbers systematically arranged for conveying specific information on a subject for better understanding or decision-making.
12. **Statistics** may be defined as the collection, presentation, analysis and interpretation of numerical data.
13. Statistics as **statistical data** or **in plural sense** has the following features:
    (*a*) Aggregate of facts
    (*b*) Numerically expressed
    (*c*) Affected to a great extent by multiplicity of causes
    (*d*) Reasonable accuracy in enumeration, estimation or collection of data
    (*e*) Collected in a systematic manner
    (*f*) Collected for a pre-determined purpose
14. Statistics in **singular sense** has the following features:
    (*a*) Collection of data
    (*b*) Classification of data
    (*c*) Presentation of data
    (*d*) Analysis of data
    (*e*) Interpretation of data
15. The main **functions** of statistics are as follows:
    (*a*) It expresses facts related to different phenomena in numbers.
    (*b*) It presents complex data in a simple form, so that it becomes easy to comprehend.

(*c*) It enlarges an individual's knowledge, experience and power of reasoning.
(*d*) It compares the data relating to facts.
(*e*) It facilitates policy formulation.

16. The importance of statistics in economics is as follows:
(*a*) It helps in formulation of economic laws.
(*b*) It helps in understanding and solving economic problems.
(*c*) It helps in establishing mathematical relations.
(*d*) It helps in studying the behaviour of different economic concepts.
(*e*) Statistical surveys helps in studying the theories of prices, pricing policy and price trends.

17. Statistics, no doubt, is a very useful tool in the hands of those who understand it, but it suffers from the following **limitations**:
(*a*) It does not study individuals.
(*b*) It deals with quantitative facts and not qualitative facts.
(*c*) Its results are true only on an average.
(*d*) It may lead to fallacious conclusions.

Multiple Choice Questions

1. 'Economics is a study of mankind in the ordinary business of life.' This definition of Economics is given by:
(*a*) Alfred Marshall
(*b*) Adam Smith
(*c*) Prof. Robbins
(*d*) Prof. Samuelson

2. One who produces a commodity to satisfy the human wants is called a:
(*a*) producer
(*b*) consumer
(*c*) seller
(*d*) buyer

3. Which of the following situations is the root cause of all economic problems?
(*a*) Misallocation
(*b*) Scarcity
(*c*) Under consumption
(*d*) Over production

4. Study of the distribution of the Gross Domestic Product is called:
(*a*) the study of production
(*b*) the study of consumption
(*c*) the study of distribution
(*d*) None of these

5. The word 'Statistics' is used as: **[NCT 2019]**
(*a*) Singular
(*b*) Plural
(*c*) Singular and Plural both
(*d*) None of these

6. Statistics means:
(*a*) quantitative facts
(*b*) qualitative facts
(*c*) Both (*a*) and (*b*)
(*d*) None of these

7. Which of the following statement does not hold true as one of the characteristic of statistics?
(*a*) Statistics are aggregates of facts.
(*b*) Statistics can be affected even by an individual variable.
(*c*) Statistics are collected in a systematic manner.
(*d*) Statistics are collected for a pre-determined purpose.

8. Statistical methods help to:
(*a*) analyse economic problems
(*b*) formulate policies to solve them
(*c*) find economic relationships
(*d*) All of these

9. From the given activities, which activity is called non-economic activity?
(*a*) Services rendered by a teacher
(*b*) Organising a free blood donation camp
(*c*) A tourist guide rendering services
(*d*) Manufacturing shirt with the help of cloth and tailoring

10. The resources available with the given producer are:
(*a*) limited
(*b*) have alternative uses
(*c*) unlimited
(*d*) Both (*a*) and (*b*)

11. In relation to the means to satisfy them, human wants are always _____.
(*a*) meagre (*b*) scarce
(*c*) sufficient (*d*) unlimited

12. When economic facts are expressed in statistical terms they become:
(*a*) vague (*b*) exact
(*c*) convincing (*d*) futile

13. Out of the numerical examples mentioned below, which can be considered as statistics?
(*a*) The sale of firm A is 70,000 tonnes.
(*b*) The cost of AC was ₹ 25,000 in the month of April.
(*c*) Ram got 12% more marks than Shyam.
(*d*) In India, the death rate in 2001 was 8.7 per thousand.

14. _____ is the root cause of all economic problems.
(*a*) Limited wants
(*b*) Scarcity of resources
(*c*) Unlimited resources
(*d*) All of these

15. The resources which the producers have are:
(*a*) Limited
(*b*) Have alternative uses
(*c*) Both (*a*) and (*b*)
(*d*) None of these

16. The word 'statistics' is used as:
(*a*) singular
(*b*) plural
(*c*) Both (*a*) and (*b*)
(*d*) Neither (*a*) nor (*b*)

17. Which of the following is an economic activity?
(*a*) Production
(*b*) Consumption
(*c*) Distribution
(*d*) All of these

18. All human beings are engaged in some activities to earn their livings, those activities are called:
(*a*) economic activities
(*b*) social activities
(*c*) non-economic activities
(*d*) Both (*a*) and (*b*)

19. Which of the following situation is the root cause of all economic problems?
(*a*) Misallocation
(*b*) Scarcity
(*c*) Under consumption
(*d*) Over production

20. Choose the correct statement.
(*a*) According to Adam Smith, 'Economics is the Science of Wealth'.
(*b*) Production is a non-economic activity.
(*c*) Scarcity definition was given by Prof. Samuelson.
(*d*) In non-economic activities, their is an expectation of benefit.

21. _____ is a person, who produces goods and services.
(*a*) Consumer
(*b*) Service provider
(*c*) Producer
(*d*) Service holder

22. According to _____, 'Economics is the Science of Wealth'.
(*a*) Adam Smith
(*b*) Alfred Marshall
(*c*) Prof. Samuelson
(*d*) Lionel Robbins

23. Activities which are undertaken to earn a living are known as _____.
(*a*) Economic Activities
(*b*) Non-Economic Activities
(*c*) Either (*a*) or (*b*)
(*d*) Both (*a*) and (*b*)

24. Which of the following are economic activities?
(*a*) Distribution
(*b*) Production
(*c*) Both (*a*) and (*b*)
(*d*) None of these

25. Scarcity of resources applies to all:
(*a*) Individuals
(*b*) Organisations
(*c*) Countries
(*d*) All of these

26. Which of the following is a non-economic activity?
(*a*) Housewife cooking food for her family
(*b*) Doctor attending to patients in his clinic
(*c*) Worker working in a factory
(*d*) All of these

27. The activity which is related to the use of scarce resources is called:
(*a*) Non-economic activity
(*b*) Economic activity
(*c*) Both (*a*) and (*b*)
(*d*) Neither (*a*) nor (*b*)

28. Resources to satisfy human wants have _____ uses.
(*a*) alternative (*b*) no
(*c*) few (*d*) None of these

29. Which of the following statements is incorrect?
(*a*) Scarcity is the root cause of all economic problems.
(*b*) 'A person teaching his daughter for her Board Exams' is an economic activity.
(*c*) Welfare definition of Economics has been given by Alfred Marshall.
(*d*) Attending a marriage is a non-economic activity.

30. The proper use of statistics can be made by:
(*a*) Cheats (*b*) Everyone
(*c*) Experts (*d*) Common man

31. Statistics is concerned with:
(*a*) Aggregate of organised facts
(*b*) Aggregate of disorganised facts
(*c*) Aggregate of useless facts
(*d*) Aggregate of unrelated facts

32. Distrust of statistics is due to:
(*a*) Insufficient statistical methods
(*b*) Scope fo statistics is limited
(*c*) Limitations of statistics
(*d*) Misuse of statistics

33. Statistics in singular sense includes:
(*a*) Collection of data
(*b*) Organisation of data
(*c*) Both (*a*) and (*b*)
(*d*) Neither (*a*) nor (*b*)

34. The characteristics of statistics in plural sense are:
(*a*) Aggregate of facts
(*b*) Collection of data
(*c*) Interpretation of data
(*d*) All of these

35. Statistics is used by:
(*a*) Businessmen
(*b*) Economists
(*c*) Government
(*d*) All of these

36. In singular sense, which of the following is not a characteristic of Statistics?
(*a*) Collection of Data
(*b*) Aggregate of facts
(*c*) Presentation of data
(*d*) Interpretation of Data

37. Which of the following is not a limitation of Statistics?
(*a*) Statistics can be misused.
(*b*) Statistics does not study quantitative phenomena.
(*c*) Statistical laws are not exact.
(*d*) All of these

38. The most fundamental economic problem is:
(*a*) health (*b*) security
(*c*) export and import (*d*) scarcity

39. Economics is best defined as the study of how people: **[DoE]**
(*a*) use their infinite resources
(*b*) attain wealth
(*c*) choose abundance over scarcity
(*d*) attain education from best school

40. Today's activities of my friend Darshit who is a singer, given below:
1. In the morning, he performed stage show for singing and get ₹ 10,000 as a fee.
2. In the evening, he celebrated his 4 years daughter's birthday at home and sang a song for her.

From above information which statement is true: **[DoE]**
(*a*) Activity 1 is an economic activity and Activity 2 is a non-economic activity.
(*b*) Activity 1 is non-economic and Activity 2 is an economic activity.
(*c*) Activity 1 and Activity 2 both are economic activities.
(*d*) Activity 1 and Activity 2 both are non-economic activities.

41. A consumer is one who consumes goods and services for: **[DoE]**
(*a*) Need of education
(*b*) Satisfaction of his wants
(*c*) help to others
(*d*) to earn money

42. Which of the following is an economic activity? **[DoE]**
(*a*) Blood donation for a noble cause
(*b*) Household work done by mother
(*c*) Care of children by father
(*d*) Service provided by a doctor in hospital

43. Consumer is: **[DoE]**
(*a*) supply of goods and services.
(*b*) using of goods and services to satisfy wants.
(*c*) production of goods and services for human wants.
(*d*) None of these

44. The factors of production are: **[DoE]**
(*a*) manager, labour, raw material and land
(*b*) machinery, factory, electricity and labour
(*c*) entrepreneur, land, labour and capital
(*d*) money, labour, entrepreneur and raw material

45. Service provider is a person who: **[DoE]**
(*a*) Consume services
(*b*) provide services
(*c*) consume goods
(*d*) produce goods

46. Which of the following is not an economic activity? **[DoE]**
(*a*) Saving as much as we can
(*b*) Production of goods and services
(*c*) Consumption of goods and services
(*d*) Capital formation

47. Statistics deals with: **[DoE]**
(*a*) only quantitative data
(*b*) only qualitative data
(*c*) Neither qualitative nor quantitative data
(*d*) None of these

48. Which of the following is the correct sequence of steps of statistical tools? **[DoE]**
(*a*) Collection of data, Organisation of data, Presentation of data, Analysis of data, Interpretation of data
(*b*) Organisation of data, Presentation of data, Collection of data, Interpretation of data, Analysis of data
(*c*) Collection of data, Analysis of data, Presentation of data, Organisation of data, Interpretation of data
(*d*) Collection of data, Analysis of data, Organisatgion of data, Presentation of data, Interpretation of data

49. A person who is in a job to earn either wages or salary to buy goods and services is called:
(*a*) Serviceholder (*b*) Service provider
(*c*) Producer (*d*) Consumer

50. Hemant is employed in a MNC as a marketing executive. He is a _____.
(*a*) Serviceholder (*b*) Producer
(*c*) Consumer (*d*) Service provider

51. Economics is considered as a/an:
(*a*) Science
(*b*) Art
(*c*) Both (*a*) and (*b*)
(*d*) None of these

52. _____ is the process through which consumers satisfy their wants by using various goods and services.
(*a*) Production
(*b*) Distribution
(*c*) Consumption
(*d*) None of these

53. Which of the following is an economic activity?
(*a*) A farmer growing wheat for self-consumption
(*b*) A father buying books for his children
(*c*) A person going to temple
(*d*) Both (*a*) and (*b*)

54. An economic problem arises as:
(*a*) human wants are unlimited
(*b*) means are limited
(*c*) resources have alternate uses
(*d*) All of these

55. Which of the following statements is incorrect?
(*a*) Resources have alternative uses.
(*b*) Macroeconomics studies large aggregates.
(*c*) All numbers are statistics.
(*d*) Statistics studies aggregates of quantitative facts.

56. Statistics in singular sense means:
(*a*) Statistical methods
(*b*) descriptive statistics
(*c*) inductive statistics
(*d*) statistical data

57. The scope of statistics extends to:
(*a*) government (*b*) industry
(*c*) economics (*d*) All of these

58. Statistical data are affected by _____ cause(s).
(*a*) single (*b*) two
(*c*) multiple (*d*) three

59. Which of the following is not a limitation of statistics?
(*a*) It does not deal with individuals.
(*b*) It does not study qualitative data.
(*c*) Statistical results are not exact.
(*d*) None of these

60. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Saving	(*i*) Portion of disposable income which is not consumed
B. Consumer	(*ii*) Ability of goods and services to satisfy human wants
C. Production	(*iii*) Process of altering outputs into inputs
D. Producer	(*iv*) Person who buys goods or services for his satisfaction of want

(*a*) A – (*i*) (*b*) B – (*ii*)
(*c*) C – (*iii*) (*d*) D – (*iv*)

61. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Welfare definition is given by	(*i*) Prof. Adam Smith
B. Production is one of the	(*ii*) Non-economic activity
C. No substitute for common sense	(*iii*) Limitation of statistics
D. Statistical data are	(*iv*) Generally non-comparable

(*a*) A – (*i*) (*b*) B – (*ii*)
(*c*) C – (*iii*) (*d*) D – (*iv*)

62. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Economic activity	(*i*) Going to temple
B. Non-economic activity	(*ii*) Production of goods in a factory
C. Seller	(*iii*) One who produce goods or services with a motive of sale
D. Investment	(*iv*) Expenditure on the purchase of assets

(*a*) A – (*i*) (*b*) B – (*ii*)
(*c*) C – (*iii*) (*d*) D – (*iv*)

63. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Consumption is a	(*i*) Non-economic activity
B. Scarcity is the mother of all	(*ii*) Economic problems
C. Study of man in ordinary business of life	(*iii*) Prof. Adam Smith
D. A teacher teaching in a class	(*iv*) Non-economic activity

(*a*) A – (*i*) (*b*) B – (*ii*)
(*c*) C – (*iii*) (*d*) D – (*iv*)

64. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Statistics in planning	(*i*) Function of Statistics
B. Prone to misuse	(*ii*) Scope of Statistics
C. Human wants are unlimited	(*iii*) Economic problem
D. Quantitative expression of economic problems	(*iv*) Limitation of Statistics

(*a*) A – (*i*) (*b*) B – (*ii*)
(*c*) C – (*iii*) (*d*) D – (*iv*)

65. Match the following Column I and Column II and choose the correct alternative:

Column I	Column II
A. Plural sense	(*i*) It does not study qualitative phenomena.
B. Collection of data	(*ii*) Statistics as a Method
C. Limitation of statistics	(*iii*) Statistics as Numerical Set of Data
D. Singular sense	(*iv*) First step in a statistical enquiry

(*a*) A – (*iii*), B – (*iv*), C – (*i*), D – (*ii*) (*b*) A – (*ii*), B – (*iii*), C – (*i*), D – (*iv*)
(*c*) A – (*iv*), B – (*iii*), C – (*ii*), D – (*i*) (*d*) A – (*i*), B – (*iv*), C – (*ii*), D – (*iii*)

Assertion-Reasoning Type MCQs

Note: In the following questions (Q.66 to Q.80), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) **Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)**

(*b*) **Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)**

(*c*) **Assertion (A) is true but Reason (R) is false**

(*d*) **Assertion (A) is false but Reason (R) is true**

66. Assertion (A): Economics is a study of man in ordinary business of life.

Reason (R): Economics is the science which studies human behaviour as a relationship between ends and scarce resources which have alternative uses.

67. Assertion (A): Scarcity is the cause of all economic problems.

Reason (R): Economic problems arise because human wants are limited but resources to satisfy human wants are unlimited.

68. Assertion (A): Consumption is an economic activity.

Reason (R): Consumption deals with the use of goods and services for the satisfaction of human wants.

69. Assertion (A): In singular sense, statistics means a collection of numerical facts.

Reason (R): In singular sense, statistics deals with collection, presentation, analysis and interpretation of quantitative information.

70. Assertion (A): Statistics helps in simplifying complex data.

Reason (R): Mean, Median and Correlation make complex data understandable.

71. **Assertion (A):** All data is not statistics.

Reason (R): Data which is comparable is statistics.

72. **Assertion (A):** Statistics solves economic problems.

Reason (R): Statistics tries to analyse the economic problems and find the measures which help to solve them.

73. **Assertion (A):** Statistics simplifies complex data.

Reason (R): Statistics presents the data in a definite form.

74. **Assertion (A):** Statistics is affected by multiple causes.

Reason (R): Statistics of production of a crop say rice is affected by rainfall, fertiliser, seeds, method of cultivation etc.

75. **Assertion (A):** Statistics deals with individuals.

Reason (R): Statistics deals with aggregate of facts.

76. **Assertion (A):** Statistical methods are no substitue for common sense.

Reason (R): The statistical data may involve personal bias or may be subject to manipulations for one's own selfish motive.

77. **Assertion (A):** Statistics is of no use to economics without data.

Reason (R): No analysis of an economic problem would be possible without data on various factors underlying an economic problem.

78. **Assertion (A):** Statitics deals with collection, anaysis, interpretation and presenttion of numerical data.

Reason (R): Statistics is the study of numbers relating to elected facts in a systematic form.

79. **Assertion (A):** An economic activity which deals with the use of goods and services for the satisfaction of human wants is known as consumption.

Reason (R): A consumer is one who consumes goods and services for the satisfaction of his wants.

80. **Assertion (A):** Scarcity is the root cause of all economic problems.

Reason (R): Alternative use of resources give rise to an economic problem.

Case-Based MCQs

1. **Read the given case carefully and answer the following questions on the basis of the same.**

'Scarcity is the root cause of all economic problems.' Had there been no scarcity, no economic problem would have arisen. In our daily life, we face the shortage of essential commodities. We face scarcity because the things that satisfy our wants are limited in availability. The resources which the producers have are limited and also have alternative uses, which give rise to the 'problem of choice' between different commodities that can be produced by those resources.

(*a*) An economic problem arises as:

(*i*) human wants are unlimited

(*ii*) means are limited

(*iii*) resources have alternate uses

(*iv*) All of these

(*b*) _____ is the root cause of all economic problems.
- (*i*) Alternate use of resources
- (*ii*) Unlimited wants
- (*iii*) Scarcity
- (*iv*) All of these

(*c*) _____ is the problem of choice making among different goods and services.
- (*i*) What to produce
- (*ii*) How to produce
- (*iii*) For whom to produce
- (*iv*) None of these

(*d*) The problem of scarcity arises because our resources are:
- (*i*) Limited (*ii*) Unlimited
- (*iii*) Sufficient (*iv*) Vast

2. Read the given case carefully and answer the following questions on the basis of the same.

Economic activities are those activities which are undertaken to earn a living whereas non-economic activities are not concerned with creation of money or wealth. Economic activities play a very important role in gross domestic product of a country whereas non-economic activities are generally add up to total welfare of a country.

(*a*) Which of the following is an economic activity?
- (*i*) Teacher teaching in a school
- (*ii*) Doctor working in a hospital
- (*iii*) Rickshaw puller transport passengers from one place to another
- (*iv*) All of these

(*b*) _____ activities are helpful in increasing gross domestic product of a country.
- (*i*) Economic
- (*ii*) Non-economic
- (*iii*) Either (*i*) or (*ii*)
- (*iv*) Neither (*i*) nor (*ii*)

(*c*) Which of the following is a non-economic activity?
- (*i*) Electrician change switch of electricity
- (*ii*) Teacher teaching his own child
- (*iii*) Rickshaw puller transport his children to the school
- (*iv*) Both (*ii*) and (*iii*)

(*d*) Economic activities and gross domestic product are _____ related to each other.
- (*i*) directly
- (*ii*) indirectly
- (*iii*) Either (*i*) or (*ii*)
- (*iv*) Neither (*i*) nor (*ii*)

3. Read the given case carefully and answer the following questions on the basis of the same.

The word statistics refers either to quantitative information or to a method of dealing with quantitative information. In the first reference, it is used as a plural noun—"the statistics of births, deaths, imports, exports etc." In the second reference, the word is used as a singular noun—"statistics deals with the collection, presentation, analysis and interpretation of the quantitative information".

The methods by which statistical data are analysed are called statistical methods. Statistical methods are applicable to a very large number of fields like economics, business etc.

(*a*) Which of the following is true about statistics?
- (*i*) It refers to the quantitative information.
- (*ii*) It refers to the method of dealing with quantitative information.
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*b*) Which of the following is the part of statistics in singular sense?
- (*i*) Collection of data
- (*ii*) Presentation of data
- (*iii*) Analysis of data
- (*iv*) All of these

(*c*) Statistical data helps in economics in:
- (*i*) economic forecasting
- (*ii*) policies formulation
- (*iii*) working out cause and effect relationship
- (*iv*) All of these

(*d*) In plural sense, statistics means:
- (*i*) data
- (*ii*) accuracy
- (*iii*) aggregate
- (*iv*) All of these

4. Read the given case carefully and answer the following questions on the basis of the same.

Statistics refers to the aggregate or average that relate to an enquiry or some relationship. Such aggregates facilitate the presentation of data in a simplified manner. Besides presentation, statistics also enable a reader to make comparison among two or more variables. On the contrary to this, statistics also involve some limitations which often lead to the situation of distrust on statistics and its methods. Such limitations evoked 'Mark Twain' of US to introduce a phrase called 'Lies, Damned lies and Statistics'. This phrase was introduced to highlight the shortcomings (limitations) associated with statistics.

(*a*) Statistical data are affected by the _____ cause(s).
- (*i*) single
- (*ii*) double
- (*iii*) multiple
- (*iv*) All of these

(*b*) Statistical methods help to:
- (*i*) analyse economic problems
- (*ii*) compare data relating to facts
- (*iii*) find economic relationships
- (*iv*) All of these

(*c*) Which of the following is not a limitation of statistics?
- (*i*) It does not deal with individuals.
- (*ii*) It does not study qualitative data.
- (*iii*) Statistical results are not exact.
- (*iv*) None of these

(*d*) The scope of statistics extends to only _____.
- (*i*) government
- (*ii*) industry
- (*iii*) economics
- (*iv*) All of these

5. Read the given case carefully and answer the following questions on the basis of the same.

The notion of statistics was originally derived from the word "state". Since it has been the traditional function of governments to keep records of population, births and other kinds of things and activities.

Statistics means aggregates of facts affected to a marked extent by multiplicity of causes, numerically expressed, enumerated or estimated according to reasonable standards of accuracy, collected in a systematic manner for a pre-determined purpose and placed in relation to each other.

(*a*) In above case study, 'state' refers to:
- (*i*) People
- (*ii*) Government
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*b*) Which of the following is the characteristic of statistics?
- (*i*) It is affected by multiplicity of causes.
- (*ii*) It can be quantitatively and qualitatively expressed.
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*c*) Income of person "X" is ₹ 1,00,000 per annum _____ statistics.
- (*i*) is
- (*ii*) may be
- (*iii*) is not
- (*iv*) None of these

(*d*) Statistics of production of rice is affected by rainfall, quality of soil etc., represents which characteristic of statistics?
- (*i*) Aggregate of facts
- (*ii*) Multiplicity of causes
- (*iii*) Numerically expressed
- (*iv*) All of these

6. Read the given case carefully and answer the following questions on the basis of the same.

Statistics may be defined as the science of collection, organisation, presentation, analysis and interpretation of numerical data. There are five stages in a statistical investigation.

Collection of data form the foundation of statistical analysis. if data are faulty then conclusions drawn can never be reliable.

Organisation of data means classification of raw data for a statistical enquiry. Classification is done on the basis of some common characteristic.

Presentation of data means giving order to data for statistical investigation.

Analysis of data means use of some statistical method like measures of central tendency, correlation etc.

Interpretation of data means drawing conclusions from the analysed data which require a high degree of skill and experience.

(*a*) _____ means classification of raw data for a statistical enquiry.
- (*i*) Collection of data
- (*ii*) Organisation of data
- (*iii*) Presentation of data
- (*iv*) Analysis of data

(*b*) Which of the following is first stage of statistics in singular sense?
- (*i*) Organisation
- (*ii*) Presentation
- (*iii*) Collection
- (*iv*) None of these

(*c*) _____ means giving order to data for statistical investigation.
- (*i*) Collection
- (*ii*) Presentation
- (*iii*) Interpretation
- (*iv*) Analysis

(*d*) Statistical methods are used in _____ of data.
- (*i*) Collection
- (*ii*) Presentation
- (*iii*) Interpretation
- (*iv*) Analysis

7. Read the given case carefully and answer the following questions on the basis of the same.

Despite the usefulness of statistics in many fields, impression should not be carried that statistics are like magical devices which always provide the correct solution to the problems. Statistics is like a clay either we can make god or devil hence, statistics can be misused. There are many limitations

attached to statistics. It is often said that there are three types of lies – lie, damned lie and statistics. It means statistics can prove anything.

(*a*) Which of the following is limitation of statistics?
- (*i*) Statistics can be misused.
- (*ii*) Statistics results are true on an average.
- (*iii*) Statistics deals only with quantitative facts.
- (*iv*) All of these

(*b*) Which of the following cannot be studied directly in statistics?
- (*i*) Honesty
- (*ii*) Deafness
- (*iii*) Intelligence
- (*iv*) All of these

(*c*) Which of the following statement is true as statistics?
- (*i*) Mr. X is 160 cms tall.
- (*ii*) Average height of an Indian is 152 cms.
- (*iii*) Population growth rate in India is nearly 2 percent.
- (*iv*) None of these

(*d*) Which of the following is the characteristic of statistics in plural sense?
- (*i*) Aggregate of facts
- (*ii*) Numerically expressed
- (*iii*) Multiplicity of causes
- (*iv*) All of these

8. Read the given case carefully and answer the following questions on the basis of the same.

Whether statistics is a science or an art, is often a subject of debate. Science refers to a systematised body of knowledge. It studies cause and effect relationship and attempts to make generalisastions in the form of scientific principles of laws. Art, on the other hand, refers to skill of handling facts so as to achieve a given objective. If the science is knowledge, then art is action. So, statistics may also be regarded as an art. It involves the application of given method to obtain the facts.

(*a*) Statistics is a/an _____.
- (*i*) science
- (*ii*) art
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*b*) Skill of handling facts so as to achieve a given objective is a/an _____.
- (*i*) science
- (*ii*) art
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*c*) Statistics is a light house that gives light to the ship to find its own way. in this statement, statistics is a/an _____.
- (*i*) science
- (*ii*) art
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*d*) If _____ is a knowledge, then _____ is an action.
- (*i*) art; art
- (*ii*) art; science
- (*iii*) science; art
- (*iv*) science; science

CHAPTER 1: Introduction

Multiple Choice Questions

1. (*a*)	**2.** (*a*)	**3.** (*b*)	**4.** (*c*)	**5.** (*c*)	**6.** (*c*)
7. (*b*)	**8.** (*d*)	**9.** (*b*)	**10.** (*d*)	**11.** (*d*)	**12.** (*b*)
13. (*c*)	**14.** (*b*)	**15.** (*c*)	**16.** (*c*)	**17.** (*d*)	**18.** (*a*)
19. (*b*)	**20.** (*a*)	**21.** (*c*)	**22.** (*a*)	**23.** (*a*)	**24.** (*c*)
25. (*d*)	**26.** (*a*)	**27.** (*b*)	**28.** (*a*)	**29.** (*b*)	**30.** (*c*)
31. (*a*)	**32.** (*d*)	**33.** (*c*)	**34.** (*a*)	**35.** (*d*)	**36.** (*b*)
37. (*b*)	**38.** (*d*)	**39.** (*c*)	**40.** (*a*)	**41.** (*b*)	**42.** (*d*)
43. (*b*)	**44.** (*c*)	**45.** (*b*)	**46.** (*a*)	**47.** (*a*)	**48.** (*a*)
49. (*a*)	**50.** (*a*)	**51.** (*c*)	**52.** (*c*)	**53.** (*d*)	**54.** (*d*)
55. (*c*)	**56.** (*a*)	**57.** (*d*)	**58.** (*c*)	**59.** (*d*)	**60.** (*a*)
61. (*c*)	**62.** (*d*)	**63.** (*b*)	**64.** (*c*)	**65.** (*a*)	

Assertion-Reasoning Type MCQs

66. (*b*)	**67.** (*c*)	**68.** (*a*)	**69.** (*d*)	**70.** (*b*)	**71.** (*a*)
72. (*a*)	**73.** (*b*)	**74.** (*a*)	**75.** (*d*)	**76.** (*a*)	**77.** (*a*)
78. (*b*)	**79.** (*b*)	**80.** (*a*)			

Case-Based MCQs

1. (*a*)	(*iv*)	(*b*)	(*iii*)	(*c*)	(*i*)	(*d*)	(*i*)
2. (*a*)	(*iv*)	(*b*)	(*i*)	(*c*)	(*iv*)	(*d*)	(*i*)
3. (*a*)	(*iii*)	(*b*)	(*iv*)	(*c*)	(*iv*)	(*d*)	(*iv*)
4. (*a*)	(*iii*)	(*b*)	(*iv*)	(*c*)	(*iv*)	(*d*)	(*iv*)
5. (*a*)	(*ii*)	(*b*)	(*i*)	(*c*)	(*iii*)	(*d*)	(*ii*)
6. (*a*)	(*ii*)	(*b*)	(*iii*)	(*c*)	(*ii*)	(*d*)	(*iv*)
7. (*a*)	(*iv*)	(*b*)	(*iv*)	(*c*)	(*ii*)	(*d*)	(*iv*)
8. (*a*)	(*iii*)	(*b*)	(*ii*)	(*c*)	(*i*)	(*d*)	(*iii*)

Objective Questions

Multiple Choice Questions

1. Wealth definition of Economics was given by
(a) Prof. Adam Smith
(b) Prof. Alfred Marshall
(c) Prof. Lionel Robbins
(d) Prof. Samuelson

2. Choose the correct statement from the given below.
(a) Economics and statistics goes hand in hand.
(b) Economic laws are validated by statistical information.
(c) Government needs statistical information for making fiscal policies.
(d) All of the above are correct statement

3. Welfare definition of Economics was given by
(a) Prof. Adam Smith
(b) Prof. Alfred Marshall
(c) Prof. Lionel Robbins
(d) Prof. Samuelson

4. According to Prof. Robbins, economic problems arises due to ..... .
(a) resource scarcity
(b) unlimited human wants
(c) resources can be put to various uses
(d) All of the above

5. The word Economics is derived from ..... words.
(a) Latin (b) English
(c) Greek (d) None of these

6. An economic agent who works to earn wages to buy various goods and services is called ..... .
(a) consumer
(b) producer
(c) service provider
(d) service holder

7. ..... is an economic agent who produces various goods and services to maximise profits.
(a) Service provider (b) Service receiver
(c) Producer (d) Consumer

8. All activities which involve money is referred to as economic activity. Choose the most appropriate option from below for the given statement.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

9. If a farmer produces for self-consumption, then this activity will be called as ..... .
(a) an Economic activity
(b) a Non-economic activity
(c) a Self-sufficient activity
(d) None of the above

10. Choose the correct pair from given below.

Column I	Column II
A. Resources	(i) Scarcity
B. Human wants	(ii) Limited
C. Human needs	(iii) Non-recurring in nature
D. Natural resources	(iv) Limited use

Codes
(a) A - (i) (b) B - (ii)
(c) C - (iii)
(d) All of the above pairs are correct

11. Non-economic activities are one which uses scarce productive resources. Choose the most appropriate option from below for the given statement.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

12. Identify the activity which is not done with the motive of earning livelihood from the given below

(a) Blood donation camp
(b) Free meal distribution during nationwide Covid-19 lockdowns
(c) Visiting an orphanage to distribute cloths
(d) All of the above

13. Choose the incorrect pair from the given below

	Column I		Column II
A.	Scarcity Definition of Economics	(i)	Prof. Lionel Robbins
B.	Growth Oriented Definition of Economics	(ii)	Prof. Paul Sweezy
C.	Welfare Definition of Economics	(iii)	Prof. Alfred Marshall
D.	Economics is the Science of the Wealth of the Nation	(iv)	Prof. Adam Smith

Codes
(a) A – (i) (b) B – (ii)
(c) C – (iii) (d) D – (iv)

14. An economic agent who consumes a good to maximise satisfaction is known as a ..... .

(a) Consumer (b) Producer
(c) Service provider (d) Service holder

15. An economic activity which involves addition to the stock of capital is known as

(a) Consumption (b) Production
(c) Investment (d) None of these

16. Statistics is defined in ..... ways.

(a) two (b) three
(c) four (d) ilnfinite

17. Services produced for self-consumption are an act of non-market economic activities. Choose the most appropriate option from given below

(a) True
(b) False
(c) Partially true
(d) Incomplete statement

18. Economic activities never involve the use of money. Choose the most appropriate option from below for the given statement

(a) True
(b) False
(c) Partially true
(d) Incomplete statement

19. A teacher teaching his own child is a ..... activity.

(a) economic (b) non-economic
(c) market (d) None of these

20. ..... is an economic branch related to the study of an individual economic entity.

(a) Statistics (b) Microeconomics
(c) Macroeconomics (d) Both (a) and (b)

21. Economics is considered as

(i) Positive Statement
(ii) Normative Statement
(iii) Science
(iv) Art

Choose from the options below

(a) (i), (ii) and (iii)
(b) (ii), (iii) and (iv)
(c) (i), (iii) and (iv)
(d) (i), (ii), (iii) and (iv)

22. Statistics is derived from a Latin word 'Status' which means ..... .

(a) data
(b) political state
(c) quantitative information
(d) All of the above

23. Which of the following is/are true about statistics?
(a) Statistics are collected in a systematic manner
(b) Statistics are numerically expressed
(c) Statistics is aggregate of facts
(d) All of the above are true

24. ..... refers to the study based upon observations or experimentations.
(a) Empirical analysis
(b) Quantitative analysis
(c) Qualitative analysis
(d) None of the above

25. In which of the following ways, Statistics can be defined?
(a) Singular sense (b) Plural sense
(c) Both (a) and (b) (d) Neither (a) nor (b)

26. Choose the correct option about Statistics in plural sense.
(a) Descriptive in nature
(b) Inductive in nature
(c) Statistical data
(d) None of the above

27. Choose the correct options from the given below.
(a) Statistics in singular sense is a series of collection, organisation, presentation, analysis and interpretation of data.
(b) Statistics in singular sense means collection of numerical data.
(c) Statistics in plural sense is a series of collection, organisation and interpretation of data.
(d) Statistics in plural sense is collection of numerical data.

28. 'Viaan has a long bat'. This statement is ..... .
(a) quantitative statement
(b) qualitative statement
(c) statistical statement
(d) None of the above

29. Inferential Statistics refers to the methods by which conclusions are drawn relating to the population on the basis of a given sample.
Choose the most appropriate option from below for the given statement.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

30. Statistics can be best used by ..... .
(a) experts
(b) general people
(c) economists
(d) All of the above

31. Students of class XI do not pay much importance in studies. This statement is a statistical information.
Choose the most appropriate option from below for the given statement.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

32. Collection of quantitative facts is a part of which of the following definitions of economics?
(a) Singular
(b) Plural
(c) Both (a) and (b)
(d) None of the above

33. Descriptive statistics refers to information in terms of numerical data.
Choose the most appropriate option from below for the given statement.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

34. Choose the correct pair from given below.

Column I	Column II
A. Collection of data	(i) First method of statistical enquiry
B. Statical methods	(ii) Do not study the qualitative phenomena's
C. Statistical results	(iii) Affected by multiplicity of causes

Codes
(a) A - (i)
(b) B - (ii)
(c) C - (iii)
(d) All of the above pairs are correct

35. Statistics deals with ..... data.
(a) quantitative
(b) qualitative
(c) Both quantitative and qualitative
(d) Neither quantitative nor qualitative

36. An individual number is not Statistics. Choose the most appropriate option from below for the given statement
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

37. Statistics should be placed in relation to each other. Choose the most appropriate option from below for the given statement.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

38. Which of the following is/are function(s) of Statistics?
(i) Simplification of facts
(ii) Setting and analysis of hypothesis
(iii) Enhances human knowledge
Choose from the options below
(a) (i) & (ii)
(b) (ii) & (iii)
(c) (i) & (iii)
(d) (i), (ii) & (iii)

39. Collection of secondary data is the primary step of statistics. Choose the most appropriate option from below for the given statement.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

40. Any statistical information collected without a definite objective is known as a number. Choose the most appropriate option from below for the given statement.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

41. Choose the correct option from the given below.
(a) Statistics deals with individual facts.
(b) Statistical results are correct only on an average.
(c) Statistics deals with quantitative facts only.
(d) Both (b) and (c)

42. Statistics is a useful instrument for
(a) policy makers
(b) economic laws
(c) businesses
(d) All of the above

43. Which of the following is the third method of statistics in an enquiry?
(a) Collection of data
(b) Organization of data
(c) Presentation of data
(d) Analysis of data

44. Statistical enquiry does not comprise of which of the following?
(a) Study of numbers
(b) Study of qualitative facts
(c) Study of individual quantitative facts
(d) None of the above

45. Distrust of statistics is because of
(a) limitation of statistics
(b) misuse of statistics
(c) insufficient statistical methods
(d) scope of statistics is limited

Assertion-Reasoning MCQs

Direction (Q.Nos. 46 to 49) *There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

46. Assertion (A) Scarcity of resources is a major cause of all economic problems in a country.

Reason (R) Human wants are unlimited while the resources have alternative uses as well.

47. Assertion (A) Welfare definition of economics only considers human needs to satisfy wants.

Reason (R) The means to fulfill human wants are limited in relation to the needs.

48. Assertion (A) Economic activity always involves buying and selling of a good or services in the market to earn profits.

Reason (R) Any act of production of goods for self-consumption is a non-economic activity.

49. Assertion (A) Heterogeneous data in statistics should be placed in relation to each other.

Reason (R) A quantitative fact is not statistics unless it is comparable.

Case Based MCQs

Direction *Read the following case study and answer questions 50 to 54 on the basis of the same.*

Statistics in plural sense refers to collection of numerical facts where as in singular sense, it refers to all statistical methods. Statistics plays an important role in economic policies as well as in economics laws like law of demand, law of supply.

Government uses various statistical information related to macroeconomics issues like poverty, unemployment, etc. However, it is open to criticism as it does not deal with individual facts and results are true only on an average. Various tools are used to analyse different components like central tendency, measures of variation, correlation and index numbers.

50. Arrange the following stages of Statistics
(i) Organisation (ii) Collection
(iii) Interpretation (iv) Presentation
(v) Analysis

Choose from the options below
(a) (i), (iii), (ii), (v) and (iv)
(b) (iii), (ii), (i), (iv) and (v)
(c) (ii), (i), (iv), (v) and (iii)
(d) (iv), (v), (iii), (ii) and (i)

51. Which of the following is/are limitations of Statistics?
(a) Statistics can lead to misleading conclusion.
(b) Statistical data should be homogeneous.
(c) Statistics simply is one of the methods of studying a phenomenon.
(d) All of the above

52. **Assertion** (A) Statistical results are correct only on an average due to the presence of personal bias.

Reason (R) Statistics helps in enhancing human knowledge by using its method of interpretation of primary data.

Alternatives

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is true, but Reason (R) is false
(d) Assertion (A) is false, but Reason (R) is true

53. Government uses statistical information for ..... .

(a) making macroeconomic policies
(b) maintaining law and order
(c) administration (d) All of the above

54. Which of the following tools are used in Statistics for analysis of data?

(a) Averages (b) Regression
(c) Correction (d) All of these

Direction *Read the following case study and answer questions 55 to 59 on the basis of the same.*

Economics is derived from Greek words and used to be studied as a part of political system. Later, the importance of statistics was realised and studied as a separate discipline. On the other hand, statistics is derived from Latin word and gained its importance from its very beginning. Statistics is a different subject but has its importance in almost all disciplines. Economics and statistics are two inter-related subjects. Economic policies are formed with the help of statistical information, also the validity of economic theories are proved by statistical methods of interpretation. In all, it can be said that economics cannot work in isolation without statistics.

55. Statistics always deals with ..... data.

(a) homogeneous
(b) heterogeneous
(c) Both (a) and (b)
(d) Neither (a) nor (b)

56. Which of the following activities can be considered as economic activities?

(a) Production
(b) Investment
(c) Consumption
(d) All of the above

57. Choose the correct statement from given below.

(a) The word 'Economics' means household management.
(b) Statistics only deals with quantitative facts.
(c) Non-economic activities do not involve use of money.
(d) Interpretation of data comes after analysis of data.

58. Which of the following is not a limitation of statistics?

(a) It only deals with aggregate of facts.
(b) It's results can be misleading.
(c) It is not capable for further mathematical treatment.
(d) It's results can be proven incorrect without reference.

59. **Assertion** (A) Economics has no importance when studied in isolation of statistics.

Reason (R) Validity of economic laws depends upon the empirical evidences.

Alternatives

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

ANSWERS

Multiple Choice Questions

1. (a)	2. (d)	3. (b)	4. (d)	5. (c)	6. (c)	7. (c)	8. (b)	9. (a)	10. (a)
11. (b)	12. (d)	13. (b)	14. (a)	15. (c)	16. (a)	17. (b)	18. (b)	19. (b)	20. (b)
21. (d)	22. (b)	23. (d)	24. (a)	25. (c)	26. (d)	27. (b)	28. (b)	29. (a)	30. (a)
31. (b)	32. (c)	33. (a)	34. (d)	35. (c)	36. (a)	37. (a)	38. (d)	39. (c)	40. (a)
41. (b)	42. (d)	43. (c)	44. (c)	45. (b)					

Assertion-Reasoning MCQs

46. (a)	47. (b)	48. (d)	49. (c)

Case Based MCQs

50. (c)	51. (d)	52. (b)	53. (d)	54. (d)	55. (a)	56. (d)	57. (a)	58. (c)	59. (a)

OBJECTIVE QUESTIONS

Fill in the Blanks

1. A mother teaching her child is a _____ activity, while a teacher teaching the students is an _____ activity.
2. _____ definition of Economics has been given by Lionel Robbins.
3. _____ is an economic activity which deals with use of goods and services for satisfaction of human wants.
4. _____ activities are undertaken to earn a living.
5. In _____ activities, there is no expectation of any kind of monetary reward.
6. _____ is that economic activity which studies how income generated is distributed among the factors of production.
7. _____ is the root of all Economic Problems.

True or False

1. Scarcity definition of Economics has been given by Adam Smith.
2. Production, consumption and distribution are the three main economic activities undertaken by every economy.
3. Alternative uses of resources is the root of all Economic Problems.
4. Service provider is a person who works for some other person for wages.
5. Non-economic activities are undertaken without any expectation of monetary benefit.
6. Human activities are broadly divided as economic activities and non-economic activities.
7. Charitable activity like blood donation camp is an example of economic activity.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Prof. Lionel Robbins	a. Prof. Samuelson
(ii) Economic Activities	b. Unlimited
(iii) Growth Oriented Definition	c. Activities performed out of love, sympathy, sentiments, patriotism, etc.
(iv) Human Wants	d. Scarcity Definition
(v) Non-Economic Activities	e. Activities undertaken to earn a living

Q. 2. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A A teacher teaching to her child	(i) Economic Activity
B Production is a	(ii) Non-economic Activity
C Economics is a study of man in the ordinary business of life	(iii) Prof. Lionel Robbins
D Growth Oriented Definition is given by	(iv) Prof. Samuelson

(a) A - (i) (b) B - (ii) (c) C - (iii) (d) D - (iv)

Multiple Choice Questions (MCQs)

1. _____ is a person who buys goods and services for the satisfaction of his wants.
(a) Producer (b) Consumer (c) Service provider (d) Service holder

2. _____ is a person who works for some other person and get paid for it.
(a) Service holder (b) Producer (c) Service provider (d) Consumer

3. Economic problem arises due to:
(a) Unlimited wants (b) Scarcity of resources
(c) Alternative uses of resources (d) All of the above

4. Choose the correct statement:
(a) According to Adam Smith, Economics is the science of wealth
(b) Scarcity Definition was given by Samuelson
(c) Production is a non-economic activity
(d) In non-economic activities, there is an expectation of benefit

5. _____ is a person who produces goods and services.
(a) Consumer (b) Service provider (c) Producer (d) Service holder

6. According to _____, 'Economics is the science of wealth'.
(a) Adam Smith (b) Alfred Marshall (c) Prof. Samuelson (d) Lionel Robbins

7. Activities which are undertaken to earn a living are known as _____.
(a) Economic Activities (b) Non-Economic Activities
(c) Either (a) or (b) (d) Both (a) and (b)

8. Which of the following are economic activities?
(a) Distribution (b) Production (c) Consumption (d) All of the above

9. Scarcity of resources applies to all:
   (a) Individuals (b) Organisations (c) Countries (d) All of the above
10. Welfare definition of Economics has been given by:
   (a) Lionel Robbins (b) Adam Smith (c) Alfred Marshall (d) Prof. Samuelson
11. Which definition was given by Adam Smith?
   (a) Welfare Definition (b) Wealth Definition
   (c) Scarcity Definition (d) Growth Oriented Definition
12. Which economic activity deals with the use of goods and services for the satisfaction of human wants?
   (a) Consumption (b) Exchange (c) Production (d) Distribution
13. Who expressed the view that "Economics is neutral between ends"?
   (a) Robbins (b) Marshall (c) Pigou (d) Adam Smith
14. The law of scarcity:
   (a) Does not apply to rich, developed countries
   (b) Applies only to the less developed countries
   (c) Implies that consumers want will be satisfied in a socialistic system
   (d) Implies that consumer's wants will never be completely satisfied
15. Which of the following is a Non-economic Activity?
   (a) Housewife cooking food for her family (b) Doctor attending to patients in his clinic
   (c) Worker working in a factory (d) Chef cooking food at a Restaurant
16. Basis reason for existence of economic problem is:
   (a) Unlimited Wants (b) Scarcity (c) Alternative uses (d) None of the above
17. What implication (s) does resource scarcity has for the satisfaction of wants?
   (a) Not all wants can be satisfied
   (b) We will never be faced with the need to make choices
   (c) We must develop ways to decrease our individual wants
   (d) The discovery of new natural resources is necessary to increase our ability to satisfy wants
18. Which economist shifted the emphasis of economics from wealth to welfare?
   (a) Adam Smith (b) Samuelson (c) Alfred Marshall (d) Lionel Robbins
19. The activity which is related to the use of scarce resources is called:
   (a) Non-economic Activity (b) Economic Activity (c) Both (a) and (b) (d) Neither (a) nor (b)
20. Resources to satisfy human wants have _____ uses.
   (a) Alternative (b) No (c) Few (d) None of the above
21. Which of the following statement is incorrect?
   (a) Scarcity is the root of all Economic Problems
   (b) 'A person teaching his daughter for her Board Exams' is a Non-economic activity
   (c) Welfare definition of Economics has been given by Lionel Robbins
   (d) Attending a marriage is a Non-economic activity

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
   Assertion (A): There is no expectation of any kind of monetary reward in case of non-economic activities.
   Reason (R): Non-economic activities are inspired by sentimental reasons and are performed out of love, sentiments, patriotism, etc.

Alternatives:

(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Scarcity definition of economics was given by Prof. Lionel Robbins.
Reason (R): Scarcity is universal and applies to all individuals, organisations and countries.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Production is an economic activity.
Reason (R): Production includes all those activities which are undertaken to produce goods and services for generation of income and satisfying human wants.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Scarcity is the root cause of all economic problems.
Reason (R): We face scarcity because human wants are also limited.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Scarcity of resources is the basic reason for existence of economic problems in all economies.
Statement 2: Scarcity Definition is given by Prof. Samuelson.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Economic activities are undertaken to get satisfaction.
Statement 2: Economic activities are concerned with production, consumption and distribution of goods and services.

Alternatives:

(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Service provider is a person who works for some other person and get paid for it in the form of wages.
Statement 2: Service holder is a person who provides some kind of services to other for a payment, like banker.
Alternatives:

(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Non-economic activities are inspired by sentimental reasons and are performed out of love, sympathy, sentiments, etc.
Statement 2: An activity can be an economic activity in one situation and non-economic in another situation.
Alternatives:

(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Non-economic, Economic
2. Scarcity
3. Consumption
4. Economic
5. Non-economic
6. Distribution
7. Scarcity

True or False

1. False
2. True
3. False
4. False
5. True
6. True
7. False

Matching Type Questions

1. (i) d; (ii) e; (iii) a; (iv) b; (v) c.
2. (d) D - (iv)

Multiple Choice Questions (MCQs)

1. (b)	4. (a)	7. (a)	10. (c)	13. (a)	16. (b)	19. (b)
2. (a)	5. (c)	8. (d)	11. (b)	14. (d)	17. (a)	20. (a)
3. (d)	6. (a)	9. (d)	12. (a)	15. (a)	18. (c)	21. (c)

Assertion Reason Questions (ARQs)

1. (a) 2. (b) 3. (a) 4. (c)

Statement Based Questions

1. (c) 2. (d) 3. (b) 4. (a)

OBJECTIVE QUESTIONS

Fill in the Blanks

1. In _____ Sense, statistics means a collection of numerical facts.
2. _____ characteristics such as honesty, poverty, etc. are not suitable for statistical analysis.
3. Statistics deals only with aggregates of facts and no importance is attached to _____ items.
4. Statistics in _____ sense is descriptive in nature, but in _____ sense, it is basically a tool of analysis.
5. _____ is the first stage in statistics in singular sense.
6. In _____ Sense, statistics deal with the collection, presentation, analysis and interpretation of the quantitative information.

True or False

1. Statistics is concerned with quantitative data only.
2. All figures are statistics.
3. As a singular noun, statistics means statistical data.
4. Statistics can be misused.

5. Statistics is both singular and plural.
6. A single observation is not statistics.
7. Interpretation of data is the first stage in a statistical investigation.
8. All facts numerically stated are not statistics.
9. 'Students of a class are good in studies' is a statistics statement.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Plural Sense	a. It does not study qualitative phenomena
(ii) Collection of Data	b. Statistics as a Method
(iii) Distrust of Statistics	c. Statistics as Numerical Set of Data
(iv) Limitations of Statistics	d. First step in a statistical enquiry
(v) Singular Sense	e. Lack of confidence in statistical methods and statements

Multiple Choice Questions (MCQs)

1. The word 'statistics' is used as:
(a) Singular (b) Plural (c) Both (a) and (b) (d) None of these

2. The proper use of statistics can be made by:
(a) Cheats (b) Everyone (c) Experts (d) Common Man

3. Statistics as a singular noun means:
(a) Statistical Data (b) Statistical Methods (c) Inductive Statistics (d) Descriptive Statistics

4. Statistics is the science of analysing:
(a) Qualitative data (b) Quantitative data (c) Any kind of data (d) Both (a) and (b)

5. Statistics as a plural noun indicates:
(a) Statistical Methods (b) Descriptive Statistics (c) Statistical Data (d) Inductive Statistics

6. The statistics is concerned with:
(a) Aggregate of organised facts (b) Aggregate of disorganised facts
(c) Aggregate of useless facts (d) Aggregate of unrelated facts

7. Distrust of statistics is due to:
(a) Misuse of statistics (b) Insufficient statistical methods
(c) Scope of statistics is limited (d) Limitations of statistics

8. Statistics in singular sense includes:
(a) Collection of data (b) Organisation of data (c) Presentation of data (d) All of the above

9. Statistics is defined in terms of numerical data in the:
(a) Singular Sense (b) Plural Sense (c) Either (a) or (b) (d) Both (a) and (b)

10. The characteristics of statistics in plural sense are:
(a) Aggregate of facts (b) Collected for a pre-determined purpose
(c) Affected by multiplicity of causes (d) All of the above

11. Statistics is used by:
(a) Businessmen (b) Economists (c) Government (d) All of the above

12. In singular sense, which of the following is not a characteristic of Statistics?
(a) Collection of Data (b) Aggregate of facts (c) Analysis of Data (d) Interpretation of Data

13. Which of the following is not a limitation of Statistics?
(a) Statistics can be Misused
(b) Statistics does not study qualitative phenomena
(c) Statistical laws are not exact
(d) Statistics deals with aggregates of facts

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Statistics are a number of facts.
Reason (R): Single and isolated figures are not statistics as such figures cannot be compared.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Only experts can make the best possible use of techniques of Statistics.
Reason (R): The techniques of Statistics are complicated in nature.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): In Plural Sense, Statistics means a collection of numerical facts.
Reason (R): Statistics should be enumerated according to a reasonable standard of accuracy.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Statistical data should be uniform and homogeneous.
Reason (R): Homogeneous data is not comparable.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

5. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): In singular sense, the term Statistics means statistical methods.
Reason (R): Qualitative characteristics are not suitable for statistical analysis.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: A single figure can never be called statistics.
Statement 2: Qualitative characteristics like intelligence and beauty can be easily included in statistics.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: For the purpose of comparison, data must be heterogeneous in statistics.
Statement 2: In Statistics, if the figures collected are not comparable, then they lose a large part of their significance.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: The purpose of collecting statistical data needs to be decided in advance.
Statement 2: In plural sense, the term 'Statistics' means statistical methods.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Statistics in plural sense means a collection of numerical facts.
Statement 2: A high degree of accuracy is not insisted upon in statistics as mass of data is involved.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

5. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: The techniques of statistics are so simple that they can be used by any layman.
Statement 2: Statistical laws are probabilistic in nature and not exact.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Plural
2. Qualitative
3. Individual
4. Plural, Singular
5. Collection of data
6. Singular

True or False

1. True
2. False
3. False
4. True
5. True
6. True
7. False
8. True
9. False

Matching Type Questions

1. (i) c; (ii) d; (iii) e; (iv) a; (v) b.

Multiple Choice Questions (MCQs)

1. (c)	3. (b)	5. (c)	7. (a)	9. (b)	11. (d)	13. (d)
2. (c)	4. (b)	6. (a)	8. (d)	10. (d)	12. (b)	

Assertion Reason Questions (ARQs)

1. (a)	2. (a)	3. (b)	4. (c)	5. (b)

Statement Based Questions

1. (b)	2. (d)	3. (c)	4. (a)	5. (d)

2 COLLECTION OF DATA

Important Terms and Concepts

1. **Primary data** is that data which is originally collected by the investigator himself during the process of investigation. It is collected from the source of origin. It is always related to a specific objective of the investigator. It is "first-hand data".
2. **Secondary data** is that data which has already been collected by others. It is, therefore, called **"second-hand data"**. It is used for further analysis.
3. **Survey** is a method of gathering information from individuals. The purpose of survey is to describe some characteristics like price, quality, usefulness, etc.
4. **Pilot survey** means conducting a try-out with a small group or pre-testing of a questionnaire. It helps in providing a preliminary idea about the survey.
5. **Investigator** is the person who conducts statistical enquiry.
6. **Enumerator** is the person whose help is needed by the investigator in collecting the information.
7. **Respondents** are the persons who respond to the questions asked by an investigator.
8. **Informants** are the persons from whom information is collected.
9. A **variable** is a quantity used to measure an "attribute" of something, which can take different values in different situations.
10. **Sample** refers to a group or section of the population from which information is to be obtained.
11. In statistics, the word **'universe'** refers to an aggregate of items to be studied for investigation. It also means population, *i.e.*, all the individuals/units from whom the information has to be sought.
12. **Sampling** means selection of a sample.
13. **Random sampling** is a method of sampling in which every item in the group has equal chance of being selected.
14. **Non-random sampling** is a method of sampling in which all the units of the population do not have an equal chance of being selected.
15. **Statistical error** is the difference between estimated value and actual value.
16. **Census** includes every element belonging to the population.
17. **Census method** is a method of data collection in which observations of all the units in a population are taken into account.
18. **Sample method** is a method, which requires that observations are obtained on representative set of individuals selected from the population.
19. **National Sample Survey Organisation (NSSO)** was set up in 1950 on the recommendations of National Income Committee, chaired by late Prof. PC Mahalanobis.
20. The **Census of India** provides the most complete and continuous demographic record of population. Census is being regularly conducted every 10 years since 1881.

Multiple Choice Questions

1. The main sources of data are:
(*a*) primary
(*b*) secondary
(*c*) Both (*a*) and (*b*)
(*d*) Neither (*a*) nor (*b*)

2. The data collected by the investigator himself is called:
(*a*) primary data
(*b*) secondary data
(*c*) both primary and secondary data
(*d*) None of these

3. A good questionnaire should have: **[NCT 2019]**
(*a*) minimum questions
(*b*) concise
(*c*) clear
(*d*) All of these

4. An advertising agency mailed 100 questionnaires to the viewers to know the impact of the advertisement. It received only one questionnaire back. It is not possible to apply statistics because:
(*a*) it does not deal with qualitative data.
(*b*) it does not deal with single result.
(*c*) the answer replied is not clear.
(*d*) it is not confidential.

5. The greatest demerit of mailing questionnaire is that the respondents:
(*a*) do not return it
(*b*) do not answer the question
(*c*) do not go through it carefully
(*d*) All of these

6. Telephone survey is the most suitable method of collecting data when the population is:
(*a*) literate and having telephone
(*b*) spread over remote areas
(*c*) Both (*a*) and (*b*)
(*d*) lives in city

7. The survey which helps in pre-testing the questionnaire is:
(*a*) Pilot Survey
(*b*) Census Survey
(*c*) Sample Survey
(*d*) None of these

8. The most complete and continuous demographic record of population is provided by:
(*a*) National Sample Survey Organisation (NSSO)
(*b*) Central Statistical Organisation (CSO)
(*c*) Registrar General of India (RGI)
(*d*) Census of India

9. Which type of data is contained in Census of India?
(*a*) National Income (*b*) Industry
(*c*) Population (*d*) Agriculture

10. Technique which gives every item of the universe an equal chance of being selected is _____.
(*a*) Convenient sampling
(*b*) Random sampling
(*c*) Judgement sampling
(*d*) Non-random sampling

11. NSSO provides periodic estimates of:
(*a*) literacy and utilisation of educational services
(*b*) employment and unemployment
(*c*) manufacturing and service sector enterprises
(*d*) All of these

12. The method of collecting primary data is:
(*a*) personal interview
(*b*) telephone interview
(*c*) mailing questionnaire
(*d*) All of these

13. Which type of questions should not be there in a questionnaire?
   (*a*) Simple
   (*b*) Personal
   (*c*) Clear cut
   (*d*) Properly sequenced

14. Which survey is a try-out with a small group that is done to assess the suitability of questions, clarity of instructions and cost and time involved in actual survey?
   (*a*) Census survey (*b*) Pilot survey
   (*c*) Sample survey (*d*) None of these

15. A survey in which information is collected from each and every unit of the population is known as:
   (*a*) sample survey (*b*) census survey
   (*c*) pilot survey (*d*) market survey

16. A researcher is interested in studying why the "new math" of 1960s failed. She interviews several teachers who used the new math during 1960s. The teachers are considered as:
   (*a*) primary source
   (*b*) external critics
   (*c*) secondary source
   (*d*) statistical investigators

17. A try out of survey is also known as:
   (*a*) Questionnaire
   (*b*) Pilot survey
   (*c*) Sample survey
   (*d*) Both (*b*) and (*c*)

18. Data collected and processed by some other agency are _____ data.
   (*a*) Primary (*b*) Secondary
   (*c*) Discrete (*d*) Continuous

19. Primary data is preferred over secondary data where:
   (*a*) accuracy is very important
   (*b*) available time is short
   (*c*) accuracy is not important
   (*d*) sufficient finance is not available

20. Raw data is made comprehensible by:
   (*a*) Collection of data
   (*b*) Classification of data
   (*c*) Organisation of data
   (*d*) Presentation of data

21. Which method cannot be used by illiterates:
   (*a*) Personal Interview
   (*b*) Mail Questionnaire
   (*c*) Telephone Interview
   (*d*) None of these

22. The census is being regularly conducted every ten years since:
   (*a*) 1981
   (*b*) 1971
   (*c*) 1881
   (*d*) 1951

23. Which type of questions are difficult to interpret?
   (*a*) Two-way Questions
   (*b*) Multiple Choice Questions
   (*c*) Open-ended Questions
   (*d*) None of these

24. Collection of data includes:
   (*a*) Collecting data from various sources, using suitable methods of collection
   (*b*) Methods of collecting data
   (*c*) Only collecting of information
   (*d*) Regeneration of data from the actual one

25. Direct personal investigation method is suitable where:
   (*a*) the field of investigation is large.
   (*b*) information is very confidential and complex.
   (*c*) direct contact is not possible.
   (*d*) second hand data is needed.

26. The problem of doubtful conclusion arises mainly in:

(*a*) Indirect Oral Investigation
(*b*) Information through correspondents
(*c*) Information through mailed questionnaire
(*d*) Direct personal interview

27. Data collected by research institutions, scholars, trade associations but not published is:

(*a*) Unpublished Data
(*b*) Personal Data
(*c*) Published Data
(*d*) Collective data

28. Which of the following is not the source of government publications?

(*a*) Annual Survey of Industry
(*b*) Report on Currency
(*c*) Finance Commission Report
(*d*) Agricultural Statistics of India

29. Which of the following is the method of unrestricted random sampling?

(*a*) Systematic random sampling
(*b*) Lottery method
(*c*) Cluster sampling
(*d*) Stratified sampling

30. A person who plan and conduct an empirical investigation independently or with the help of others is called:

(*a*) Respondents (*b*) Enumerator
(*c*) Investigator (*d*) Invigilator

31. An enquiry in which each unit of the universe is studied is called _____.

(*a*) Sample
(*b*) Population
(*c*) Incomplete enumeration
(*d*) Complete enumeration

32. In _____ information is recorded by the informants themselves whereas in _____ information supplied by the informants is recorded by the enumerators.

(*a*) Questionnaire; Direct investigation
(*b*) Schedule; Questionnaire
(*c*) Question; Scale
(*d*) Questionnaire; Schedule

33. Statistical enquiry means:

(*a*) it is the science for knowledge.
(*b*) it is the search for knowledge.
(*c*) it is collection of anything.
(*d*) it is the search for knowledge with the help of statistical methods.

34. The first census of free India was conducted in _____.

(*a*) 1952 (*b*) 1950
(*c*) 1951 (*d*) 1871

35. The statistical data collected by _____ released through its quarterly journal called _____.

(*a*) ISO; Sarvekshana
(*b*) DCI; Sanchetna
(*c*) AIS; Sanchetna
(*d*) NSSO; Sarvekshana

36. Data collected from 'The Times of India' is an example of:

(*a*) Primary Data
(*b*) Secondary Data
(*c*) Either (*a*) or (*b*)
(*d*) None of these

37. When population under investigation is infinite, we should use:

(*a*) Sample Method
(*b*) Census Method
(*c*) Either (*a*) or (*b*)
(*d*) Neither (*a*) nor (*b*)

38. Data from secondary source are:

(*a*) collected for purposes other than the current study

(*b*) obtained from the newspapers

(*c*) more reliable than data from a primary source

(*d*) Both (*a*) and (*b*)

39. Primary data is preferred over secondary data where:

(*a*) Accuracy is important

(*b*) Original Data is needed

(*c*) Much accuracy is not required

(*d*) Both (*a*) and (*b*)

40. Sample study is useful:

(*a*) when population is not completely known.

(*b*) as it is easy to handle samples.

(*c*) as results are more reliable.

(*d*) as it is cheap.

41. Which method of collection of data covers the widest area?

(*a*) Direct Personal Investigation

(*b*) Mailed Questionnaire Method

(*c*) Telephone interview method

(*d*) All of these

42. Which of the following is a limitation of Direct Personal Investigation?

(*a*) Not Suitable for Wide Areas

(*b*) Personal Prejudice

(*c*) Lack of Accuracy

(*d*) Both (*a*) and (*b*)

43. A good questionnaire should have/be:

(*a*) minimum questions

(*b*) concise

(*c*) clear

(*d*) All of these

44. In random sampling:

(*a*) Sample is always full of bias

(*b*) Cost involved is very less

(*c*) Cost involved is high

(*d*) Each element has equal chance of being selected

45. Direct personal investigation method suffers from:

(*a*) Excessive expenses

(*b*) Time consuming

(*c*) Personal bias

(*d*) All of these

46. In a good questionnaire:

(*a*) Number of questions should be as small as possible

(*b*) Questions using double negatives should be avoided

(*c*) Questions relating to mathematical computations should be asked

(*d*) Both (*a*) and (*b*)

47. The quickest method to collect primary data is:

(*a*) Direct Personal Investigation

(*b*) Indirect Oral Investigation

(*c*) Telephone Interview

(*d*) Mailing Questionnaire Method

48. Which of the following is the method of collecting primary data?

(*a*) Direct Personal Investigation

(*b*) Indirect Oral Investigation

(*c*) Telephonic Interviews

(*d*) All of these

49. The main demerit of mailing questionnaire is that the respondents: **[DoE]**

(*a*) do not answer the questions.

(*b*) do not read them carefully.

(*c*) do not send it back.

(*d*) All of these

50. What type of questions should not be included in a questionnaire? **[DoE]**

(*a*) Simple
(*b*) Multiple choice
(*c*) Personal
(*d*) Specific

51. 'Census of India' collects data related to: **[DoE]**

(*a*) Industry
(*b*) National Income
(*c*) Agriculture
(*d*) Demography

52. Which of the following is the most expensive method in term of time money and efforts involved? **[DoE]**

(*a*) Indirect oral investigation
(*b*) Direct personal investigation
(*c*) Information through questionnaires
(*d*) Information from local sources

53. Which one of these is not a method of data collection? **[DoE]**

(*a*) Questionnaires
(*b*) Interviews
(*c*) Exchange
(*d*) Observations

54. Primary data can be collected from: **[DoE]**

(*a*) its source of origin
(*b*) agency
(*c*) website
(*d*) NSSO

55. Data collected from National Sample Survey Office (NSSO) are called: **[DoE]**

(*a*) primary data
(*b*) secondary data
(*c*) Both primary and secondary data
(*d*) None of these

56. Which one of the following is not a mode of collecting primary data? **[DoE]**

(*a*) Direct Personal Investigation
(*b*) Data collection from Census of India
(*c*) Information through questionnaire
(*d*) Indirect oral investigation

57. Personal investigation method is not suitable for: **[DoE]**

(*a*) if field of investigation is very large.
(*b*) if field of investigation is limited.
(*c*) if greater degree of originality of data is required.
(*d*) if information is to be kept secret.

58. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Investigator	(*i*) Person who helps the investigator in collecting the information
B. Enumerator	(*ii*) Person who conducts statistical enquiries to collect the data
C. Survey	(*iii*) Method of gathering information from various individuals
D. Informant	(*iv*) Person who response the questions asked by the investigator

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

59. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Primary data	(*i*) Data collected from Times of India or Hindustan Times
B. Statistical errors	(*ii*) Difference between the actual value of a parameter of the population
C. Random sampling	(*iii*) It is also known as probability sampling.
D. Secondary data	(*iv*) Data collected by the investigator himself for the first time

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

60. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Personal interview	(*i*) Data is collected through an interview over the telephone
B. Non-random sampling	(*ii*) Method of sampling in which all the units of a population or universe do not have an equal chance of being selected
C. Primary data	(*iii*) Data which is not collected by the investigator or researcher himself
D. Telephone interview	(*iv*) Investigator collects the data personally

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

Assertion-Reasoning Type MCQs

Note: In the following questions (Q.61 to Q.71), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) **Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)**

(*b*) **Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)**

(*c*) **Assertion (A) is true but Reason (R) is false**

(*d*) **Assertion (A) is false but Reason (R) is true**

61. Assertion (A): Primary data involves more time and more expenses.

Reason (R): Primary data is collected for the first time from the source of origin.

62. Assertion (A): Collection of primary data is more economic than secondary data.

Reason (R): Secondary data are less costlier in terms of money and time involved.

63. Assertion (A): Random sampling is the method where individual samples are selected at random.

Reason (R): The term random sampling is used to describe the data and also the process used to select the sample.

64. **Assertion (A):** Data collected by investigator is called secondary data.

Reason (R): Data collected by investigator is called primary data as it is collected directly.

65. **Assertion (A):** Magazine is a source of secondary data.

Reason (R): The data published in magazine is already collected.

66. **Assertion (A):** Direct Personal Investigation is not suitable when the area of coverage is large.

Reason (R): In Direct Personal Investigation more time and money is spent.

67. **Assertion (A):** Number of questions in a questionnaire should be as small as possible.

Reason (R): Questionnaire may consist of structured and unstructured questions.

68. **Assertion (A):** Random sampling is also known as lottery method.

Reason (R): In random sampling, people who are selected are just like the people who have not selected.

69. **Assertion (A):** Primary data is the original data.

Reason (R): Primary data is generally obtained from published sources.

70. **Assertion (A):** Enumerator is a person who helps the investigator in collecting the data.

Reason (R): Investigator is a person who answers to the set of questions included in the questionnaire.

71. **Assertion (A):** Sample method of investigation is economical.

Reason (R): In Sampling method, only limited number of items are investigated.

Case-Based MCQs

1. **Read the given case carefully and answer the following questions on the basis of the same.**

A primary source is one that itself collects the data and a secondary source is one that makes available data which were collected by some other agency. It may be noted that a given source may be partly primary and partly secondary. Data originally collected for an investigation are known as primary data. Such data are original in character and are generated in large number of surveys conducted mostly by government and also by some individual institutions. Data which are not originally collected rather obtained from published or unpublished sources are secondary data. Secondary data are modified by investigator as per the investigation.

(*a*) The process of assembling primary data is called:
- (*i*) Compiling statistics
- (*ii*) Collection of data
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*b*) Which of the following is an advantage of secondary data?
- (*i*) There is no need of hiring enumerators.
- (*ii*) Secondary data saves time.
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*c*) Why primary data is preferred over secondary data?
- (*i*) Secondary data may contain mistakes due to error in transcription
- (*ii*) Primary source usually show data in greater details
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*d*) Statistics collected by Central Statistical Organisation (CSO) about national income is _____ statistics.

(*i*) primary (*ii*) secondary
(*iii*) tertiary (*iv*) None of these

2. Read the given case carefully and answer the following questions on the basis of the same.

Mailed questionnaire method is a method in which a list of questions pertaining to the survey known as questionnaire is prepared and sent to the various informants by post. The questionnaire contains questions and provides space for answers. A request is made to the informants through a covering letter to fill up the questionnaire and sent it back within a specified time. The success of this method depends upon the skills with which the questionnaire is drafted and the extent to which willing cooperation of the informants is secured. Questionnaire consists of structured and unstructured questions. Structured questions are close-ended questions whereas unstructured questions are open-ended questions.

(*a*) Which of the following is a characteristic of a good questionnaire?
(*i*) Ambiguous questions should be avoided
(*ii*) Number of questions should be large
(*iii*) Questions should move from particular to general
(*iv*) All of these

(*b*) Which of the following is the part of structured questions?
(*i*) Multiple choice questions
(*ii*) Yes or No questions
(*iii*) Both (*i*) and (*ii*)
(*iv*) None of these

(*c*) Mailing questionnaire is _____ source of collecting data.
(*i*) primary
(*ii*) secondary
(*iii*) Either (*i*) or (*ii*)
(*iv*) Neither (*i*) nor (*ii*)

(*d*) Pre-testing of questionnaire is known as _____ survey.
(*i*) pilot
(*ii*) driver
(*iii*) online
(*iv*) None of these

3. Read the given case carefully and answer the following questions on the basis of the same.

The variables which can be expressed in numerical terms are known as quantitative variables and the variables which cannot be measured in numerical terms are qualitative measures. qualitative variables cannot be measured in figures as they are vague terms and we cannot make statistical analysis out of them. So, qualitative variables are not called statistics unless they are assigned some numerical values.

(*a*) Which of the following is a quantitative variable?
(*i*) Height
(*ii*) Temperature
(*iii*) Honesty
(*iv*) Both (*i*) and (*ii*)

(*b*) Which of the following is a qualitative variable?
(*i*) Rainfall
(*ii*) Intelligence
(*iii*) Beauty
(*iv*) Both (*ii*) and (*iii*)

(*c*) Which of the following is statistics?

(*i*) A cow has four legs

(*ii*) A cow has four legs but man has two legs

(*iii*) A cow has four legs and one tail

(*iv*) Both (*ii*) and (*iii*)

(*d*) A variable is that which changes over a _____ of time.

(*i*) period

(*ii*) point

(*iii*) Either (*i*) or (*ii*)

(*iv*) Neither (*i*) nor (*ii*)

4. Read the given case carefully and answer the following questions on the basis of the same.

The Ministry of Statistics and Programme Implementation is a ministry of Government of India concerned with coverage and quality aspects of statistics released. The surveys conducted by the Ministry are based on scientific sampling methods. The Ministry has two wings, one relating to Statistics and the other Programme Implementation. The Statistics Wing called the National Statistical Office (NSO) consists of the Central Statistical Office (CSO), and the National Sample Survey Office (NSSO). National Statistical Office socio economic surveys on issues like employment-unemployment situation, consumer expenditure, health and medical services etc.

(*a*) Surveys conducted by Ministry of Statistics and Programme Implementation are _____.

(*i*) scientific census methods

(*ii*) arbitrary methods

(*iii*) scientific sampling methods

(*iv*) None of these

(*b*) National Statistical Office consists of National Sample Survey Office and _____.

(*i*) Central Statistical Office

(*ii*) Indian Institute of Statistics

(*iii*) Both (*i*) and (*ii*)

(*iv*) None of these

(*c*) Which of the following magazines is published by National Sample Survey office?

(*i*) Rail Bandhu

(*ii*) Bal Bharti

(*iii*) Sarvekshana

(*iv*) None of these

(*d*) National Statistical Office conduct surveys on _____ issues.

(*i*) political

(*ii*) social

(*iii*) economic

(*iv*) Both (*ii*) and (*iii*)

5. Read the given case carefully and answer the following questions on the basis of the same.

Under the census or complete enumeration method, data are collected from each and every unit of the population or universe which has the complete set of items. The results obtained are likely to be more representative, accurate and reliable. The census method is not popularly used in practice as the efforts, money and time required for carrying out complete enumeration will generally be extremely large and in many cases cost may so prohibitive the very idea of collecting information may have to be dropped. Sampling is simply the process of learning about the population on the basis of a sample drawn from it. Thus, in the sampling technique instead of every unit of the universe only a part of the universe is studied.

(*a*) Which of the following is a primary method of data collection?
- (*i*) Census method
- (*ii*) Sampling method
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*b*) Universe in statistics implies:
- (*i*) Population of entire world
- (*ii*) Population through which data is to be collected
- (*iii*) Population of the country
- (*iv*) All of these

(*c*) _____ method involves more time and cost.
- (*i*) Sampling
- (*ii*) Census
- (*iii*) Mailing questionnaire
- (*iv*) None of these

(*d*) From which method, data is collected from each and every unit of population?
- (*i*) Census Method
- (*ii*) Complete Enumeration Method
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) Sampling Method

6. Read the given case carefully and answer the following questions on the basis of the same.

The last Census of India held in 2011. According to the Census, population of India was 121.09 crores, which was 102.87 crores in 2001. A house to house enquiry was carried out, covering all households in India. Demographic data on birth and death rate, literacy etc. was collected and published by registrar general of India.

(*a*) Census of India is an example of:
- (*i*) Sample method
- (*ii*) Census method
- (*iii*) Random sampling
- (*iv*) Both (*ii*) and (*iii*)

(*b*) Census of India is conducted every _____ years.
- (*i*) 5 (*ii*) 10
- (*iii*) 15 (*iv*) 20

(*c*) If students of Class 12 are required for an investigation in a school and all students of Class 12 are enquired, then it is termed as:
- (*i*) Census method
- (*ii*) Sample method
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*d*) Random sampling is also known as _____.
- (*i*) Census method
- (*ii*) Judgement sampling
- (*iii*) Lottery method
- (*iv*) Strata sampling

7. Read the given case carefully and answer the following questions on the basis of the same.

Census of India is a decennial publication of the Government of India. It is published by Registrar General and Census Commissioner, under Ministry of Home Affairs, Government of India. It is a very comprehensive source of secondary data. It relates to population size and various aspects of demographic changes in India. It may be of historical interest that though the population Census of India is a major administrative function; the census Organisation was set up on an ad-hoc basis for each Census till the 1951 Census. The Census Act was enacted in 1948 to provide for the scheme of conducting population census with duties and responsibilities of census officers. The Government of India decided in May 1949 to initiate steps for developing systematic collection of statistics on the size of the population, its growth, etc., and

established an organisation in the Ministry of Home Affairs under Registrar General and ex-Officio Census Commissioner, India.

(*a*) Census of India is carried out once in _____ years.
(*i*) 10 (*ii*) 15
(*iii*) 20 (*iv*) 25

(*b*) Data originally collected in the process of investigation is known as _____ data.
(*i*) primary
(*ii*) secondary
(*iii*) Either (*i*) or (*ii*)
(*iv*) Neither (*i*) nor (*ii*)

(*c*) The problem of double conclusion arises in _____ method.
(*i*) Direct personal investigation
(*ii*) Indirect oral investigation
(*iii*) Mailing questionnaire
(*iv*) None of these

(*d*) Post independence, the first Census of India was conducted in _____.
(*i*) 1949 (*ii*) 1950
(*iii*) 1952 (*iv*) 1951

8. Read the given case carefully and answer the following questions on the basis of the same.

NSSO is a government organisation under the Ministry of Statistics and Programme Implementation. This organisation conducts regular sample survey to collect basic statistical information relating to a variety of economic activity in rural as well as urban parts of the country. The National Sample Survey Office (NSSO) in India is a unique set up to carry out surveys on socio-economic, demographic, agricultural and industrial subjects for collecting data from households and from enterprises located in villages and in the towns.

(*a*) _____ is a government agency in India under the Ministry of Statistics and Programme Implementation responsible for coordination of statistical activities in India and evolving and maintaining statistical standards.
(*i*) DICGS (*ii*) AIS
(*iii*) CSO (*iv*) ISO

(*b*) The statistical data collected by NSSO is released through its quarterly journal called _____.
(*i*) Survey
(*ii*) Questionnaire
(*iii*) Sarvekshana
(*iv*) None of these

(*c*) Statistical information publised by UNO, IMP and foreign governments are used as _____ data.
(*i*) primary
(*ii*) secondary
(*iii*) Either (*i*) or (*ii*)
(*iv*) Neither (*i*) nor (*ii*)

(*d*) NSSO collects, process and tabulate the statistical data of _____ change.
(*i*) economic
(*ii*) social
(*iii*) legal
(*iv*) None of these

CHAPTER 2: Collection of Data

Multiple Choice Questions

1. (*c*)	**2.** (*a*)	**3.** (*d*)	**4.** (*b*)	**5.** (*d*)	**6.** (*c*)
7. (*a*)	**8.** (*d*)	**9.** (*c*)	**10.** (*b*)	**11.** (*d*)	**12.** (*d*)
13. (*b*)	**14.** (*b*)	**15.** (*b*)	**16.** (*a*)	**17.** (*b*)	**18.** (*b*)
19. (*a*)	**20.** (*b*)	**21.** (*b*)	**22.** (*d*)	**23.** (*c*)	**24.** (*a*)
25. (*b*)	**26.** (*a*)	**27.** (*a*)	**28.** (*c*)	**29.** (*b*)	**30.** (*c*)
31. (*d*)	**32.** (*d*)	**33.** (*d*)	**34.** (*c*)	**35.** (*d*)	**36.** (*b*)

37. (*a*)	**38.** (*d*)	**39.** (*d*)	**40.** (*a*)	**41.** (*b*)	**42.** (*d*)
43. (*d*)	**44.** (*d*)	**45.** (*d*)	**46.** (*d*)	**47.** (*c*)	**48.** (*d*)
49. (*d*)	**50.** (*c*)	**51.** (*d*)	**52.** (*b*)	**53.** (*c*)	**54.** (*a*)
55. (*b*)	**56.** (*b*)	**57.** (*a*)	**58.** (*c*)	**59.** (*c*)	**60.** (*b*)

Assertion-Reasoning Type MCQs

61. (*a*)	**62.** (*d*)	**63.** (*c*)	**64.** (*d*)	**65.** (*a*)	**66.** (*a*)
67. (*b*)	**68.** (*a*)	**69.** (*c*)	**70.** (*c*)	**71.** (*a*)	

Case-Based MCQs

1. (*a*) (*ii*)	(*b*) (*iii*)	(*c*) (*iii*)	(*d*) (*i*)	**2.** (*a*) (*i*)	(*b*) (*iii*)	(*c*) (*i*)	(*d*) (*i*)
3. (*a*) (*iv*)	(*b*) (*iv*)	(*c*) (*ii*)	(*d*) (*i*)	**4.** (*a*) (*iii*)	(*b*) (*i*)	(*c*) (*iii*)	(*d*) (*iv*)
5. (*a*) (*iii*)	(*b*) (*ii*)	(*c*) (*ii*)	(*d*) (*iii*)	**6.** (*a*) (*ii*)	(*b*) (*ii*)	(*c*) (*i*)	(*d*) (*iii*)
7. (*a*) (*i*)	(*b*) (*i*)	(*c*) (*ii*)	(*d*) (*iv*)	**8.** (*a*) (*iii*)	(*b*) (*iii*)	(*c*) (*ii*)	(*d*) (*i*)

Objective Questions

Multiple Choice Questions

1. Data collected by the investigator himself from the source is known as
(a) Primary source of data
(b) Secondary source of data
(c) Both (a) and (b)
(d) None of the above

2. A person responsible for conducting statistical enquiry is known as ..... .
(a) Informant (b) Respondent
(c) Enumerator (d) Investigator

3. ..... is a method of gathering information from the respondents.
(a) Survey (b) Sample
(c) Information (d) None of these

4. A person who is trained to collect information from the source is known as
(a) Respondent (b) Enumerator
(c) Investigator (d) None of these

5. Which of the following are the sources of collecting quantitative data?
(a) Internal Sources (b) External Sources
(c) Both (a) and (b) (d) Neither (a) nor (b)

6. ..... is known as second hand data.
(a) Sample data (b) Primary data
(c) Secondary data (d) None of these

7. Which of the following is a source of collecting secondary data?
(a) Published (b) Unpublished
(c) Both (a) and (b) (d) Neither (a) nor (b)

8. According to ....., if a random sample of adequate size is selected from a large population, it tends to possess the same attributes as of the population.
(a) law of statistical regularity
(b) law of sampling
(c) law of census
(d) None of the above

9. What kind of data is contained in the census of population and national income estimates, for the government?
(a) Internal (b) Primary
(c) Secondary (d) Both (b) and (c)

10. Which of the following is not an example of internal source of data?
(a) Profit and loss statement of a company
(b) Total sales of a company
(c) Data collected by NSSO
(d) All of the above

11. Which of the following sources of data has greater degree of accuracy?
(a) Internal source
(b) External source
(c) Both (a) and (b)
(d) Neither (a) nor (b)

12. Data collected from a local newspaper is an example of primary data. Choose the most appropriate option from the given below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

13. ..... refers to an investigation on a topic by an agency to collect relevant quantitative information.
(a) Statistics data (b) Statistical enquiry
(c) Investigation (d) All of these

14. Schedules are to be filled by ..... .
(a) respondents (b) investigators
(c) enumerators (d) Any of these

15. Which of the following is method of collecting second hand information?
(a) Personal interview
(b) Telephonic interview
(c) Mailed questionnaire
(d) None of the above

16. When the population under study is in finite, sample survey should be used. Choose the most appropriate option from the given below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

17. Primary data should be preferred where less time is available to collect the data. Choose the most appropriate option from the given below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

18. In every ten-year, government of India collects information about the population using ..... method.
(a) census
(b) sample
(c) case study
(d) None of the above

19. Which of the following is a limitation of personal interview?
(a) Lacks accuracy
(b) Personal prejudices
(c) Not capable of covering wide area
(d) Both (b) and (c)

20. Which of the following things should be kept in mind while collecting secondary data?
(a) Purpose of study
(b) Reliability of source
(c) Competency of collecting authority
(d) All of the above

21. Which of the following is/are method(s) of collecting primary data?
(a) Direct personal investigation
(b) Indirect oral investigation
(c) Information through local correspondents
(d) All of the above

22. Which of the following is/are the feature(s) of an ideal questionnaire?
(i) Questions should be in MCQ from as much as possible
(ii) Numerical calculations should be avoided
(iii) Logical sequence should be followed
(iv) Questions related to religious, political and personal views should be avoided
Choose from the options below.
(a) (i), (ii) and (iii)
(b) (ii), (iii) and (iv)
(c) (i), (iii) and (iv)
(d) (i), (ii), (iii) and (iv)

23. Which of the following data types is known as original data?
(a) Primary data
(b) Secondary data
(c) Both (a) and (b)
(d) Neither (a) nor (b)

24. To collect information from a group of an uneducated people, which of the following method is most suitable?
(a) Direct personal investigation
(b) Indirect oral investigation
(c) Questionnaire method
(d) All of the above

25. Data collected through direct personal investigation is flexible. Choose the most appropriate option from given below.
(a) True
(b) False
(c) Partially true
(d) Incomplete information

26. Indirect oral investigation lacks accuracy.
Choose the most appropriate option from given below.
(a) True (b) False
(c) Partially true
(d) Incomplete information

27. Which of the following method of collecting primary data has the widest reach?

(a) Direct personal investigation
(b) Telephonic interview
(c) Information from local correspondents
(d) Mailed questionnaire method

28. Which of the following is/are source(s) of secondary data?

(i) NSSO reports
(ii) BI annual reports
(iii) Unpublished research papers
(iv) Journal and newspapers

Choose from the below options.

(a) (i), (ii) and (iii)
(b) (ii), (iii) and (iv)
(c) (i), (iii) and (iv)
(d) (i), (ii), (iii) and (iv)

29. More precaution should be kept in mind while collecting primary data than secondary data. Choose the most appropriate option from given below.

(a) True
(b) False
(c) Partially true
(d) Incomplete information

30. Choose the incorrect pair from the options given below.

Column I	Column II
A. Includes all items of the universe under study	(i) Census method
B. Includes only specified items of the universe under study	(ii) Sample method
C. A set of questions prepared for collecting information for a pre-determined purpose	(iii) Schedule
D. Source of data which cannot be cent per cent correct	(iv) Secondary data

Codes
(a) A -(i) (b) B - (ii)
(c) C - (iii) (d) D - (iv)

31. Choose the incorrect pair.

Column I	Column II
A. Statistical error	(i) Difference between collected data and actual values
B. Primary data	(ii) First hand information
C. Enumerator	(iii) Person who conducts a statistical enquiry
D. Respondent	(iv) Targeted population

Codes
(a) A - (i)
(b) B - (ii)
(c) C - (iii)
(d) D - (iv)

32. Match the following pairs given below.

Column I	Column II
A. Indirect oral investigation	(i) Investigator prepares a questionnaire and send it to the respondent with a covering letter
B. Mailed questionnaire method	(ii) Local agents who are appointed to supply information regularly
C. Personal investigation	(iii) Collecting information from third parties by the investigator
D. Information from local sources	(iv) Investigator collect information by self

Codes

	A	B	C	D
(a)	(i)	(ii)	(iv)	(iii)
(b)	(ii)	(iv)	(i)	(iii)
(c)	(ii)	(i)	(iv)	(iii)
(d)	(ii)	(i)	(iii)	(iv)

33. Quota sampling is type of ..... .
(a) judgement sampling
(b) random sampling
(c) non-random sampling
(d) None of the above

34. The world is facing the covid pandemic even now. During its initial days, government of India conducted tests of citizens on a frequent interval to ensure that virus does not spread to the community. This is an example of which of the following types of survey?
(a) Sample survey (b) Census survey
(c) Both (a) and (b) (d) Descriptive survey

35. Which of the following statistical errors is/are avoidable?
(a) Sampling (b) Non-sampling
(c) Random (d) All of the above

36. Data collected from secondary sources are
(a) collected with the objective different from the study for which it was primarily used
(b) more reliable as compared to primary sources
(c) not available in published form
(d) All of the above

37. Which of the following methods of collecting data is most appropriate when the investigator doesn't require a highly accurate data?
(a) Direct personal investigation
(b) Information collected from local correspondents
(c) Information collected from NSSO data
(d) Questionnaire filled by enumerators

38. Which method should be used to collect data where data is sensitive?
(a) Indirect oral investigation
(b) Information received from local correspondents
(c) Information from mailed questionnaire
(d) Telephonic conversation

39. During the Corona outbreak in India, the entire country was locked down initially for 21 days except for essential services. Different news channels are reporting from different parts of the country. This is an example of
(a) indirect oral investigation
(b) information received from local correspondents
(c) information from government official source
(d) None of the above

40. In the world of changing consumer presences for various goods and services, which of the following method should be used to collect data by the companies to matchup with the expectations of people?
(a) Direct personal investigation
(b) Indirect oral investigation
(c) Information through local correspondents
(d) Any of the above

41. The diagnostic centres which collect blood of a patient to test is an example of
(a) sample method (b) census method
(c) diagnostic method (d) None of these

42. Data collected on religion from census report is an example of ..... .
(a) sample data (b) primary data
(c) secondary data (d) Both (a) and (b)

43. An investigator can take help of trained professional to collect which of the following data?
(a) Internal Data (b) Primary Data
(c) Secondary Data (d) All of these

44. Secondary data is available only from external sources. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

45. Which of the following method is less time consuming?
(a) Telephonic interview
(b) Mailed questionnaire
(c) Indirect oral investigation
(d) None of the above

46. The method of collecting data which considers all units of the universe is known as ..... .
(a) Census method (b) Sample method
(c) Both (a) and (b) (d) None of these

47. Exit polls are an example of ..... method of collecting data.
(a) census (b) sampling
(c) investigation (d) None of these

48. Under which of the following method, population is divided into small groups and then data is collected at random from each group?
(a) Stratified sampling (b) Cluster sampling
(c) Judgement sampling (d) None of these

49. Lottery method is used under
(a) random sampling (b) quota sampling
(c) purposive sampling
(d) judgement sampling

50. Systematic sampling can also be referred to as quasi-random sampling. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

51. Which of the following is/are type(s) of non-random sampling?
(a) Judgement sampling
(b) Convenience sampling
(c) Quota sampling (d) All of the above

52. A company tests few bulbs to predict about the life span of bulbs manufactured. It is an example of ..... .
(a) random sampling
(b) judgement sampling
(c) convenience sampling
(d) None of the above

53. In random sampling
(a) Cost involved is high
(b) Sample is biased
(c) Each unit has an equal probability of being selected
(d) All of the above

54. Which of the following is/are type(s) of restricted random sampling method?
(a) Stratified sampling
(b) Systematic sampling
(c) Multi-stage sampling
(d) All of the above

55. Which of the following is/are true about census method?
(i) Census is suitable in case of both homogeneous and heterogeneous data
(ii) Census method conducts an extensive study of population
(iii) Census method is non-economical
(iv) Census method is useful even with vast area of investigation
Choose from the options below.
(a) (i) and (iii) (b) (ii) and (iv)
(c) (ii) and (iii) (d) (iii) and (iv)

Assertion-Reasoning MCQs

Direction (Q.Nos. 56 to 60) *There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below*
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is true, but Reason (R) is false
(d) Both are false

56. **Assertion** (A) As the sample size increases, variable tends to become close to census values.
Reason (R) Samples are always collected from different groups of heterogeneous data randomly.

57. **Assertion** (A) Internal sources of data are narrow ended.

Reason (R) Data primarily collected within the organisation has limited scope.

58. **Assertion** (A) No method of collecting primary data is free from personal prejudices.
Reason (R) Chances of errors increases when the investigator is not trained.

59. **Assertion** (A) Collection of secondary data need more efforts than primary data.
Reason (R) Secondary sources of information are less reliable as compared to primary sources.

60. **Assertion** (A) Census method of conducting survey includes each and every item of the universe.
Reason (R) Samples are the representatives of the groups of homogeneous data.

Case Based MCQs

Direction *Read the following case study and answer questions 61 to 65 on the basis of the same.*

ABC Corporation Limited is a company which produces garments: Mr Viaan, who is the manager of the company, keeps proper record of companies cost and revenue statement. In present time, due to rising competition from foreign companies as well as changing consumer's taste and preferences, it has become really difficult for Mr Viaan to maintain ABC Corporation's profit levels. In order to withstand foreign competition, Mr Viaan decided to conduct a survey to know about changing pattern of consumer's demand across country. Also, in order to increase profits, it is important for the company to establish itself internationally by matching the demand of international buyer's as well.

61. Mr Viaan keeps proper record of statistical information related to the company. Which of the following source of data is represented in this case?
(a) Internal source of data
(b) External source of data
(c) Primary source of data
(d) Secondary source of data

62. Which of the following survey method should be used to know the changing demand of the buyers?
(a) Census method
(b) Sample method
(c) Personal investigation
(d) Either (a) or (b)

63. Consumer's demand for garments changes regularly. Which of the following method of collecting primary data is most suitable in this situation?
(a) Direct personal interview
(b) Indirect oral interview
(c) Information through local correspondents
(d) Telephonic interview

64. Investigator choose wrong samples for conducting the survey to know about change in demand trends. This is referred to as ..... error.
(a) sampling (b) non-sampling
(c) biased (d) Both (a) and (c)

65. **Assertion** (A) Telephonic interviews can be substituted for the situation where information related to changing pattern of demand is required, provided respondents are reluctant to give information.

Reason (R) Statistical information plays a vital role for the companies to keep earning profits.

Alternatives

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is true, but Reason (R) is false
(d) Both are false

Direction *Read the following case study and answer questions 66 to 70 on the basis of the same.*

You are Rohan Verma, an investigator who wish to conduct a survey to study the smoking behaviour of University students. For this reason, you prepared a questionnaire based upon the objective of the survey and keeping in mind the size of the target group, trained 5 people to complete the survey. Your target group comprised of 1,500 students across 10 different colleges. You followed all methods of statistics to ensure the accuracy of the data.

66. Which of the following source of data is referred in the above situation?
(a) Primary data (b) Secondary data
(c) Internal data (d) None of these

67. The person who helps the investigator in collecting information is known as ..... .
(a) Enumerator (b) Respondent
(c) Investigator (d) None of these

68. Which method of collecting primary data will be most suitable in the above situation?
(a) Direct personal investigation
(b) Indirect oral investigation
(c) Information through local correspondents
(d) None of the above

69. Most important step to be followed after preparing the questionnaire will be .... .
(a) pre-testing (b) post-testing
(c) pilot survey (d) Both (a) and (c)

70. **Assertion** (A) Indirect oral investigation method is less reliable but economical.
Reason (R) When information is collected from third party, information should be verified before analysis.

Alternatives
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is true, but Reason (R) is false
(d) Both are false

Direction *Read the following case study and answer questions 71 to 75 on the basis of the same.*

The first and most popular data collection techniques for eliciting idiosyncratic emotion content are structured and semistructured in-depth interviews with open-ended and probing questions activating an athlete's recall of thoughts and feelings prior to and during best and worst performances.

It is usually recommended in pilot and exploratory studies to generate idiosyncratic labels and then to aggregate most selected items into a stimulus list or standardised emotion scale.

Case study research typically includes multiple data collection techniques and data are collected from multiple sources.

Data collection techniques include interviews, observations (direct and participant), questionnaires, and relevant documents.

The use of multiple data collection techniques and sources strengthens the credibility of outcomes and enables different interpretations and meanings to be included in data analysis. This is known as triangulation.

71. Which are the multiple sources of collection of data available?
(a) Internal and External
(b) Primary and Secondary
(c) Both (a) and (b)
(d) Neither (a) nor (b)

72. The method discussed in the case study is a method of ..... .
(a) collecting primary data
(b) collecting secondary data
(c) conducting survey
(d) All of the above

73. **Assertion** (A) Various methods of quantitative facts ensure credibility of information.

Reason (R) Unverified data leads to misleading conclusion and defeat the purpose of study.

Alternatives
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is true, but Reason (R) is false
(d) Both are false

74. Open-ended surveys are those which includes ..... .
(a) fixed opinions (b) varied opinions
(c) Both (a) and (b) (d) Neither (a) nor (b)

75. Triangulation refers to
(a) multiple data collection techniques and sources to strengthens the credibility of outcomes.
(b) enables different interpretations and meanings to be included in data analysis.
(c) Both (a) and (b)
(d) Neither (a) nor (b)

ANSWERS

Multiple Choice Questions

1. (a)	2. (d)	3. (a)	4. (b)	5. (c)	6. (c)	7. (c)	8. (a)	9. (c)	10. (c)
11. (a)	12. (b)	13. (b)	14. (c)	15. (d)	16. (a)	17. (b)	18. (a)	19. (d)	20. (d)
21. (d)	22. (d)	23. (a)	24. (a)	25. (a)	26. (a)	27. (d)	28. (d)	29. (b)	30. (c)
31. (c)	32. (c)	33. (c)	34. (a)	35. (a)	36. (a)	37. (c)	38. (d)	39. (b)	40. (c)
41. (a)	42. (c)	43. (b)	44. (a)	45. (a)	46. (a)	47. (b)	48. (a)	49. (a)	50. (a)
51. (d)	52. (a)	53. (c)	54. (d)	55. (c)					

Assertion-Reasoning MCQs

56. (c)	57. (a)	58. (a)	59. (a)	60. (b)

Case Based MCQs

61. (a)	62. (b)	63. (c)	64. (a)	65. (b)	66. (a)	67. (a)	68. (b)	69. (d)	70. (a)
71. (a)	72. (a)	73. (a)	74. (b)	75. (c)					

OBJECTIVE QUESTIONS

Fill in the Blanks

1. _____ Data is originally collected by an investigator for the first time for some specific purpose.
2. _____ Sampling Method refers to a method in which every item in the universe has a known chance of being chosen for the sample.
3. Under the method of _____, the investigator approach third parties, who are in the possession of information about the subject of enquiry.
4. According to _____, if a random sample of adequate size is selected from a large population, it tends to possess the same characteristics as those of the population.
5. Data obtained from published or unpublished sources is known as _____ Data.
6. Under _____ Sampling, the investigator gives special attention to his convenience while selecting the sample units.
7. _____ errors refer to the differences between the sample estimate and the actual value of a characteristic of the population.
8. Quota sampling is a _____ sampling.
9. External Data can be collected from _____ as well as _____ sources.
10. _____ is more suitable if population is heterogeneous in nature, while _____ is more suitable in case of homogeneous population.
11. _____ is also known as Second Hand Data.

True or False

1. Every unit of the population is investigated in a sample survey.
2. Secondary data is available only from external sources.
3. Sample enquiry takes lesser time as compared to Census.
4. Under Convenience Sampling, choice of sample items depends exclusively on the judgement of investigator.
5. Systematic Sampling is also known as Quasi-random Sampling.
6. The number of sampling units in each cluster under cluster sampling should be different.
7. Census method is not possible in case of heterogeneous population.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	*(B)*
(i) Direct Personal Investigation	a. Local agents are appointed and trained to collect information from the respondents
(ii) Information from Correspondents	b. Investigator approaches third parties, who are in the possession of information about the subject of enquiry
(iii) Mailed Questionnaire Method	c. Investigator collects data by having direct contact with the informant and conducts on-the-spot enquiry
(iv) Indirect Oral Investigation	d. Investigator makes a questionnaire and send it to the respondents, along with a covering letter

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Census Method	a. Data which is not directly collected but rather obtained from published or unpublished sources
(ii) Sampling Method	b. Data is collected from each and every element of the population
(iii) Primary Data	c. Only some representative items of a population are selected and data collected from these items are used for analysis
(iv) Statistical Errors	d. Data originally collected by an investigator or agency for the first time for some specific purpose
(v) Secondary Data	e. Difference between collected data and actual value of facts

Multiple Choice Questions (MCQs)

1. Which data is collected by the investigator himself?
(a) Primary (b) Secondary (c) Both (a) and (b) (d) None of these

2. Data collected from 'The Times of India' is an example of:
(a) Primary Data (b) Secondary Data (c) None of these (b) Census

3. Data collected on religion from the census reports are:
(a) Sample data (b) Secondary data (c) Primary data (d) Either (a) or (b)

4. When population under investigation is infinite, we should use:
(a) Sample Method (b) Census Method (c) Either (a) or (b) (d) Neither (a) nor (b)

5. Data from secondary source are:
(a) Collected for other purposes than the current study
(b) Obtained from the newspaper
(c) More reliable than data from a primary source
(d) Both (a) and (b)

6. Primary data is preferred over secondary data where:
(a) Time available is short (b) Accuracy is important
(c) Sufficient finance is not available (d) Much accuracy is not required

7. The data collected on the height of a group of students after recording their heights with a measuring tape are:
(a) Primary data (b) Continuous data (c) Discrete data (d) Secondary data

8. After every ten years, information regarding population of India is collected through:
(a) Census (b) Sample (c) Both (a) and (b) (d) Neither (a) nor (b)

9. Sample study is useful:
(a) When population is not completely known (b) As it is easy to handle samples
(c) As results are more reliable (d) It is cheap

10. Which method of collection of data covers the widest area?
(a) Direct Personal Investigation (b) Mailed Questionnaire Method
(c) Telephone interview method (d) All of these

11. Which of the following is a limitation of Indirect Oral Investigation?
(a) Lack of Accuracy (b) Costly
(c) Not suitable for wide areas (d) All of these

12. It is best to use a census while conducting a survey if:
    (a) The population is large
    (b) The population is small
    (c) Time is limited to conduct the survey
    (d) Cheaper method is needed

13. A good questionnaire should have:
    (a) Minimum questions (b) Concise (c) Clear (d) All the above

14. In random sampling:
    (a) Each element has equal chance of being selected
    (b) Sample is always full of bias
    (c) Cost involved is very less
    (d) Cost involved is high

15. Direct personal investigation method suffers from:
    (a) Personal Bias (b) Excessive Expenses (c) Time Consuming (d) All the above

16. In a good questionnaire:
    (a) Number of questions should be numerous
    (b) Questions relating to mathematical computations should be asked
    (c) Personal Questions should be preferred
    (d) Questions using double negatives should be avoided

17. The quickest method to collect primary data is:
    (a) Direct Personal Investigation
    (b) Indirect Oral Investigation
    (c) Telephone Interview
    (d) Mailed Questionnaire Method

18. Stratified sample is preferred where:
    (a) Population is perfectly homogeneous
    (b) Population is non–homogeneous
    (c) Random sampling is not possible
    (d) Small samples are required

19. The method of sampling in which universe is divided into a number of groups and then certain numbers of items are taken from each group at random.
    (a) Stratified Random Sampling
    (b) Systematic Sampling
    (c) Cluster Sampling
    (d) Multistage Sampling

20. Which of the following is the method of collecting primary data?
    (a) Indirect Oral Investigation
    (b) Telephonic Interviews
    (c) Information from Correspondents
    (d) All of these

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
   Assertion (A): Primary data is original.
   Reason (R): Primary data is collected by the investigator himself.
   Alternatives:
   (a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
   (b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
   (c) Assertion (A) is True but Reason (R) is False.
   (d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
   Assertion (A): Under Direct Personal Investigation, the investigator collects data by having direct contact with the informant and conducts on-the-spot enquiry.

Reason (R): Indirect Oral Investigation can be used to cover a wide area of investigation as compared to Direct Personal Investigation.

Alternatives:

(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Primary data is more reliable and suitable when high degree of accuracy is required.
Reason (R): There is no need for organisational set up in case of secondary data.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): The results of Indirect Oral Investigation are very accurate.
Reason (R): In case of Indirect Oral Investigation, information is obtained from other persons, not directly connected.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

5. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Census method is also known as '100% Enumeration'.
Reason (R): Data is collected from each and every element of the population under census method.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

6. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Sampling Method is an economical method.
Reason (R): Under sampling, analysis of data is confined only to a fraction of the population.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Company's Annual Report on Profit and Loss is an example of internal source of data.
Statement 2: Internal Data can be collected from primary as well as secondary sources.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Direct Personal Investigation is suitable when area of investigation is large.
Statement 2: Direct Personal Investigation is also known as Personal Interview.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Indirect Oral Investigation is a very costly method.
Statement 2: The degree of accuracy is extremely high in case of indirect oral investigation.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Data originally collected by an investigator for the first time for some specific purpose is known as Secondary Data.
Statement 2: Population census conducted by Government of India is an example of Secondary Data.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

5. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Information from Correspondents is widely used by news channels to collect news information.
Statement 2: The method of 'Information from Correspondents' is suitable when regular and continuous information is required.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

6. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: In case of census method, data is collected from each and every element of the population.
Statement 2: Census method is generally adopted when intensive study of population is required.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Primary
2. Random
3. Indirect Oral Investigation
4. Law of Statistical Regularity
5. Secondary
6. Convenience
7. Sampling
8. Non-random
9. Primary, Secondary
10. Census Method, Sampling Method
11. Secondary Data

True or False

1. False
2. True
3. True
4. False
5. True
6. False
7. False

Matching Type Questions

1. (i) c; (ii) a; (iii) d; (iv) b.
2. (i) b; (ii) c; (iii) d; (iv) e; (v) a.

Multiple Choice Questions (MCQs)

1. (a)	4. (a)	7. (a)	10. (b)	13. (d)	16. (d)	19. (a)
2. (b)	5. (d)	8. (a)	11. (a)	14. (a)	17. (c)	20. (d)
3. (b)	6. (b)	9. (a)	12. (b)	15. (d)	18. (b)	

Assertion Reason Questions (ARQs)

1. (a)	2. (b)	3. (b)	4. (d)	5. (a)	6. (a)

Statement Based Questions

1. (c)	2. (d)	3. (b)	4. (b)	5. (a)	6. (a)

3 ORGANISATION OF DATA

Important Terms and Concepts

1. **Organisation of data** is a process in which collected data is organised in such a way that in investigation, the mass of data becomes easy for comparison and further analysis.
2. **Classification of data** is a technique with the help of which the collected data is arranged into different groups or classes, according to some common characteristics, so as to facilitate the tabulation, analysis and interpretation of data.
3. Broadly, the data can be classified on four basis in accordance with their characteristics:
   (*a*) Geographical classification or spatial classification
   (*b*) Chronological classification
   (*c*) Qualitative classification
   (*d*) Quantitative classification
4. In **geographical classification**, the data is classified on the basis of geographical or locational differences, between the various items. For example, we may present the number of sugar mills statewise.
5. In **spatial classification**, the data is classified with reference to geographical locations such as countries, states, cities etc.
6. In **chronological classification**, the data is classified on the basis of time. For example, we may present the population of a country on the basis of time (say years).
7. In **qualitative classification**, the data is classified on the basis of some attribute or quality such as sex, literacy, religion etc.
8. In **quantitative classification**, the data is classified on the basis of some characteristics which are capable of direct quantitative measurement such as height, weight, income etc. In this type of classification, there are two elements, *i.e.,* variable and frequency.
9. The main **objectives** of classification of data are:
   (*a*) To condense the mass of data in such a way that their similarities and dissimilarities become very clear.
   (*b*) To facilitate comparison or to make the data comparable.
   (*c*) To point out the most important features of the data at a glance.
   (*d*) To present the data in a condense form.
10. The characteristics, which are capable of direct quantitative measurement are called a **variable**. Height, weight, production, consumption etc. are all variables.
11. A **discrete variable** is one which takes only isolated or discontinuous value. The number of goals scored in a match, the number of children in a family etc. are examples of discrete variables.
12. A **continuous variable** is one which takes any value in a specified interval. Temperatures recorded of patients in a hospital, height of class XII students of a school, wages of workers in a factory are examples of continuous variables.

13. **Frequency** refers to how many times an observation occurs in a given series.
14. Raw data or unclassified data can be classified in three ways:
    (*a*) Simple array or individual series
    (*b*) Frequency array or discrete series
    (*c*) Frequency distribution or continuous series
15. **Simple array or individual series** is an orderly arrangement of data according to the ascending or descending order of magnitude. To prepare an array, the data is arranged either in ascending or descending order of magnitude.
16. **Frequency array** is a technique of classifying the data for a discrete variable. Such a discrete variable takes integral values and not fractional values. In frequency array, we have frequencies that correspond to each of its integral values.
17. A **frequency distribution** is a technique of classifying data for a continuous variable. A frequency distribution shows how the different values of a variable are distributed in different classes alongwith their corresponding class frequencies.
18. **Exclusive series** is the series, where the upper limit of the class is excluded and put as lower limit in the next class.
19. **Inclusive series** is the series, where both the upper-limit and lower-limit of the class are included in the same class.
20. **Open-ended series** is the series, where the lower limit of the first class and the upper limit of the last class is missing like (less than 5) ..... (20 and above).
21. **Unequal series** is the series, where class width or class interval of different classes is not equal like (0 – 5), (5 – 15), (15 – 30) and so on.
22. Under **cumulative frequency distribution** only one limit is given. If it is given on the basis of lower limit of the class groups then the term '**more than**' will be used. And if, it is given on the basis of upper limit, then the term '**less than**' will be used.
23. **Inclusive method** is a method of classifying observations in which an observation equal to the upper limit of a class is put in that class.
24. **Exclusive method** is a method of classifying observations in which an observation equal to the upper limit of a class is put in the next class.
25. A **class** is a group of values having two ends called **class limits**.
26. **Mid-value** is the point or value taken between the two limits of class as representative of all the observations in the class.
27. **Magnitude of class interval** is the difference between the upper limit and the lower limit of a class.
28. **Attribute** refers to the non-measurable characteristic or which cannot be measured numerically.
29. A **univariate frequency distribution** is the frequency distribution of a single variable whereas a **bivariate frequency distribution** is the frequency distribution of two variables.
30. In a **frequency distribution**, statistical calculations are based only on the class-mark or mid-values, instead of actual values of the observations.
31. Main steps that are involved in the construction of continuous series are:
    (*a*) Determination of the number of classes
    (*b*) Determination of range
    (*c*) Size of class intervals

Multiple Choice Questions

1. Raw data is made comprehensible by:
   (*a*) Collection of data
   (*b*) Classification of data
   (*c*) Organisation of data
   (*d*) Presentation of data
2. The two important functions of classification are:
   (*a*) scrutiny and editing of data
   (*b*) presentation and interpretation of data
   (*c*) reducing bulk data and facilitating comparison
   (*d*) forming trend and tendencies
3. Classification of population of India in terms of years is an example of:
   (*a*) Geographical classification
   (*b*) Chronological classification
   (*c*) Quantitative classification
   (*d*) Qualitative classification
4. The data classified with reference to countries is called:
   (*a*) Spatial
   (*b*) Chronological
   (*c*) Both (*a*) and (*b*)
   (*d*) None of these
5. In a frequency distribution, the class may be:
   (*a*) singular or plural
   (*b*) subjective or objective
   (*c*) individual or discrete
   (*d*) inclusive or exclusive
6. In case of inclusive method:
   (*a*) upper limit of class interval is excluded
   (*b*) lower limit of class interval is excluded
   (*c*) both upper limit and lower limit are included
   (*d*) both upper limit and lower limit are excluded
7. A frequency distribution table showing value of sales in different columns and advertisement expenditure in different rows is termed as:
   (*a*) bilateral frequency distribution
   (*b*) univariate frequency distribution
   (*c*) multivariate frequency distribution
   (*d*) None of these
8. In the exclusive method:
   (*a*) the upper class limit is excluded but lower class limit is included
   (*b*) the lower class limit is excluded but upper class limit is included
   (*c*) Both the upper class limit and lower class limit are included
   (*d*) None of these
9. Which is an attribute out of the following?
   (*a*) Height (*b*) Weight
   (*c*) Intelligence (*d*) Age
10. The class mid-point is equal to:
    (*a*) the average of the upper class limit and the lower class limit
    (*b*) the product of upper class limit and the lower class limit
    (*c*) the ratio of the upper class limit and the lower class limit
    (*d*) None of these
11. The frequency distribution of two variables is known as:
    (*a*) Univariate Distribution
    (*b*) Bivariate Distribution
    (*c*) Multivariate Distribution
    (*d*) None of these
12. Statistical calculations in classified data are based on:
    (*a*) the actual values of observations
    (*b*) the upper class limits
    (*c*) the lower class limits
    (*d*) the class midpoints

13. The number of classes is usually between:
   (*a*) 5 – 15
   (*b*) 6 – 15
   (*c*) 7 – 15
   (*d*) 8 – 15

14. Classification on the basis of time is called _____ classification.
   (*a*) geographical
   (*b*) chronological
   (*c*) Both (*a*) and (*b*)
   (*d*) Neither (*a*) nor (*b*)

15. In case of continuous variables we use very often:
   (*a*) Exclusive class intervals
   (*b*) Inclusive class intervals
   (*c*) Equal class intervals
   (*d*) Unequal class intervals

16. A series having two modes is called:
   (*a*) Unimodal series
   (*b*) Bi-modal series
   (*c*) Multi-modal series
   (*d*) None of these

17. The frequency distribution of more than two variables is called:
   (*a*) Univariate Distribution
   (*b*) Bivariate Distribution
   (*c*) Multivariate Distribution
   (*d*) None of these

18. _____ refers to the arrangement of figures in such a form that comparison of the mass of similar data may be facilitated and further analysis may be possible.
   (*a*) Organisation of data
   (*b*) Collection of data
   (*c*) Interpretation of data
   (*d*) Analysis of data

19. _____ is the process of arranging things in groups or classes according to their resemblances.
   (*a*) Interpretation (*b*) Classification
   (*c*) Analysis (*d*) Collection

20. Classification of data based on the geographical differences is:
   (*a*) Qualitative classification
   (*b*) Quantitative classification
   (*c*) Spatial classification
   (*d*) Chronological classification

21. Which of the following is the objective of classification?
   (*a*) Simplification
   (*b*) Briefness
   (*c*) Comparability
   (*d*) All of these

22. Chronological classification is the classification based on the:
   (*a*) basis of time
   (*b*) basis of quality
   (*c*) basis of location
   (*d*) basis of quantity

23. When the collected data is grouped with reference to time, it is known as:
   (*a*) Chorological classification
   (*b*) Geographical classification
   (*c*) Qualitative classification
   (*d*) Quantitative classification

24. The data recorded according to standard of education like illiterate, primary, secondary, graduate, technical etc. is known as _____ classification.
   (*a*) Quantitative
   (*b*) Geographical
   (*c*) Qualitative
   (*d*) Chorological

25. A good classification should have:
(*a*) Comprehensiveness
(*b*) Inelastic
(*c*) Complexity
(*d*) Heterogeneity

26. A characteristic or a phenomenon which is capable of being measured and changes its value over time is called:
(*a*) Sample (*b*) Vector
(*c*) Variable (*d*) None of these

27. Continuous variable:
(*a*) Increases in jumps
(*b*) Assumes a range of values
(*c*) Both (*a*) and (*b*)
(*d*) Neither (*a*) nor (*b*)

28. Which variable increases in jumps or in complete numbers?
(*a*) Continuous (*b*) Individual
(*c*) Discrete (*d*) Multiple

29. Series of statistical data with one variable only is called _____.
(*a*) Individual series
(*b*) Discrete series
(*c*) Continuous series
(*d*) None of these

30. According to tally bar method, which of the following indicates the frequency of five?
(*a*) 𝍸 (*b*) 𝍸||
(*c*) 𝍸|| (*d*) 𝍸

31. The series in which lower limit of the class interval or the upper limit of last class interval is missing is known as:
(*a*) Cumulative frequency
(*b*) Exclusive
(*c*) Open-end series
(*d*) Frequency array

32. The number of times an item occurs in the series is known as:
(*a*) Frequency (*b*) Variable
(*c*) Class (*d*) Series

33. The difference between the upper or lower limits is called _____.
(*a*) Class interval (*b*) Extreme class
(*c*) Class limits (*d*) Class

34. Average value of the upper and lower limits is:
(*a*) Class interval (*b*) Mid-value
(*c*) Class limits (*d*) Class

35. Arrangement of data according to some logical order is termed as _____.
(*a*) Collection series (*b*) Sample series
(*c*) Statistical series (*d*) None of these

36. Which one of the following is a kind of statistical series?
(*a*) Individual series
(*b*) Discrete series
(*c*) Continuous series
(*d*) All of these

37. Drinking habit of a person is a/an:
(*a*) attribute
(*b*) discrete variable
(*c*) variable
(*d*) continuous variable

38. Nationality of a student is a/an:
(*a*) attribute
(*b*) discrete variable
(*c*) continuous variable
(*d*) Either (*a*) or (*c*)

39. For the construction of a grouped frequency distribution, we take:
(*a*) Class limits
(*b*) Class boundaries
(*c*) Both (*a*) and (*b*)
(*d*) None of these

40. Tally marks determines:

(*a*) Class limit (*b*) Class width
(*c*) Class frequency (*d*) Class boundary

41. Annual income of a person is a/an:

(*a*) continuous variable
(*b*) discrete variable
(*c*) attribute
(*d*) Either (*b*) or (*c*)

42. For determining the class frequencies, it is necessary that these classes are:

(*a*) Mutually exclusive
(*b*) Not mutually exclusive
(*c*) Independent
(*d*) None of these

43. The frequency distribution of a continuous variable is known as:

(*a*) Grouped frequency distribution
(*b*) Simple frequency distribution
(*c*) Either (*a*) or (*b*)
(*d*) Neither (*a*) nor (*b*)

44. In an ordered series, the data are arranged in:

(*a*) ascending order
(*b*) descending order
(*c*) Either (*a*) or (*b*)
(*d*) None of these

45. The value exactly at the middle of a class–interval is called:

(*a*) Mid-value
(*b*) Class mark
(*c*) Class limit
(*d*) Both (*a*) and (*b*)

46. A grouped frequency distribution with uncertain first or last class is known as:

(*a*) Inclusive class distribution
(*b*) Exclusive class distribution
(*c*) Discrete frequency distribution
(*d*) Open-ended distribution

47. A frequency distribution can be:

(*a*) Discrete
(*b*) Continuous
(*c*) Both (*a*) and (*b*)
(*d*) Neither (*a*) nor (*b*)

48. In the construction of a frequency distribution, it is generally preferable to have classes of:

(*a*) Minimum width
(*b*) Maximum width
(*c*) Equal width
(*d*) Unequal width

49. Classes with zero frequencies are called:

(*a*) Full class (*b*) Empty class
(*c*) Nil class (*d*) Zero class

50. Frequency of a variable is always:

(*a*) a fraction (*b*) in percentage
(*c*) an integer (*d*) None of these

51. Which of the following is a cumulative frequency distribution?

(*a*) Less than series
(*b*) More than series
(*c*) Both (*a*) and (*b*)
(*d*) Neither (*a*) nor (*b*)

52. Mutually exclusive classification is usually meant for:

(*a*) A discrete variable
(*b*) A continuous variable
(*c*) An attribute
(*d*) None of these

53. Choose the correct statement. **[DoE]**

(*a*) Discrete variable data are normally expressed in fractions.
(*b*) Cumulative frequency is the frequency of a class.
(*c*) A frequency distribution should not have more than 5 classes of the class mid-points.
(*d*) Statistical calculations in classified data are based on the class mid-points.

54. Choose the correct one about inclusive series. **[DoE]**

(*a*) Value of upper limit is included in the same class interval.
(*b*) Value of lower limit is included in the previous class interval.
(*c*) Value of upper limit of one class interval is the lower limit of next class interval.
(*d*) It is also known as open-end series.

55. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Frequency Distribution	(*i*) Individual series
B. Frequency Array	(*ii*) Discrete series
C. Mid Value	(*iii*) $\frac{\text{Upper limit} - \text{Lower limit}}{2}$
D. Class Interval	(*iv*) $\frac{\text{Lower limit} + \text{Upper limit}}{2}$

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

56. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Classification of data on the basis of time period	(*i*) Geographical classification
B. Difference between upper limit and lower limit of class	(*ii*) Range
C. No. of student in a class	(*iii*) continuous variable
D. Words "Less than and More than related to	(*iv*) Cumulative frequency series

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

57. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Frequency distribution	(*i*) Discrete series
B. Frequency array	(*ii*) Continuous series
C. Exclusive series	(*iii*) Upper limit of the class is included
D. Inclusive series	(*iv*) Both limits of the class are included

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

58. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Spatial classification	(*i*) Classification is done on the basis of time
B. Frequency array	(*ii*) No class of the items
C. Ascending order	(*iii*) Highest value is placed first
D. Inclusive series	(*iv*) Series which includes all items upto its upper limit

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

59. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Inclusive series	(*i*) In this series, an item equal to either the upper or the lower class limit is excluded from the frequency of that class.
B. Spatial classification	(*ii*) Data is classified with reference to geographical location
C. Exclusive series	(*iii*) In this series, the values equal to the lower and upper limits of a class are included in the frequency of that same class.
D. Quantitative classification	(*iv*) Data is classified on the basis of measures such as gender, caste etc.

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

60. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Chronological classification	(*i*) Data is classified either in ascending or in descending order with reference to time
B. Discrete series	(*ii*) Series which represents continuous variables showing range of values of different items of the series
C. Qualitative classification	(*iii*) Data is classified on the basis of measures such as height, weight etc.
D. Continuous series	(*iv*) Series in which individual values differ from each other by definite amount

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

61. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Series	(*i*) It refers to the data which is in some order and sequence.
B. Continuous variable	(*ii*) These are the variables which are capable of taking only exact values and not any fractional value.
C. Mid-point	(*iii*) It is the lowest and highest values of the variables within a class interval.
D. Class limits	(*iv*) It is the mid-point/central point of a class interval.

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

Assertion-Reasoning Type MCQs

Note: In the following questions (Q.62 to Q.69), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) **Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)**

(*b*) **Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)**

(*c*) **Assertion (A) is true but Reason (R) is false**

(*d*) **Assertion (A) is false but Reason (R) is true**

62. **Assertion (A):** Classification is the process of arranging data into sequence and groups.

    Reason (R): Data are classified according to their common characteristics for separating them into different but related groups.

63. **Assertion (A):** Chronological classification is based on period of time.

    Reason (R): Spatial classification is based upon geographical location.

64. **Assertion (A):** Discrete variable move in a finite jump.

    Reason (R): Desk in a class is an example of discrete variable.

65. **Assertion (A):** In individual series frequency of each variable is zero.

    Reason (R): Individual series is also known as ungrouped data.

66. **Assertion (A):** In exclusive series both limits of the class are excluded from the class.

    Reason (R): Exclusive series is formed under frequency distribution.

67. **Assertion (A):** In case of exclusive class intervals, upper limit is not included.

    Reason (R): In case of exclusive class intervals, we have to decide in advance which class limit is to be excluded.

68. **Assertion (A):** A discrete variable cannot take any fractional value.

    Reason (R): A discrete variable can also take fractional values.

69. **Assertion (A):** Mid-value is the difference between the upper limit and lower limit of a class.

    Reason (R): Frequency is the number of times an item repeats itself in the series.

Case-Based MCQs

1. **Read the given case carefully and answer the following questions on the basis of the same.**

   The data collected from primary and secondary sources are raw or unclassified. Once the data are collected, the next step is to classify them for further statistical analysis. 'Classification' brings order to raw data which can be classified through the frequency distribution in a comprehensive manner. Once you know the techniques of classification, you can easily construct a frequency distribution, both for the continuous and discrete variable. A continuous variable can take any numerical value, *e.g.,* height, weight etc. whereas a discrete variable can take only certain value, *e.g.,* number of children, number of chairs etc.

(*a*) _____ is the process of arranging things in groups or classes according to their resemblances.
- (*i*) Classification
- (*ii*) Collection
- (*iii*) Presentation
- (*iv*) None of these

(*b*) Which variable increases in jumps or in complete numbers?
- (*i*) Continuous (*ii*) Individual
- (*iii*) Discrete (*iv*) Multiple

(*c*) The number of variables of items that come under any class is called:
- (*i*) attribute
- (*ii*) frequency array
- (*iii*) frequency
- (*iv*) None of these

(*d*) Classification of data based on the geographical differences is _____ classification.
- (*i*) Qualitative
- (*ii*) Quantitative
- (*iii*) Spatial
- (*iv*) Chronological

2. Read the given case carefully and answer the following questions on the basis of the same.

Classification is the grouping of related facts into classes. Facts in one class differ from those of another class with respect to some characteristics is called a basis of classification. Classification of data is a function very similar to that of sorting letters in a post office. Classification condense the mass data in such a manner that similarity and dissimilarity can be readily apprehended. It helps in comparison. Classification can be done on the basis of location, time, quality or measurement.

(*a*) Facts of _____ characteristics are grouped in a class.
- (*i*) different
- (*ii*) same
- (*iii*) Either (*i*) or (*ii*)
- (*iv*) Neither (*i*) nor (*ii*)

(*b*) Classification of data is _____ stage of statistics.
- (*i*) first (*ii*) second
- (*iii*) third (*iv*) None of these

(*c*) Classification on the basis of _____ is known as chronological classification.
- (*i*) location
- (*ii*) time
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*d*) Arranging scrap as per their characteristic by scrap dealer is called:
- (*i*) Collection of data
- (*ii*) Classification of data
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

3. Read the given case carefully and answer the following questions on the basis of the same.

The classification of data as a frequency distribution has an inherent shortcoming. While it summarises raw data making it concise and comprehensible it does not show the details that are found in raw data. There is loss of information in classifying raw data. Once the data are grouped into classes, an individual observation has no significance in further statistical calculation. This is so because when data are grouped as 'classes' all values say in a given class 0-10 are grouped with a frequency of say 6, but not their actual

values. All values in this class are assumed to be equal to the middle value of the class interval (*i.e.,* 5).

(*a*) _____ series is the series, where lower limit of first class and upper limit of last class is missing.
- (*i*) Unequal
- (*ii*) Inclusive
- (*iii*) Exclusive
- (*iv*) Open-ended

(*b*) The number of times an item occurs in the series is known as:
- (*i*) Frequency
- (*ii*) Variable
- (*iii*) Class
- (*iv*) Series

(*c*) Series of statistical data with one variable only is called _____ series.
- (*i*) Individual
- (*ii*) Discrete
- (*iii*) Continuous
- (*iv*) None of these

(*d*) _____ refers to the arrangement of figures in such a form that comparison of the mass of similar data may be facilitated and further analysis may be possible.
- (*i*) Organisation of data
- (*ii*) Collection of data
- (*iii*) Presentation of data
- (*iv*) Analysis of data

4. Read the given case carefully and answer the following questions on the basis of the same.

There are two methods of classification of data on the basis of class-interval namely exclusive method and inclusive method.

Exclusive method is the method when the class intervals are so fixed that the upper limit of one class is the lower limit of the next class. Whereas under inclusive method of classification, the upper limit of one class is included in that class itself. Exclusive method of classification is used more in practice so when the data is given in inclusive series then it is first arranged in exclusive series for further statistical enquiry.

(*a*) The method in which both lower and upper limit of class are included in same class is known as _____ method.
- (*i*) Inclusive
- (*ii*) Exclusive
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*b*) A series is called open-ended when:
- (*i*) Lower limit is not mentioned.
- (*ii*) Upper limit is not mentioned.
- (*iii*) Both lower and upper limits are not mentioned.
- (*iv*) All of these

(*c*) In which series lower limit of the class is included in the same class?
- (*i*) Inclusive
- (*ii*) Exclusive
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*d*) _____ method is used more in practice in statistics.
- (*i*) Inclusive
- (*ii*) Exclusive
- (*iii*) Unequal
- (*iv*) Open-ended

5. Read the given case carefully and answer the following questions on the basis of the same.

Frequency distribution is a table, which shows how the different values of a variable

are distributed in different classes along with their corresponding class frequencies. The frequency distribution summarises the raw data by making it concise and comprehensible. However, it does not show the details that are found in raw data and leads to loss of information. Frequency distribution can also be done for two variables known as bivariate frequency distribution. When the data is classified on the basis of two variables such as sales and purchase, export and imports etc. the distribution is known as bi-variate frequency distribution or two way frequency distribution.

(*a*) Frequency distribution leads to loss of information as variable is arranged in:
- (*i*) ascending order
- (*ii*) descending order
- (*iii*) a class
- (*iv*) All of these

(*b*) Univariate frequency distribution has _____ variable.
- (*i*) one
- (*ii*) two
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) three

(*c*) _____ is calculated through univariate variable.
- (*i*) Mean
- (*ii*) Median
- (*iii*) Mode
- (*iv*) All of these

(*d*) Mid-value series is an example of _____ series.
- (*i*) individual
- (*ii*) discrete
- (*iii*) continuous
- (*iv*) None of these

6. Read the given case carefully and answer the following questions on the basis of the same.

A frequency distribution refers to data classified on the basis of some variable that can be measured such as price, wages etc. The term variable refers to characteristic that varies in amount or magnitude in a frequency distribution. A variable may be discrete or continuous. A continuous variable is capable of manifesting every conceivable fractional value whereas discrete variable can vary only by finite jumps.

(*a*) A frequency distribution series is also called:
- (*i*) Continuous series
- (*ii*) Discrete series
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) Individual series

(*b*) Which of the following is a continuous variable?
- (*i*) Height
- (*ii*) Weight
- (*iii*) Temperature
- (*iv*) All of these

(*c*) Which of the following is not the characteristic of discrete variable?
- (*i*) Move in finite jumps
- (*ii*) Can take fractional value
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*d*) Variable is that characteristic which _____ over the period of time.
- (*i*) remains constant
- (*ii*) changes
- (*iii*) might change
- (*iv*) None of these

CHAPTER 3: Organisation of Data

Multiple Choice Questions

1. (*b*)	**2.** (*c*)	**3.** (*b*)	**4.** (*a*)	**5.** (*d*)	**6.** (*c*)
7. (*a*)	**8.** (*a*)	**9.** (*c*)	**10.** (*a*)	**11.** (*b*)	**12.** (*a*)
13. (*b*)	**14.** (*b*)	**15.** (*a*)	**16.** (*b*)	**17.** (*c*)	**18.** (*a*)
19. (*b*)	**20.** (*c*)	**21.** (*d*)	**22.** (*a*)	**23.** (*a*)	**24.** (*c*)
25. (*a*)	**26.** (*c*)	**27.** (*b*)	**28.** (*c*)	**29.** (*a*)	**30.** (*d*)
31. (*c*)	**32.** (*a*)	**33.** (*a*)	**34.** (*b*)	**35.** (*c*)	**36.** (*d*)
37. (*a*)	**38.** (*a*)	**39.** (*a*)	**40.** (*b*)	**41.** (*b*)	**42.** (*a*)
43. (*a*)	**44.** (*c*)	**45.** (*d*)	**46.** (*d*)	**47.** (*c*)	**48.** (*c*)
49. (*b*)	**50.** (*c*)	**51.** (*c*)	**52.** (*b*)	**53.** (*d*)	**54.** (*a*)
55. (*b*)	**56.** (*d*)	**57.** (*d*)	**58.** (*d*)	**59.** (*b*)	**60.** (*a*)
61. (*a*)					

Assertion-Reasoning Type MCQs

62. (*a*)	**63.** (*b*)	**64.** (*b*)	**65.** (*d*)	**66.** (*d*)	**67.** (*d*)
68. (*d*)	**69.** (*d*)				

Case-Based MCQs

1. (*a*) (*i*)	(*b*) (*iii*)	(*c*) (*iii*)	(*d*) (*iii*)	**2.** (*a*) (*ii*)	(*b*) (*ii*)	(*c*) (*ii*)	(*d*) (*ii*)
3. (*a*) (*iv*)	(*b*) (*i*)	(*c*) (*i*)	(*d*) (*i*)	**4.** (*a*) (*i*)	(*b*) (*iv*)	(*c*) (*iii*)	(*d*) (*ii*)
5. (*a*) (*iii*)	(*b*) (*i*)	(*c*) (*iv*)	(*d*) (*iii*)	**6.** (*a*) (*i*)	(*b*) (*iv*)	(*c*) (*iv*)	(*d*) (*ii*)

Objective Questions

Multiple Choice Questions

1. Which of the following is/are objectives of classification?
(a) To simplify facts
(b) To facilitate comparison
(c) To point out similarities and dissimilarities
(d) All of the above

2. Class width is same as ..... .
(a) class frequency (b) class interval
(c) Both (a) and (b) (d) Neither (a) nor (b)

3. Food habits of an individual is an example of
(a) attribute (b) variable
(c) continuous variable (d) None of these

4. A given characteristics or attributes of a statistical enquiry refers to which of the following?
(a) Qualitative behavior
(b) Quantitative behavior
(c) Both (a) and (b)
(d) None of the above

5. Categorisation of data based upon the citizenship of an individual is an example of .....
(a) quality
(b) attribute
(c) variable
(d) None of the above

6. Frequency of a distribution is always in ..... terms.
(a) absolute (b) percentage
(c) relative (d) None of these

7. Classification should be elastic in nature. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

8. Which of the following is/are type(s) of classification?
(a) Chronological classification
(b) Geographical classification
(c) Qualitative classification
(d) All of the above

9. A variable which can take integral as well as fractional values is known as .....
(a) discrete variable
(b) continuous variable
(c) constant variable
(d) All of the above

10. Classification of data based on time period is known as ..... .
(a) Chronological classification
(b) Geographical classification
(c) Qualitative classification
(d) None of the above

11. Data which is grouped with reference to the attributes is referred to as ..... .
(a) chronological classification
(b) geographical classification
(c) qualitative classification
(d) quantitative classification

12. Identify the correct sequence of alternatives given in column II by matching them with respective terms in column I.

	Column I		Column II
A.	Manifold classification	(i)	Two classes on one characteristic
B.	Simple classification	(ii)	Earnings of stores
C.	Continuous frequency distribution	(iii)	Involves more than one characteristic
D.	Quantitative classification	(iv)	Formulation of classes on the basis of variable

Codes

	A	B	C	D
(a)	(ii)	(i)	(iv)	(iii)
(b)	(iii)	(i)	(iv)	(ii)
(c)	(i)	(iii)	(ii)	(iv)
(d)	(iv)	(ii)	(i)	(iii)

13. Write the correct sequence options in column II by matching them with options of column I.

Column I	Column II
A. Classification of data based on time	(i) Spatial
B. Classification of data based on qualities	(ii) Quantitative
C. Classification of data based on numerical values	(iii) Chronological
D. Classification of data based on location	(iv) Qualitative

Codes

	A	B	C	D
(a)	(i)	(ii)	(iii)	(iv)
(b)	(iv)	(iii)	(ii)	(i)
(c)	(iii)	(iv)	(ii)	(i)
(d)	(ii)	(iii)	(iv)	(i)

14. For determining the class frequency, it is necessary that the classes are
(a) independent
(b) mutually exclusive
(c) non-mutually exclusive
(d) None of the above

15. Which of the following is/are statistical series based on construction?
(i) Individual series
(ii) Discrete series
(iii) Continuous series
Choose from the options below.
(a) (i) and (ii)
(b) (ii) and (iii)
(c) (i) and (iii)
(d) (i), (ii) and (iii)

16. Which of the following statistical series is/are not based upon general characteristics?
(i) Time series (ii) Spatial series
(iii) Condition series
Choose from the options below.
(a) (i) and (ii) (b) (ii) and (iii)
(c) (i) and (iii) (d) None of these

17. In a discrete series, the number of times an item repeats is known as ..... .
(a) Class frequency
(b) Cumulative frequency
(c) Number (d) None of the above

18. The frequency distribution of a continuous variable is also known as
(a) Simple frequency distribution
(b) Grouped frequency distribution
(c) Either (a) or (b) (d) None of the above

19. Mutually exclusive distribution is used to represent
(a) individual series (b) discrete series
(c) continuous series (d) All of these

20. Arranging the data in different classes according to a given order is known as a series.
Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

21. Choose the correct equation from given below.
(a) S = r/n (b) S = r - n
(c) S = r + n (d) None of these
(Here S = Size of class, r = Range, n = Number of class)

22. Which of the following is/are type(s) of frequency distribution?
(a) Individual frequency distribution
(b) Discrete frequency distribution
(c) Continuous frequency distribution
(d) Both (b) and (c)

23. The difference between highest and lowest items of the series is known as class width. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

24. The extreme values of the class are known as limits.
Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

25. Inclusive continuous series cannot be used for further analysis unless converted to exclusive series. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

26. A quantity which varies from one individual to another is known as ..... .
(a) Array (b) Series
(c) Variable (d) None of these

27. In a frequency distribution, each unit of the data can be exactly measured.
Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

28. Which of the following is/are type(s) of continuous frequency distribution?
(a) Inclusive series (b) Exclusive series
(c) Open-ended series (d) All of these

29. The difference between upper limit and lower limit of a class is known as
(a) Class frequency (b) Class limits
(c) Class mid-point (d) Class interval

30. The method in which the upper limit of a class interval is same as the lower limit of the lower limit of the next class interval is known as
(a) Cumulative method (b) Inclusive method
(c) Exclusive method (d) None of these

31. The arrangement of raw data in increasing or decreasing order of the magnitude is known as
(a) Interval (b) Array
(c) Range (d) None of these

32. In an individual series, each item has
(a) same frequency
(b) different frequency
(c) varied frequency
(d) None of the above

33. The number of observations in a class is called
(a) Interval (b) Frequency
(c) Array (d) None of these

34. Identify the discrete variable from the given below.
(a) Age of employees (b) Weight of students
(c) Salary of employees (d) Children in a family

35. The value exactly at the middle of the interval is known as
(a) Class width (b) Class size
(c) Mid value (d) Upper limit

36. Which of the following is not a frequency distribution?
(a) Cumulative (b) Continuous
(c) Open ended (d) None of these

37. In order to convert an inclusive series into an exclusive one, we need to subtract 1 from both lower limit and upper limit of each class interval. Choose from the option below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

38. How many types of cumulative frequency distributions are there?
(a) 2 (b) 3
(c) 4 (d) None of these

39. An inclusive series is given as, 1-9, 10-19, 20-29. What will be the mid value of the second class in this situation?
(a) 10 (b) 19
(c) 14.5 (d) 24.5

40. Monthly salary of an individual is an example of continuous variable. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

41. Which of the following series can take only integral values?
(a) Individual series
(b) Discrete series
(c) Continuous series
(d) Both (a) and (b)

42. In less-than cumulative frequency distribution, the series is arranged in ..... order.
(a) increasing
(b) decreasing
(c) constant
(d) None of the above

43. Bi-variate frequency distributions are also known as ..... .
(a) Two-way table
(b) Two-way series
(c) Multiple frequency distribution
(d) None of the above

44. An open-ended series doesn't have upper limit in every class interval. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

45. Observe the series given, 0-10, 10-15, 15-30, 30-50. Identity the type of series in the given example.
(a) Exclusive and open ended
(b) Exclusive and unequal
(c) Inclusive and open ended
(d) Inclusive and unequal

46. Uni-variate frequency distributions are also known as ..... .
(a) One-way table
(b) Single table
(c) One-way frequency distribution
(d) All of the above

47. In more than cumulative frequency distribution, the series is arranged in ..... order.
(a) increasing
(b) decreasing
(c) constant
(d) None of the above

48. The frequency distribution representing the ages of father and sons/daughters will be represented by
(a) uni-variate frequency distribution
(b) bi-variate frequency distribution
(c) cumulative frequency distribution
(d) None of the above

49. If we add frequencies one by one to the previous frequency in an ascending order of the magnitude of the frequency distribution, we get
(a) more than cumulative frequency distribution
(b) less than cumulative frequency distribution
(c) bi-variate frequency distribution
(d) multi-variate frequency distribution

50. In the construction of a frequency distribution, it is generally preferred that classes should be of
(a) equal width
(b) unequal width
(c) increasing width
(d) decreasing width

51. From the given data, find the number of students scoring 20 or more marks in Economics.

Marks	No. of Students
0-5	5
5-10	7
10-15	3
15-20	10
20-25	15
25-30	10
30-35	8
35-40	12

(a) 20
(b) 35
(c) 45
(d) 25

52. Census of India depicting birth rate over last decade is an example of
(a) geographical classification
(b) chronological classification
(c) qualitative classification
(d) quantitative classification

53. Classification of data that can represent two or more variables is known as
(a) Two-classification
(b) Manifold classification
(c) Both (a) and (b)
(d) Neither (a) nor (b)

54. In an inclusive series
(a) both class limits are considered.
(b) both class limits are excluded.
(c) upper limit is excluded.
(d) lower limit is excluded.

55. Under ..... series, there is no frequency distribution as every number is unique.
(a) individual
(b) discrete
(c) continuous
(d) None of the above

Assertion-Reasoning MCQs

Direction (Q.Nos. 56 to 60) *There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

56. **Assertion** (A) Classification of data is required for further statistical analysis.
Reason (R) Classification helps in simplifying data and enhances understanding.

57. **Assertion** (A) Classification facilitates grouping of data based upon similarities and dissimilarities.
Reason (R) Classification enables a person to compare various forms of data.

58. **Assertion** (A) Classification of data using time dimensions has more accuracy as compare to other forms of classification.
Reason (R) Data can be presented, once it is classified as per the need of investigation.

59. **Assertion** (A) Attributes of a variable can vary from one investigator to another depending upon the method of statistical enquiry used.
Reason (R) Variables can take any value including integral and fractional values.

60. **Assertion** (A) Bi-variate frequency distribution is a form of exclusive frequency distribution.
Reason (R) A form of presentation capable of representing more than two variables at a time is considered as bi-varite.

Case Based MCQs

Direction *Read the following case study and answer questions 61 to 65 on the basis of the same.*

Collection of data is an important step in statistics. However, raw data cannot be used unless organised in a meaningful way. Few examples of organisation are given below, observe these carefully and answer the questions.

(a) Production of wheat in India in 2001

Region	Production (in million tonnes)
Rajasthan	5,000
UP	6,550
Punjab	4,800
Haryana	4,200

(b) Marks of students in Statistics

Marks	No. of students
01-09	05
10-19	08
20-39	02
40-69	06
70-79	05

61. Table (a) shows which of the following methods of classification?
(a) Spatial classification
(b) Time series
(c) Quantitative classification
(d) None of the above

62. In table (b), ... series is used to arrange the data.
(a) inclusive (b) exclusive
(c) both (a) and (b) (d) Neither (a) nor (b)

63. Which of the following best describes the classification in table (b)?
(a) Unequal and exclusive
(b) Open-ended and exclusive
(c) Unequal and inclusive
(d) Open-ended and inclusive

64. Which of the following is/are objective(s) of classification?
(a) It helps in summarising the data
(b) It enables further mathematical treatment
(c) It enhances human knowledge
(d) All of the above

65. As per table (b), if a student has scored 19.5, it will be recorded in which class interval?
(a) 10-19 (b) 20-29
(c) Either (a) or (b) (d) None of these

Direction *Read the following case study and answer questions 66 to 70 on the basis of the same.*

Collection of data is the first step in a statistical analysis. Data can be collected either from primary source or secondary source. Primary data is original as it is being collected for the first time. After collecting the data, next step is to organise the data as raw data cannot be used for further statistical analysis. There are various methods of classification of data based upon the nature of quantitative data.

66. Time series graphs are presented on the basis of general characteristics of a data. Choose from the options below.
(a) True (b) False
(c) Partially true (d) Incomplete statement

67. Classification of data based on time period is known as ..... classification.
(a) chronological (b) temporal
(c) spatial (d) Both (a) and (b)

68. Data are grouped with reference to the attributes is referred to as ... classification.
(a) qualitative (b) quantitative
(c) both (a) and (b) (d) Neither (a) nor (b)

69. In which of the following method of frequency distribution, the upper limit of each class is excluded from the series but equal to the lower limit of the succeeding series?
(a) Continuous exclusive frequency distribution

(b) Continuous inclusive frequency distribution
(c) Continuous cumulative frequency distribution
(d) None of the above

70. **Assertion** (A) Classification of data is done after organisation process.
Reason (R) Collection of raw data is not useful for further analysis.

Alternatives

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

Direction *Read the following case study table carefully and answer questions 71 to 75 on the basis of the same.*

Weight in kg (Class interval)	Tally Marks	No. of students (Frequency)
44-48	III	3
49-53	IIII	4
54-58	𝍸	5
59-63	𝍸III	7
64-68	𝍸IIIII	9
69-73	𝍸IIII	8

71. The above series is an example of ..... series.

(a) inclusive
(b) exclusive
(c) Both (a) and (b)
(d) Neither (a) nor (b)

72. The above situation shows which of the following types of presentation of data?

(a) Chronological classification
(b) Spatial classification
(c) Qualitative classification
(d) Quantitative classification

73. What is the percentage of students having weight more than 63 kgs?

(a) 43.25%
(b) 47.22%
(c) 51.63%
(d) 62.32%

74. How many students have weight less than 58 kgs?

(a) 12 (b) 15
(c) 7 (d) 10

75. Variable which doesn't take integral values is known as ..... .

(a) Individual series
(b) Discrete series
(c) Continuous series
(d) None of the above

ANSWERS

Multiple Choice Questions

1. (d)	2. (b)	3. (a)	4. (a)	5. (b)	6. (a)	7. (a)	8. (d)	9. (b)	10. (a)
11. (c)	12. (b)	13. (c)	14. (b)	15. (b)	16. (d)	17. (a)	18. (a)	19. (c)	20. (a)
21. (a)	22. (d)	23. (b)	24. (a)	25. (a)	26. (c)	27. (b)	28. (d)	29. (d)	30. (c)
31. (b)	32. (a)	33. (b)	34. (d)	35. (c)	36. (d)	37. (c)	38. (a)	39. (c)	40. (a)
41. (d)	42. (a)	43. (d)	44. (b)	45. (b)	46. (c)	47. (b)	48. (b)	49. (a)	50. (a)
51. (c)	52. (b)	53. (b)	54. (a)	55. (a)					

Assertion-Reasoning MCQs

56. (a)	57. (a)	58. (c)	59. (b)	60. (c)

Case Based MCQs

61. (a)	62. (a)	63. (c)	64. (d)	65. (d)	66. (b)	67. (d)	68. (a)	69. (a)	70. (c)
71. (a)	72. (c)	73. (b)	74. (a)	75. (d)					

OBJECTIVE QUESTIONS

Fill in the Blanks

1. Central point of a class-interval is known as _____.
2. The data arranged according to location or geographical considerations form a _____ series.

3. When data is classified with respect to different periods of time, the type of classification is known as _____ classification.
4. The lowest and highest values of the variables within a class are called _____.
5. In _____ series, data is classified according to the changes occurring under certain conditions.
6. _____ refers to quantity or characteristic whose value varies from one investigation to another.
7. When data is classified according to geographical location, it is known as _____ classification.
8. Univariate frequency distribution is also known as _____ frequency distribution, while Bivariate frequency distribution is known as _____ frequency distribution.
9. _____ refers to number of observations falling within a particular class.
10. There are _____ types of cumulative frequency distributions.
11. The arrangement of raw data in ascending or descending order of magnitude is known as _____.
12. In a _____ series, various values of the variable are shown along with their corresponding frequencies.

True or False

1. The upper and lower limits are excluded in an exclusive class-interval series.
2. The upper limit of class intervals is considered for calculating less than cumulative frequency.
3. Array is to arrange values at random.
4. The frequency distribution of a continuous variable is called simple frequency distribution.
5. The lower and upper limits are included in an inclusive class.
6. Annual income of a person is discrete variable.
7. Frequency of a variable is always an integer.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	*(B)*
(i) Classification	a. Number of times a given value appears in a distribution
(ii) Range	b. Process of arranging data into groups as per common characteristics
(iii) Individual Series	c. Difference between lower limit of first class-interval and upper limit of last class-interval
(iv) Variable	d. Series in which items are listed singly
(v) Frequency	e. Attribute whose value varies from one investigation to another

Q. 2. Match the statements given under A with the correct options given under B.

(A)	*(B)*
(i) Exclusive Series	a.

Marks	*No. of Students*
Below 10	6
10-20	4
20-30	5
Above 30	9

(A)	(B)
(ii) Open-end Series	b.
(iii) Inclusive Series	c.
(iv) Discrete Series	d.
(v) Unequal Class-Interval Series	e.

b.

Marks	No. of Students
10	6
20	4
30	5
40	9

c.

Marks	No. of Students
0-10	6
10-30	4
30-70	5
70-90	9

d.

Marks	No. of Students
1-9	6
10-19	4
20-29	5
30-39	9

e.

Marks	No. of Students
0-10	6
10-20	4
20-30	5
30-40	9

Multiple Choice Questions (MCQs)

1. Drinking habit of a person is:
   (a) An attribute (b) A discrete variable
   (c) A variable (d) A continuous variable
2. An attribute is:
   (a) A qualitative characteristic (b) A measurable characteristic
   (c) A quantitative characteristic (d) All these
3. Nationality of a student is:
   (a) An attribute (b) A discrete variable (c) A continuous variable (d) Either (a) or (c)
4. For the construction of a grouped frequency distribution, we take:
   (a) Class boundaries (b) Class limits (c) Both (a) and (b) (d) None of these
5. Tally marks determine:
   (a) Class width (b) Class boundary (c) Class limit (d) Class frequency
6. The number of observations falling within a class is called:
   (a) Density (b) Frequency (c) Both (a) and (b) (d) None of these
7. A series showing the sets of all distinct values individually with their frequencies is known as:
   (a) Grouped frequency distribution (b) Simple frequency distribution
   (c) Cumulative frequency distribution (d) None of these

8. Annual income of a person is:
(a) A continuous variable (b) A discrete variable (c) An attribute (d) Either (b) or (c)

9. An open end series is that series in which:
(a) Lower limit of the first class-interval is missing (b) Upper limit of the last class-interval is missing
(c) Both (a) and (b) (d) Class-intervals are unequal

10. Upper limit of any class is:
(a) Same (b) Different (c) Both (a) and (b) (d) None of these

11. In inclusive class–intervals of a frequency distribution:
(a) Upper limit of each class–interval is included (b) Lower limit of each class–interval is included
(c) Both (a) and (b) (d) None of these

12. In exclusive class intervals of a frequency distribution:
(a) Upper limit of each class–interval is excluded (b) Lower limit of each class–interval is excluded
(c) Both (a) and (b) (d) None of these

13. For determining the class frequencies, it is necessary that these classes are:
(a) Mutually exclusive (b) Not mutually exclusive (c) Independent (d) None of these

14. The Frequency distribution of a continuous variable is known as:
(a) Grouped frequency distribution (b) Simple frequency distribution
(c) Either (a) or (b) (d) Both (a) and (b)

15. In an ordered series, the data are:
(a) In descending order (b) In ascending order (c) Either (a) or (b) (d) None of these

16. The value exactly at the middle of a class–interval is called:
(a) Class mark (b) Mid–value (c) Both (a) and (b) (d) Class limit

17. The lower class boundary is:
(a) An upper limit to Lower Class Limit (b) A Lower limit to Lower Class Limit
(c) Both (a) and (b) (d) None of these

18. The upper limit of class–intervals is considered for calculating:
(a) 'Less than' cumulative frequency (b) 'More than' cumulative frequency
(c) Relative frequency (d) None of these

19. In an individual series, each variate value has:
(a) Same frequency (b) Frequency one (c) Varied frequency (d) Frequency two

20. A grouped frequency distribution with uncertain first or last class is known as:
(a) Exclusive class distribution (b) Inclusive class distribution
(c) Open end distribution (d) Discrete frequency distribution

21. The following frequency distribution,

x:	12	17	24	36	45	48	52
f:	4	0	7	8	9	6	3

is classified as:
(a) Continuous distribution (b) Discrete distribution
(c) Cumulative frequency distribution (d) None of these

22. A frequency distribution can be:
(a) Discrete (b) Continuous (c) Both (a) and (b) (d) None of these

23. Classification of data on the basis of location or region is called:
(a) Chronological Classification (b) Quantitative Classification
(c) Spatial Classification (d) Qualitative Classification

24. From the following data, how much percent of persons are earning more than ₹ 1,499:

Income in ₹	*No. of persons*
500 – 999	15
1,000 – 1,499	28
1,500 – 1,999	36
2,000 – 2,499	7

(a) 50% (b) 45% (c) 40% (d) 60%

25. Most extreme values which are never included in a class–interval are called:
(a) Class–interval (b) Class limits (c) Class boundaries (d) None of these

26. The class marks of a distribution are 26, 31, 36, 41, 46 and 51. Then the first class-interval is:
(a) 23.5–28.5 (b) 23–28 (c) 22.5–27.5 (d) None of these

27. Mutually exclusive classification:
(a) Excludes the upper class limit but includes the lower class limit
(b) Excludes both the class limits
(c) Includes the upper class limit but excludes the upper class limit
(d) Either (b) or (c)

28. In the construction of a frequency distribution, it is generally preferable to have classes of:
(a) Equal width (b) Unequal width (c) Maximum width (d) None of these

29. Classes with zero frequencies are called:
(a) Class (b) Empty class (c) Nil class (d) None of these

30. Frequency of a variable is always:
(a) A fraction (b) In percentage (c) An integer (d) None of these

31. Find the number of observations between 250 and 300 from the following data:

Value	*No. of observations*
More than 200	56
More than 250	38
More than 300	15
More than 350	0

(a) 56 (b) 23 (c) 15 (d) 8

32. Which of the following is a cumulative frequency distribution?
(a) Less than Series (b) More than Series (c) Both (a) and (b) (d) Open-end Series

33. A series showing the sets of all values in classes with their corresponding frequencies is known as:
(a) Grouped frequency distribution (b) Cumulative frequency distribution
(c) Simple frequency distribution (d) None of the above

34. If the mid–values are given as: 25, 34, 43, 53, 61, 70, then first class of the distribution is:
(a) 25–34 (b) 24.5–34.5 (c) 20–30 (d) 20.5–29.5

35. Why is it true that classes in frequency distributions are all inclusive?
(a) No data point falls into more than one class (b) There are always more classes than data points
(c) All data fit into one class or another (d) All of these

36. Mutually exclusive classification is usually meant for:
(a) An attribute (b) A continuous variable (c) A discrete variable (d) Any of these

37. The class interval of the continuous grouped data: 0–5; 6–10; 11–15; 16–20; 21–25 is:
(a) 4 (b) 5 (c) 4.5 (d) None of these

38. Class–interval is measured as:
(a) Half of the sum of lower and upper limit (b) The sum of the upper and lower limit
(c) Half of difference between upper and lower limit (d) The difference between upper and lower limit

39. The data given as 5, 7, 12, 17, 79, 84, 91 will be called as:
(a) A continuous series (b) A discrete series (c) An individual series (d) Time series

40. The following data relate to the marks of a group of students:

Marks	Below 10	Below 20	Below 30	Below 40	Below 50
No. of Students	15	38	65	84	100

How many students get marks more than 30?
(a) 65 (b) 50 (c) 35 (d) 43

41. Which one of the following is a kind of statistical series?
(a) Continuous Series (b) Discrete Series (c) Individual Series (d) All of these

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): In case of Inclusive Series, the value of upper limit of a class never equals the value of lower limit of the next class.
Reason (R): Class frequencies are same in both exclusive and inclusive series, although the class-intervals are apparently different in the two cases.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): The 'less than' cumulative frequencies are associated with the upper class boundaries.
Reason (R): In case of univariate frequency distribution, data is classified on the basis of single variable.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Exclusive Series ensures continuity of data.
Reason (R): In case of exclusive series, upper limit of one class is the lower limit of succeeding class.

Alternatives:

(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Population of different states of India as per Census 2011 is an example of Temporal Classification.
Reason (R): In case of Temporal Classification, data is classified with respect to different periods of time.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

5. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Bivariate frequency distribution is also known as Two-way frequency distribution.
Reason (R): In case of 'Bivariate Frequency Distribution', data is classified on the basis of two variables.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Classification facilitates grouping of data according to certain similarities and dissimilarities.
Statement 2: Classification provides a basis for tabulation and further statistical processing.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Under Spatial Classification, data is classified with respect to different periods of time.
Statement 2: Population of Bihar for different years can be given according to Chronological Classification.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Discrete Variables are capable of taking exact value as well as fractional value.
Statement 2: In case of discrete variable, data is obtained by measurement.

Alternatives:

(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: In case of open-end distribution, upper limit of first class and lower limit of last class is not given.
Statement 2: Open-end classes create problem in the graphic presentation of the data.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

5. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: In case of exclusive series, the upper limit of one class-interval becomes the lower limit of the next class.
Statement 2: Class-Intervals need not be mutually exclusive in case of exclusive series.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

6. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: In case of inclusive series, both the limits of a class-interval are counted in the same class.
Statement 2: Exclusive series ensures continuity of data.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Mid-point
2. Spatial
3. Chronological
4. Class limit
5. Condition
6. Variable
7. Geographical
8. One-way, Two-way
9. Frequency
10. Two
11. Array
12. Discrete

True or False

1. False
2. True
3. False
4. False
5. True
6. False
7. True

Matching Type Questions

1. (i) b; (ii) c; (iii) d; (iv) e; (v) a.
2. (i) e; (ii) a; (iii) d; (iv) b; (v) c.

Multiple Choice Questions (MCQs)

1. (a)	7. (b)	13. (a)	19. (b)	25. (c)	31. (b)	37. (b)
2. (a)	8. (b)	14. (a)	20. (c)	26. (a)	32. (c)	38. (d)
3. (a)	9. (c)	15. (c)	21. (b)	27. (b)	33. (a)	39. (c)
4. (b)	10. (b)	16. (c)	22. (c)	28. (a)	34. (d)	40. (c)
5. (a)	11. (c)	17. (b)	23. (c)	29. (b)	35. (c)	41. (d)
6. (b)	12. (a)	18. (a)	24. (a)	30. (c)	36. (b)	

Assertion Reason Questions (ARQs)

1. (b)	2. (b)	3. (a)	4. (d)	5. (a)

Statement Based Questions

1. (a)	2. (d)	3. (b)	4. (d)	5. (c)	6. (a)

OBJECTIVE QUESTIONS

Fill in the Blanks

1. Three-way table is also known as _____ table.
2. In a Simple Table, data is presented according to _____ characteristic only.
3. Headings and sub-headings given to columns of a table are called _____.
4. _____ is a brief explanation of the contents of a table.
5. In case of tabulation, _____ refer to the headings of horizontal rows.

True or False

1. General Purpose Table is also known as Repository Table.
2. Table, which explains more than three characteristics of the data, is known as Treble Table.
3. Only after classification, statistical data can be tabulated.
4. Production figures of a company for a number of years is presented through General Purpose Table.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	*(B)*
(i) Special Purpose Table	a. General Purpose Table
(ii) Three-way Table	b. First Order Table
(iii) Simple Table	c. Summary Table
(iv) Reference Table	d. Treble Table

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Tabulation	a. Headings of horizontal rows
(ii) Stubs	b. Column heading
(iii) Derived Table	c. Refers to origin from where information has been taken
(iv) Source Note	d. Presentation of numerical data in rows and columns
(v) Captions	e. Presents results derived from the original data

Multiple Choice Questions (MCQs)

1. The most accurate mode of data presentation is:
(a) Diagrammatic method (b) Tabulation
(c) Textual presentation (d) None of these

2. Details are shown by:
(a) Charts (b) Tabular presentation
(c) Both (a) and (b) (d) None of these

3. Univariate frequency distribution is presented through:
(a) Simple Table (b) One-Way Table
(c) Both (a) and (b) (d) Two-Way Table

4. The headings of the rows given in the first column of a table are called:
(a) Stubs (b) Titles
(c) Captions (d) Prefatory notes

5. The column heading of a table is known as:
(a) Stubs (b) Sub–titles
(c) Reference notes (d) Captions

6. For tabulation, 'caption' is:
(a) The lower part of the table
(b) The main part of the table
(c) The upper part of the table
(d) The upper part of a table that describes the column and sub–column

7. Which of the following statements is not true for tabulation?
(a) Complicated data can be presented
(b) Facilitates comparison between various observations
(c) Statistical analysis of data requires tabulation
(d) Tabulation aims to present the classified data in a complex manner

8. 'Stub' of a table is the:
(a) Right part of the table describing the columns (b) Left part of the table describing the columns
(c) Right part of the table describing the rows (d) Left part of the table describing the rows

9. Whether classification is done first or tabulation?
(a) Classification follows tabulation (b) Classification precedes tabulation
(c) Both are done simultaneously (d) No criterion

10. _____ is placed just below the title.
(a) Source (b) Table Number
(c) Head Note (d) Foot note

11. A table that shows two or more characteristics of data is known as:
    (a) First Order Table (b) Complex Table
    (c) One-Way Table (d) General purpose table
12. In case of Tabulation, source of information is given:
    (a) Just below the title (b) Just below the Head Note
    (c) Just above the Footnote (d) Just below the Footnote
13. Simple Table is also known as:
    (a) First Order Table (b) One-Way Table
    (c) Both (a) and (b) (d) Treble Table
14. In tabulation, source of the data, if any, is shown in the:
    (a) Source Note (b) Body
    (c) Stub (d) Caption
15. Special Purpose Table is also known as:
    (a) Text Table (b) Analytical Table
    (c) Summary Table (d) All of these
16. On the basis of Objective, tables are of two types:
    (a) General Purpose Table and Special Purpose Table
    (b) Original Table and Derived Table
    (c) Simple Table and Complex Table
    (d) None of these
17. Treble Table presents _____ characteristics.
    (a) Two (b) More than two
    (c) Three (d) Four
18. General Purpose Table is also known as:
    (a) Reference Table (b) Derivative Table
    (c) Repository Table (d) Both (a) and (c)
19. _____ Table contains data, which was initially collected from the primary source.
    (a) Summary (b) Derivative
    (c) Reference (d) Original
20. The main objective of tabulation is:
    (a) To provide reference (b) To economize space
    (c) To facilitate comparison (d) All of these
21. Number of students in different sections of Class XI will be shown by:
    (a) Treble Table (b) Double Table
    (c) Simple Table (d) Manifold Table

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
   Assertion (A): Captions refer to the headings of horizontal rows.
   Reason (R): Source Note refers to the source from which information has been taken.
   Alternatives:
   (a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
   (b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).

(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Head-note is inserted in the Table to convey all the relevant information about the data.
Reason (R): Head note is also known as Prefatory Note.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Figures in case of Original Table are not rounded up.
Reason (R): The Original Table contains the statistical facts in their original form.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Classification is a method of statistical analysis and tabulation is a process of presenting data.
Reason (R): Classification and Tabulation are one and the same thing.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Tabulation precedes the process of classification.
Statement 2: Both tabulation and classification are methods of statistical analysis.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Captions refer to headings of vertical columns, while stubs refer to headings of horizontal rows.
Statement 2: Stubs are at the extreme right and are usually narrow than captions.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Source note is generally written at the top of the table.
Statement 2: Source note is given in case of primary data.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Derived Table is also known as a Derivative Table.
Statement 2: Classification Table contains data, which was initially collected from the primary source.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Treble
2. One
3. Captions
4. Title
5. Stubs

True or False

1. True
2. False
3. True
4. False

Matching Type Questions

1. (i) c; (ii) d; (iii) b; (iv) a.
2. (i) d; (ii) a; (iii) e; (iv) c; (v) b.

Multiple Choice Questions (MCQs)

1. (b)	**4.** (a)	**7.** (d)	**10.** (c)	**13.** (c)	**16.** (a)	**19.** (d)
2. (b)	**5.** (d)	**8.** (d)	**11.** (b)	**14.** (a)	**17.** (c)	**20.** (d)
3. (c)	**6.** (d)	**9.** (b)	**12.** (c)	**15.** (d)	**18.** (d)	**21.** (c)

Assertion Reason Questions (ARQs)

1. (d) **2.** (b) **3.** (a) **4.** (c)

Statement Based Questions

1. (b) **2.** (c) **3.** (b) **4.** (a)

4 PRESENTATION OF DATA

Important Terms and Concepts

1. There are generally three forms of presentation of data:
   (*a*) Textual or Descriptive Presentation
   (*b*) Tabular Presentation
   (*c*) Diagrammatic Presentation
2. In **textual or descriptive presentation**, data is described by paragraphs of text. This method is used in most of the official reports, where the activities, plans or programmes of a project are described in words, inserting relevant facts and figures in-between them. When the quantity of data is not very large, this form of presentation is most suitable.
3. In **tabular presentation**, data is presented in rows and columns. A statistical table is a systematic presentation of data in rows and columns.
4. **Qualitative classification** is done according to qualitative characteristics like social status, physical status, nationality etc.
5. In **quantitative classification**, data is classified on the basis of characteristics which are quantitative in nature like age, height, production etc.
6. In **temporal classification**, time becomes the classifying variable and data is categorised according to time.
7. **Spatial classification** refers to the classification which is done on the basis of a place such as village/town, block, district, state and country.
8. **Table number** is assigned to a table for the identification purpose.
9. The **title** of the table narrates the content of the table.
10. **Caption** or column heading is the column head.
11. **Stub** or Row Heading is the row head. It is the leftmost column in a table.
12. **Body** of a table is the main part and it contains the actual data.
13. **Source Note** is a brief statement indicating the source of data presented in the table. It is generally written at the bottom of the table.
14. **Footnote** is the last part of the table. It explains the specific feature of the data in the content of the table which is not self explanatory.

    Note: Source Note and Footnote are optional parts of a table.
15. The tabular presentation of data has the following **advantages**:
    (*a*) It clarifies the characteristics of data.
    (*b*) It helps one to detect the errors and omissions, if any, in the data.
    (*c*) It economises time, space and facilitates quick comparison.
    (*d*) It removes complexity of the data.
    (*e*) Tables are easy to remember.
    (*f*) Tabulated data helps in drawing diagrams and graphs.

16. **Diagrammatic presentation of data** is another useful method of presenting the data in a compact form. There are various kinds of diagrams in common use. Amongst them, the important ones are the following:
    (*a*) Geometric Diagrams (Bar and Pie diagrams)
    (*b*) Frequency Diagrams (Histogram, Frequency Polygon, Frequency Curve and Ogive)
    (*c*) Arithmetic Line Graph or Time Series Graphs
17. **Bar diagram** is one-dimensional diagram. It comprises of a group of rectangular bars having equal space and width for each class or category of data. Height or length of bar reads the magnitude of data. These bars start from a common base line.
18. A **simple** bar diagram shows a value of data with the help of a number of bars.
19. **Multiple** bar diagram shows two or more related sets of data over a period of time.
20. The **sub-divided** bar diagram also called component bar diagram presents the total value and parts of a set of data by means of sub-divided bars.
21. **Percentage bar diagram** is a sub divided diagram which represents the percentage for each component, instead of their magnitude. In a percentage bar diagram all the bars will be of equal height, *i.e.*, 100.
22. **Bars** usually refer to a rectangular figure including some value of the variables.
23. A **pie diagram** is an important and effective way of presenting data. It is a circle sub-divided into components to present the proportion of different constituent parts of the total.
24. **Frequency diagrams**, also called **graphs of frequency distributions**, are used for presenting grouped frequency distribution on the graph paper. Frequency diagrams are of four types, namely, Histogram, Frequency Polygon, Frequency Curve and Ogive.
25. **Histogram** is a two-dimensional diagram. In histogram, the frequencies are presented in the form of rectangles and each class is represented by an equal distance.
26. **Graphic presentation** is the method by which data is presented in the form of curves or lines on a graph paper.
27. **Quadrants** divide the graph paper among four parts.
28. A **frequency polygon** is a diagrammatic presentation of data which is constructed by joining mid-points of the tops of all rectangles in histogram.
29. A **frequency curve** is the curve which is plotted by joining mid-points of all tops of a histogram free hand. It is a smooth curve.
30. **Ogive** is also called 'cumulative frequency curve'. As there are two types of cumulative frequencies—less than type and more than type, accordingly there are two ogives for any grouped frequency distribution.
31. **Arithmetic line graphs or Time series graphs** are important methods of presenting time series data. When an economic variable is presented over time, it is called a time series graph or arithmetic line graph.
    In a time series or line graph, time (hour/day/year) is independent variable and plotted on the X-axis. The other variable is dependent variable and its value is shown on the Y-axis. Two or more comparable dependent variables can be shown on a time series graph. Data represented through arithmetic line graph helps in understanding long-term tendency of the data.
32. **Time Series** graph shows a series of values over a period of time.

Multiple Choice Questions

1. Tabulation helps in:
   (*a*) bringing out figures clearly
   (*b*) bringing out layouts nicely
   (*c*) making comparisons easier
   (*d*) bringing out trends

2. Census of India conducted a survey on literacy in Bihar by sex and location and presented its report in the form of a table. The type of classification used in tabulation is termed as:
   (*a*) Temporal (*b*) Qualitative
   (*c*) Spatial (*d*) Quantitative

3. Which part of a table gives us the numerical information?
   (*a*) Title (*b*) Caption
   (*c*) Stub (*d*) Body

4. The column heading of a table is also known by which other name? **[NCT 2019]**
   (*a*) Title
   (*b*) Caption
   (*c*) Headnotes
   (*d*) Reference notes

5. Mode can be graphically located through:
   (*a*) histogram
   (*b*) ogive
   (*c*) Both (*a*) and (*b*)
   (*d*) Neither (*a*) nor (*b*)

6. A diagram where its length and, not width matters is called:
   (*a*) One-dimensional diagram
   (*b*) Two-dimensional diagram
   (*c*) Pie-diagram
   (*d*) All of these

7. The diagram usually not drawn with the absolute values of a category is called:
   (*a*) Pie diagram
   (*b*) Frequency diagram
   (*c*) Multiple bar diagram
   (*d*) Simple bar diagram

8. Which diagram is never drawn for a discrete variable?
   (*a*) Histogram
   (*b*) Frequency polygon
   (*c*) Frequency curve
   (*d*) Ogive

9. Which of the following frequency diagram uses cumulative frequency distribution?
   (*a*) Bar diagram (*b*) Histogram
   (*c*) Frequency curve (*d*) Ogive

10. The intersection of the two ogives gives the value of:
    (*a*) Mean (*b*) Median
    (*c*) Mode (*d*) None of these

11. When classification is done according to attributes it is called:
    (*a*) Spatial classification
    (*b*) Qualitative classification
    (*c*) Quantitative classification
    (*d*) Temporal classification

12. Heading of columns in a table is called:
    (*a*) Stub
    (*b*) Caption
    (*c*) Title
    (*d*) None of these

13. The total expenditure incurred by an industry under different heads is best presented by:
    (*a*) bar diagram
    (*b*) pie diagram
    (*c*) histogram
    (*d*) frequency polygon

14. Bar diagram is a
    (*a*) one-dimensional diagram
    (*b*) two-dimensional diagram
    (*c*) diagram with no dimension
    (*d*) None of these

15. Data represented through a histogram can help in finding graphically the
(a) mean (b) mode
(c) median (d) All of these

16. Ogives can be helpful in locating graphically:
(a) mode
(b) mean
(c) median
(d) None of these

17. Data represented through arithmetic line graph help in understanding:
(a) long-term trend
(b) cyclicity in data
(c) seasonality in data
(d) All of these

18. The complete left column of a table is called _____.
(a) Stub (b) Caption
(c) Body (d) Source Note

19. _____ is an alternate to histogram and also derive through histogram.
(a) Pie diagram
(b) Bar diagram
(c) Frequency polygon
(d) None of these

20. Component bar diagram is also known as:
(a) Multiple bar diagram
(b) Histogram
(c) Sub-divided bar diagram
(d) Pie diagram

21. _____ means exhibition of data in such a clear and attractive manner that the data are easily understood and analysed.
(a) Presentation of data
(b) Interpretation of data
(c) Analysis of data
(d) Collection of data

22. Which of the following is not a form of presentation of data?
(a) Descriptive presentation
(b) Tabular presentation
(c) Caption presentation
(d) Diagrammatic presentation

23. A systematic arrangement of data in rows and columns is called:
(a) Table (b) Tabulation
(c) Body (d) All of these

24. The most commonly used device of presenting business and economic data is:
(a) Line diagrams (b) Bar diagrams
(c) Pictograms (d) Pie diagrams

25. A graphical representation of frequency distribution is called:
(a) Histogram
(b) Scatter diagram
(c) Time series graph
(d) Frequency

26. Which of the following is prepared by using class intervals and frequencies?
(a) Histograms, Frequency Polygons and Ogive
(b) Histograms, Pie chart and Ogive
(c) Histograms, Frequency Polygons and Time series graph
(d) Histograms, Pie chart and Time series graph

27. Graphic presentation of a cumulative frequency distribution is known as:
(a) Pictograph (b) Ogive
(c) Histogram (d) Frequency polygon

28. Time series is the most important format of _____.
(a) Pie graph (b) Histogram
(c) Pictograph (d) Line graph

29. False baseline and kinked line are used in:

(*a*) Graphs (*b*) Diagrams

(*c*) Tables (*d*) All of these

30. The most accurate mode of data presentation is:

(*a*) Diagrammatic method

(*b*) Tabulation

(*c*) Textual presentation

(*d*) None of these

31. The headings of the rows given in the first column of a table are called:

(*a*) Stubs

(*b*) Titles

(*c*) Captions

(*d*) Footnotes

32. The column heading of a table is known as:

(*a*) Stubs (*b*) Sub-titles

(*c*) Reference notes (*d*) Captions

33. For tabulation, 'caption' is:

(*a*) the lower part of the table.

(*b*) the main part of the table.

(*c*) the upper part of the table.

(*d*) the upper part of a table that describes the column and sub-column.

34. Which of the following statements is not true for tabulation?

(*a*) Facilitates comparison between rows and not columns

(*b*) Tabulation aims to present the classified data in a complex manner

(*c*) Complicated data can be presented

(*d*) Both (*a*) and (*b*)

35. _____ is placed just below the title.

(*a*) Source (*b*) Table number

(*c*) Headnote (*d*) Footnote

36. In tabulation, source of the data, if any, is shown in the:

(*a*) Source Note (*b*) Body

(*c*) Stub (*d*) Caption

37. The main objective of tabulation is:

(*a*) To facilitate comparison

(*b*) To economise space

(*c*) To present the data in complex manner

(*d*) Both (*a*) and (*b*)

38. The most attractive method of data presentation is:

(*a*) Diagrammatic

(*b*) Textual

(*c*) Tabular

(*d*) Either (*a*) or (*b*)

39. In a bar diagram, the bars are:

(*a*) Horizontal

(*b*) Vertical

(*c*) Either (*a*) or (*b*)

(*d*) None of these

40. Diagrammatic representation of data is done by:

(*a*) Pictures (*b*) Charts

(*c*) Diagrams (*d*) All of these

41. The most appropriate diagram to represent the data relating to the monthly expenditure on different items by a family is:

(*a*) Pie diagram

(*b*) Angular circle diagram

(*c*) Histogram

(*d*) Both (*a*) and (*b*)

42. In case of _____, all the bars are of equal height and width.

(*a*) Multiple bar diagram

(*b*) Percentage bar diagram

(*c*) Sub-divided bar diagram

(*d*) Simple bar diagram

43. The diagram which represents data in a circle is known as:

(*a*) Pie diagram
(*b*) Multiple diagram
(*c*) Bar diagram
(*d*) Sub-divided bar diagram

44. Bar diagram is a:

(*a*) Two-dimensional diagram
(*b*) One-dimensional diagram
(*c*) Three-dimensional diagram
(*d*) None of these

45. The other name of Pie Diagram is:

(*a*) Bar diagram
(*b*) Histogram
(*c*) Angular circle diagram
(*d*) Polygon

46. _____ is used to represent net changes in data like net profit, net exports, etc.

(*a*) Pie diagram
(*b*) Deviation bar diagram
(*c*) Multiple bar diagram
(*d*) Simple bar diagram

47. One-dimensional diagrams are also known as:

(*a*) Pie diagrams (*b*) Histogram
(*c*) Bar diagrams (*d*) None of these

48. Percentage bar diagram is a:

(*a*) One-dimensional diagram
(*b*) Two-dimensional diagram
(*c*) Three-dimensional diagram
(*d*) None of these

49. Histogram is prepared in case of:

(*a*) Individual series
(*b*) Discrete series
(*c*) Continuous series
(*d*) None of these

50. A comparison among the class frequencies is possible only in:

(*a*) Ogive
(*b*) Histogram
(*c*) Frequency polygon
(*d*) Either (*a*) or (*b*)

51. A frequency polygon is obtained by:

(*a*) Constructing a frequency histogram
(*b*) Constructing a cumulative frequency histogram
(*c*) Linking mid-points from a frequency histogram
(*d*) Using a line graph

52. While preparing time series graph, we show _____ on the X-axis:

(*a*) Time (*b*) Income
(*c*) Expenses (*d*) All of these

53. Ogive curve occur for:

(*a*) More than type distribution
(*b*) Less than type distribution
(*c*) Both (*a*) and (*b*)
(*d*) None of these

54. Mode is found graphically by:

(*a*) Frequency polygon
(*b*) Ogive
(*c*) Histogram
(*d*) None of these

55. A simple frequency distribution of a discrete variable is represented by:

(*a*) Ogive (*b*) Histogram
(*c*) Frequency polygon (*d*) None of these

56. Median of a distribution can be obtained from

(*a*) Histogram
(*b*) Frequency polygon
(*c*) Less than type ogives
(*d*) More than type ogives

57. If you are interested in how earnings of a company have fluctuated over time, it would be best to use:

(*a*) Bar graph
(*b*) Time series graph
(*c*) Pie chart
(*d*) Histogram

58. The graph showing a 'Time Series' is called:

(*a*) Arithmetic line graph
(*b*) Histogram
(*c*) Frequency polygon
(*d*) None of these

59. A graph of cumulative frequency distribution is called:

(*a*) Histogram
(*b*) Ogive
(*c*) Polygon
(*d*) None of these

60. Which of the following diagrams is drawn by joining mid-points of the top of all rectangles in a histogram?

(*a*) Frequency curve
(*b*) Frequency polygon
(*c*) Ogive
(*d*) None of these

61. An intersecting point of 'Less Than' and 'More Than' Ogives give:

(*a*) Mean
(*b*) Median
(*c*) Mode
(*d*) None of these

62. Diagrammatic presentation of time series data is known as:

(*a*) Time series graph
(*b*) Arithmetic line graph
(*c*) Both (*a*) and (*b*)
(*d*) None of these

63. Frequency Polygon is prepared in case of:

(*a*) Individual series
(*b*) Discrete series
(*c*) Continuous series
(*d*) Both (*b*) and (*c*)

64. For presenting the 12th class exam results of different faculty (Science, Commerce and Arts) of a school pertaining the last 3 years in an impressive way, which of the following diagrams will be suitable? **[DoE]**

(*a*) Simple bar diagram
(*b*) Multiple bar diagram
(*c*) Sub-divided bar diagram
(*d*) Both (*b*) and (*c*)

65. If a family spends 30% of their income on food, then to present it in pie diagram, how many degrees of angle is formed? **[DoE]**

(*a*) 96°
(*b*) 108°
(*c*) 120°
(*d*) 132°

66. A table which shows the data derived from original data like Average, Percentage, Ratio etc. is known as: **[DoE]**

(*a*) Original Table
(*b*) Derived Table
(*c*) Complex Table
(*d*) Manifold Table

67. Choose the correct statement. **[DoE]**

(*a*) Mode can be find out through ogive.
(*b*) The breadth of bars in bar diagram should be equal.
(*c*) The breadth of rectangles in histogram must be equal.
(*d*) Histograms are drawn for frequency array.

68. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Pie diagram is a	(*i*) Sub-divided angular diagram
B. Histogram	(*ii*) One-dimensional diagram
C. Bar diagram	(*iii*) Length and width both matter
D. Stub is the heading to	(*iv*) Column

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

69. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Stubs	(*i*) It refers to the headings of vertical columns.
B. Table number	(*ii*) It is the identification mark of a table.
C. Caption	(*iii*) It is a brief explanation of the contents of a table.
D. Title	(*iv*) It refers to the headings of vertical columns.

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

70. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Pie diagram	(*i*) It is the graphical representation of a cumulative frequency distribution.
B. Frequency curve	(*ii*) It records class frequencies in a frequency distribution.
C. Ogive	(*iii*) It is a chart of circular shape broken in sub-divisions.
D. Frequency polygon	(*iv*) It refers to a curve representing a frequency distribution.

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

71. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Simple bar diagram	(*i*) It comprises group of rectangular bars of equal width for each class.
B. Component bar diagram	(*ii*) In this, sub-divisions of one variable are shown on a single bar.
C. Percentage bar diagram	(*iii*) It represents the percentage of total for each component instead of their magnitude.
D. Arithmetic line graph	(*iv*) It refers to the study of changes in the magnitude of variables over time.

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

72. Match the following Column I and Column II and choose the correct alternative:

Column I	Column II
A. Tabulation	(*i*) Headings of horizontal rows
B. Stubs	(*ii*) Refers to origin from where information has been taken
C. Derived Table	(*iii*) Presentation of numerical data in rows and columns
D. Source Note	(*iv*) Presents results derived from the original data

(*a*) A – (*iv*), B – (*ii*), C – (*i*), D – (*iii*) (*b*) A – (*iii*), B – (*i*), C – (*iv*), D – (*ii*)

(*c*) A – (*ii*), B – (*iv*), C – (*i*), D – (*iii*) (*d*) A – (*iv*), B – (*iii*), C – (*i*), D – (*ii*)

73. Match the following Column I and Column II and choose the correct alternative:

Column I	Column II
A. Histogram	(*i*) An alternative to histogram and can also be derived from histogram
B. Frequency Curve	(*ii*) Arithmetic Line Graphs
C. Time Series Graphs	(*iii*) Vertices of frequency polygon are joined by a smooth curve
D. Frequency Polygon	(*iv*) It can be used to determine the value of mode.

(*a*) A – (*iv*), B – (*iii*), C – (*ii*), D – (*i*) (*b*) A – (*iii*), B – (*ii*), C – (*iv*), D – (*i*)

(*c*) A – (*iv*), B – (*ii*), C – (*i*), D – (*iii*) (*d*) A – (*i*), B – (*iii*), C – (*ii*), D – (*iv*)

Assertion-Reasoning Type MCQs

Note: In the following questions (Q.74 to Q.87), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) **Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)**

(*b*) **Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)**

(*c*) **Assertion (A) is true but Reason (R) is false**

(*d*) **Assertion (A) is false but Reason (R) is true**

74. **Assertion (A):** The heading given to a column in a table is called caption.

Reason (R): Body of the table contains numerical information.

75. **Assertion (A):** Multiple bar diagram is a one dimensional diagram.

Reason (R): In bar diagram only width of the bar matters.

76. **Assertion (A):** Histogram is helpful in estimating mode.

Reason (R): Histogram is only prepared in continuous series.

77. **Assertion (A):** Pie diagram is a sub-divided diagram.

Reason (R): The circle is divided into as many parts as there are components.

78. **Assertion (A):** Less than ogive is never declining.

Reason (R): To construct less than ogive frequency of next classes is added to previous class.

79. **Assertion (A):** Pie diagram is one of the presentation techniques in statistics.

Reason (R): Pie diagram is also known as component bar diagram.

80. **Assertion (A):** Bar diagram is a one-dimensional diagram.

Reason (R): In bar diagram only width of the bar matters.

81. **Assertion (A):** There are four methods of presentation of data.

Reason (R): Statistical data arranged in a tabulated form to simplify the complex data.

82. **Assertion (A):** Tabulated data helps in drawing diagrams and graphs.

Reason (R): Tables are not easy to remember.

83. **Assertion (A):** Graphs and diagrams make comparison of data easy.

Reason (R): Graphs and diagrams are the simplest methods of presenting data.

84. **Assertion (A):** Histogram is a graphical form of presentation of data.

Reason (R): Statistical data can be represented in the form of graphs.

85. **Assertion (A):** Stubs are titles of the columns of a table.

Reason (R): Headnote completes the information in the title of the table.

86. **Assertion (A):** In bar diagrams, data are presented in the form of bars or rectangles.

Reason (R): A pie diagram show absolute values.

87. **Assertion (A):** Histogram and bar diagrams are different from each other.

Reason (R): Bar diagrams are two-dimensional diagrams.

Case-Based MCQs

1. **Read the given case carefully and answer the following questions on the basis of the same.**

One of the most convincing and appealing ways in which the statistical results may be presented is through diagrams and graphs. They give a bird's eye view of the entire data and therefore, the information presented is easily understood. It is a fact that as the number and magnitude of figures increases they become more confusing and their analysis tends to be more strenuous. Pictorial presentation helps in proper understanding of the data as it gives an interesting form to the data. The old saying, 'a picture is worth 10,000 words is very true'. They are attractive to eyes, means figures area dry but diagrams delight the eyes.

(*a*) Which of the following is not the part of diagrammatic presentation?

(*i*) Bar diagram

(*ii*) Pie diagram

(*iii*) Both (*i*) and (*ii*)

(*iv*) None of these

(*b*) Cell in tabular presentation represents:

(*i*) Table heading

(*ii*) Row heading

(*iii*) Head note

(*iv*) None of these

(*c*) Textual presentation are _____ precise than diagrammatic presentation.

(*i*) less (*ii*) more

(*iii*) equally (*iv*) None of these

(*d*) Which of the following is a one dimensional diagram?
- (*i*) Simple bar diagram
- (*ii*) Multiple bar diagram
- (*iii*) Component bar diagram
- (*iv*) All of these

2. Read the given case carefully and answer the following questions on the basis of the same.

Pie diagrams are very popularly used in practice to show the breakdowns. For example, it is helpful in distribution of government receipts and government expenditure in government budget. These are also used by industrialists in showing cost of production. Pie chart is so called because the entire graph looks like a pie and the components resemble slices cut from pie. While making comparison, pie diagram should be used on a percentage basis and not on an absolute basis.

(*a*) A pie diagram is also known as _____ diagram.
- (*i*) Ogive
- (*ii*) Sub-divided diagram
- (*iii*) Histogram
- (*iv*) None of these

(*b*) A pie diagram is divided into 100 equal parts, each part is equal to _____ degrees.
- (*i*) 1 (*ii*) 3.6
- (*iii*) 1.8 (*iv*) None of these

(*c*) Pie diagram falls in the category of:
- (*i*) Tabular Presentation
- (*ii*) Textual Presentation
- (*iii*) Diagrammatic Presentation
- (*iv*) All of these

(*d*) The size of radius is _____ for constructing pie diagram.
- (*i*) 1 cm
- (*ii*) 2 cm
- (*iii*) 3 cm
- (*iv*) depended upon available space

3. Read the given case carefully and answer the following questions on the basis of the same.

When we observe the values of a variable at a different points of time, the series so formed is known as time series. The technique of graphic presentation is extremely helpful in analysing changes at different points of time. The graph is also known as line graph. They are simplest to understand, easiest to make and most adaptable to many uses. They require the least technical skills. Graphs of time series can be constructed either on a natural scale or on a ratio scale. Natural scale takes absolute changes whereas ratio scale take the relative changes.

(*a*) Time series graph can be constructed for:
- (*i*) one variable only
- (*ii*) two variables only
- (*iii*) three variables only
- (*iv*) All of these

(*b*) Which of the following is a feature of time series graph?
- (*i*) They require least skill.
- (*ii*) They are simple to understand.
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*c*) In a time series graph, time is taken on:
- (*i*) *x*-axis
- (*ii*) horizontal axis
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) *y*-axis

(*d*) The different points on time series graph must be joined with a:
- (*i*) straight line
- (*ii*) curve
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

4. Read the given case carefully and answer the following questions on the basis of the same.

A common man cannot understand the tabulated data easily. But, with a single glance at the diagram, one gets complete picture of data presented. So, diagrammatic presentation is better presentation than tabular presentation. There are large number of diagrams which can be used for presentation of data and the selection of diagram depends upon the nature of data, objective and experience.

(*a*) Which of the following is not a one-dimensional diagram?
- (*i*) Simple bar diagram
- (*ii*) Sub-divided bar diagram
- (*iii*) Multiple bar diagram
- (*iv*) None of these

(*b*) Pie diagram is also known as:
- (*i*) Percentage bar diagram
- (*ii*) Sub-divided angular diagram
- (*iii*) Multiple bar diagram
- (*iv*) Simple bar diagram

(*c*) Ogive is helpful to measure:
- (*i*) Mean (*ii*) Median
- (*iii*) Mode (*iv*) All of these

(*d*) Which of the following is used to measure mean?
- (*i*) Histogram
- (*ii*) Ogive
- (*iii*) Frequency polygon
- (*iv*) None of these

5. Read the given case carefully and answer the following questions on the basis of the same.

When frequencies are added they are called cumulative frequencies and then frequencies are listed in a table called cumulative frequencies table. The curve obtained by plotting cumulative frequencies is called cumulative frequency curve or ogive. There are two methods of constructing ogive.

I. Less than method: In this method, we start with the upper limits of the classes and go on adding the frequencies. When these frequencies are plotted we get a rising curve.

II. More than method: In this method, we start with the lower limits of the classes and from the frequencies we subtract the frequency of each class. When these frequencies are plotted we get a declining curve.

(*a*) Which of the following is the alternative name given to ogive?
- (*i*) Histogram
- (*ii*) Cumulative frequency curve
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*b*) In which series, ogive can be constructed?
- (*i*) Individual series
- (*ii*) Discrete series
- (*iii*) Continuous series
- (*iv*) Both (*ii*) and (*iii*)

(*c*) Ogive constructed through less than method can never be:
- (*i*) rising (*ii*) declining
- (*iii*) constant (*iv*) None of these

(*d*) In more than method, frequencies are:
- (*i*) added (*ii*) subtracted
- (*iii*) multiplied (*iv*) None of these

6. Read the given case carefully and answer the following questions on the basis of the same.

Presenting data involves the use of a variety of different graphical techniques to visually show the readers the relationship between different data sets. Data presentation is not just used to make your independent investigation look more aesthetically pleasing — though

good data presentation will also make the reading of the results more interesting to the reader. It is a good idea that instead to structure your data presentation with your research questions in mind, each one can be addressed in turn, with the appropriate data extracted and presented. Readers and markers of your study will expect to see the use of a variety of data presentation techniques which are being used appropriately – not just for the sake of adding different ways of looking at the data. Putting every piece of data you have into a pie chart, histogram or scatter graph is not only boring for the reader and demonstrates a lack of imagination in the researcher and an inappropriate use of techniques, but also shows a lack of understanding of the benefits of using one data presentation technique over another.

(*a*) _____ means exhibition of data in such a clear and attractive manner that the data are easily understood and analysed.
- (*i*) Analysis of data
- (*ii*) Presentation of data
- (*iii*) Interpretation of data
- (*iv*) None of these

(*b*) _____ is the main part of a table.
- (*i*) Body (*ii*) Caption
- (*iii*) Headnote (*iv*) Footnote

(*c*) A graphical representation of frequency distribution is called:
- (*i*) Histogram
- (*ii*) Scatter diagram
- (*iii*) Time series graph
- (*iv*) Frequency

(*d*) Graphic presentation of a cumulative frequency distribution is:
- (*i*) Pictograph
- (*ii*) Ogive
- (*iii*) Histogram
- (*iv*) Frequency polygon

7. Read the given case carefully and answer the following questions on the basis of the same.

Diagrammatic presentation of data provides the quickest understanding of the actual situation to be explained by data in comparison to tabular or textual presentations. This presentation translates quite effectively the highly abstract idea contained in numbers into more concrete and easily comprehensible form. Diagrams may be less accurate but they are much more effective than tables in presenting the data. In comparison to tabular or textual presentations, diagrammatic presentation of data provides the quickest understanding of the actual situation to be explained by data.

(*a*) The most commonly used device of presenting business and economic data is:
- (*i*) Line diagrams
- (*ii*) Bar diagrams
- (*iii*) Pictograms
- (*iv*) Pie diagrams

(*b*) _____ presentation of data is geometric technique of presenting the numerical information.
- (*i*) Tabular
- (*ii*) Diagrammatic
- (*iii*) Either (*i*) or (*ii*)
- (*iv*) Neither (*i*) nor (*ii*)

(*c*) A systematic arrangement of data in rows and columns is called:
- (*i*) Stub (*ii*) Table
- (*iii*) Caption (*iv*) Body

(*d*) Which of the following is not a form of presentation of data?
- (*i*) Descriptive presentation
- (*ii*) Tabular presentation
- (*iii*) Caption presentation
- (*iv*) Diagrammatic presentation

CHAPTER 4: Presentation of Data

Multiple Choice Questions

1. (*c*)	**2.** (*b*)	**3.** (*d*)	**4.** (*a*)	**5.** (*a*)	**6.** (*a*)
7. (*a*)	**8.** (*a*)	**9.** (*d*)	**10.** (*b*)	**11.** (*b*)	**12.** (*b*)
13. (*b*)	**14.** (*a*)	**15.** (*b*)	**16.** (*c*)	**17.** (*a*)	**18.** (*b*)
19. (*c*)	**20.** (*c*)	**21.** (*a*)	**22.** (*c*)	**23.** (*a*)	**24.** (*b*)
25. (*a*)	**26.** (*a*)	**27.** (*b*)	**28.** (*d*)	**29.** (*a*)	**30.** (*b*)
31. (*a*)	**32.** (*d*)	**33.** (*d*)	**34.** (*d*)	**35.** (*c*)	**36.** (*a*)
37. (*d*)	**38.** (*a*)	**39.** (*c*)	**40.** (*d*)	**41.** (*d*)	**42.** (*b*)
43. (*a*)	**44.** (*b*)	**45.** (*c*)	**46.** (*b*)	**47.** (*c*)	**48.** (*a*)
49. (*c*)	**50.** (*b*)	**51.** (*c*)	**52.** (*a*)	**53.** (*c*)	**54.** (*c*)
55. (*c*)	**56.** (*c*)	**57.** (*b*)	**58.** (*a*)	**59.** (*b*)	**60.** (*b*)
61. (*b*)	**62.** (*c*)	**63.** (*d*)	**64.** (*d*)	**65.** (*b*)	**66.** (*b*)
67. (*b*)	**68.** (*a*)	**69.** (*b*)	**70.** (*d*)	**71.** (*c*)	**72.** (*b*)
73. (*a*)					

Assertion-Reasoning Type MCQs

74. (*b*)	**75.** (*c*)	**76.** (*b*)	**77.** (*a*)	**78.** (*a*)	**79.** (*c*)
80. (*c*)	**81.** (*b*)	**82.** (*c*)	**83.** (*a*)	**84.** (*b*)	**85.** (*d*)
86. (*c*)	**87.** (*a*)				

Case-Based MCQs

1. (*a*) (*iv*) (*b*) (*iv*) (*c*) (*ii*) (*d*) (*iv*)
2. (*a*) (*ii*) (*b*) (*ii*) (*c*) (*iii*) (*d*) (*iv*)
3. (*a*) (*iv*) (*b*) (*iii*) (*c*) (*iii*) (*d*) (*i*)
4. (*a*) (*iv*) (*b*) (*ii*) (*c*) (*ii*) (*d*) (*iv*)
5. (*a*) (*ii*) (*b*) (*iii*) (*c*) (*ii*) (*d*) (*ii*)
6. (*a*) (*ii*) (*b*) (*i*) (*c*) (*i*) (*d*) (*ii*)
7. (*a*) (*ii*) (*b*) (*ii*) (*c*) (*ii*) (*d*) (*iii*)

Objective Questions

Multiple Choice Questions

1. Which of the following method(s) of statistics is followed by collection of primary data in a statistical enquiry?
(a) Classification (b) Organisation
(c) Presentation (d) Both (a) and (b)

2. Which of the following is not an objective of classification of data?
(a) To simplify complex data
(b) To facilitate comparison
(c) To enhance human understanding
(d) All of the above are objectives of classification

3. Which of the following is/are essentials of a good classification?
(a) It should comprised of all the items of the population
(b) It should be simple and clear
(c) It should be comprised of all related instruction of understanding
(d) All of the above

4. The main part of table is known as
(a) Body (b) Heading
(c) Footnote (d) None of these

5. The systematic presentation of raw data in row and column is called tabulation. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

6. Which of the following is/are part(s) of a table?
(a) Stubs (b) Captions
(c) Title (d) All of these

7. Horizontal bar graphs are also known as
(a) Complex bar graph (b) Simple bar graph
(c) Derived bar graph (d) None of these

8. Tabulation makes the data complex. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

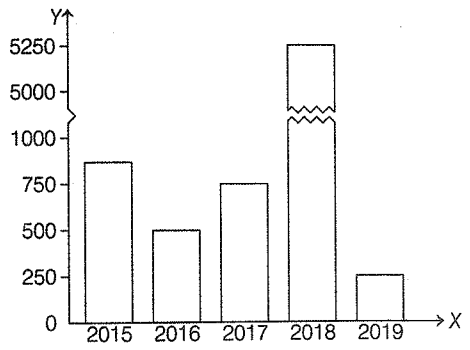
9. The main objective of tabulation is
(a) to simplify complex data
(b) to present data in a definite form
(c) Both (a) and (b) (d) Neither (a) nor (b)

10. Headings and sub-headings given to columns are known as ..... .
(a) Stubs (b) Captions
(c) Titles (d) None of these

11. Which of the following parts of a table is/are optional?
(a) Headnote (b) Footnote
(c) Both (a) and (b) (d) Neither (a) nor (b)

12. Which of the following are methods of presentation of data?
(i) Text presentation
(ii) Semi-tabular presentation
(iii) Tabular presentation
(iv) Pictorial presentation
Choose from the options below.
(a) (i), (ii), (iii) (b) (ii), (iii), (iv)
(c) (i), (iii), (iv) (d) (i), (ii), (iii), (iv)

13. Look at the graph given below.



Multiple Bar Diagrams These diagrams show two or more sets of data simultaneously. e.g. income and expenditure, etc. Generally, these diagrams are used to make comparison between two sets of series.

Sub-divided/Component Bar Diagrams These diagrams simultaneously present, total values as well as part values of a set of data.

To indicate different parts of the bars, these are shaded with different colours or patterns. Different parts of a bar must be shown in the same order for all the bars of a diagrams.

Percentage Bar Diagrams These diagrams show simultaneously different parts of the values of a set of data in terms of percentages. Total value indicated by total length of bar is assumed to be 100.

Deviation Bar Diagrams The deviation bar diagrams are used to compare the net deviation of related variables with respect to time and location. Bars representing positive and negative deviations are drawn above and below the base line.

(ii) **Pie or Circular Diagrams** Pie diagram is a circle divided into various segments showing the percent values of a series. This diagram does not show absolute values of each category.

The values of each category are first expressed as percentage of the total value of all the categories. Since the circle comprises of 360°, accordingly, percentage of a variable are fixed in proportion of 360°. Different parts of a circle may be shaded with different colours or patterns highlighting different values.

II. **Frequency Diagram** Data in the form of grouped frequency distribution are generally represented by frequency diagrams like histogram, frequency polygon, frequency curve and ogive, which help to represent a continuous distribution.

These are as follows

(i) **Histogram** A histogram is two-dimensional diagram which represents a continuous distribution.

(ii) **Frequency Polygon** Presentation of the frequencies in the form of rectangles and joining the mid-points of the top side of the consecutive rectangles is known as frequency polygon.

(iii) **Frequency Curve** The frequency curve is obtained by drawing a smooth freehand curve passing through the points of the frequency polygon as closely as possible.

(iv) **Cumulative Frequency Curve or Ogive** This curve is constructed by plotting cumulative frequency data on the graph paper in the form of a smoothed curve. This curve may be constructed by two methods

Less than Method In this method, frequencies are cumulated and indicated in graph corresponding to upper limits of the classes in a frequency distribution.

More than Method In this method, frequencies are cumulated and indicated in the graph corresponding to lower limits of the classes in a frequency distribution.

III. **Arithmetic Line Graphs** An arithmetic line graph is also called time series graph.

In this graph, time (hour, day/date, week, month and year) is plotted along X-axis and the corresponding value of variable along Y-axis.

It can be further classified as

(i) **One Variable Graph** It is graph in which the values of only one variable are shown with respect to same time period.

(ii) **Two or more than Two Variable Graph** A graph in which values of two variables are simultaneously shown with respect to some period of time, is called two or more than two variables graph.

This is an example of
(a) complex bar graph
(b) broken scale bar graph
(c) sub-divided bar graph
(d) None of the above

14. Which of the following are essentials of a good table?
(i) Based on the objective of study
(ii) Capable of comparison
(iii) Manageable size
(iv) Attractive

Choose from the options below.
(a) (i), (ii), (iii) (b) (ii), (iii), (iv)
(c) (i), (iii), (iv) (d) (i), (ii), (iii), (iv)

15. Write the correct pair.

Column I	Column II
A. Caption	(i) Explanation of contents of table
B. Head note	(ii) Supplements the title
C. Title of table	(iii) Below the footnote
D. Source of data	(iv) Column heading

Codes
(a) A - (i) (b) B - (ii)
(c) C - (iii) (d) D - (iv)

16. General purpose table is also referred to as
(a) Repository table
(b) Original table
(c) Both (a) and (b)
(d) Neither (a) nor (b)

17. On the basis of construction, which of the following are types of table?
(a) Simple table
(b) Complex table
(c) Derived table
(d) Both (a) and (b)

18. The most accurate mode of presentation for comparison and computation is the ..... .
(a) diagram (b) table
(c) text (d) All of these

19. Which of the following is not a diagrammatic presentation?
(a) Simple bar graph
(b) Multiple bar graph
(c) Histogram
(d) Percentage bar graph

20. Which of the following is/are the importance of diagrammatic presentation?
(a) Simple to understand
(b) Universal acceptance
(c) Used for locating positional averages
(d) All of the above

21. A simple bar graph can be drawn
(a) vertically (b) horizontally
(c) Both (a) and (b) (d) Neither (a) nor (b)

22. Accuracy is not required while drawing the diagrams. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

23. Which of the following should be kept in mind while constructing a diagram?
(a) According to the page size
(b) Properly scaled
(c) Simple and clear
(d) All of the above

24. Simple bar graphs are suitable for..... .
(a) attributes
(b) frequency distribution
(c) cumulative frequency distribution
(d) All of the above

25. When the vertices of frequency polygon are joined by a smooth curve, it is called as ..... .
(a) Line graph
(b) Curve
(c) Frequency curve
(d) None of the above

26. Diagrammatic presentation is used as it is easy to remember diagram. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

27. One-dimensional diagrams are also known as
(a) Simple bar graphs
(b) Multiple bar graphs
(c) Both (a) and (b)
(d) Neither (a) nor (b)

28. Choose the correct pair from below.

Column I	Column II
A. Deviation bar graph	(i) Cartograms
B. Squares	(ii) Two dimensional diagram
C. Blocks	(iii) Three dimensional diagram

Codes
(a) A – (i)
(b) B – (ii)
(c) C – (iii)
(d) All of the above pairs are incorrect

29. Component bar graphs are also known as
(a) Sub-divided bar graph
(b) Percentage bar graph
(c) Broken scale bar graph
(d) Deviation bar graph

30. Choose the incorrect pair from given below.

Column I	Column II
A. Line graph	(i) Discrete series
B. Histogram	(ii) Continuous series
C. Ogive	(iii) Cumulative data

Codes
(a) A – (i)
(b) B – (ii)
(c) C – (iii)
(d) All of the above pairs are correct

31. Compound bar diagrams are same as .....
(a) simple bar graph
(b) multiple bar graph
(c) sub-divided bar graph
(d) None of the above

32. Identify the correct sequence of alternatives given in column II by matching them with respective terms in column I.

Column I	Column II
A. Multiple bar diagram	(i) Subdivided bar for different parts
B. Component bar diagram	(ii) Two or more sets of data
C. Percentage bar diagram	(iii) Suitable for variable with both, + ve and – ve values
D. Deviation bar diagram	(iv) Suitable when the values are of high magnitude

Codes

	A	B	C	D
(a)	(ii)	(i)	(iv)	(iii)
(b)	(i)	(iii)	(ii)	(iv)
(c)	(iii)	(ii)	(iv)	(i)
(d)	(iv)	(i)	(ii)	(iii)

33. In a pie-diagram, maximum degree is
(a) 180 (b) 240
(c) 360 (d) None of these

34. Degree of any component part of a pie-diagram is equal to
(a) (Component Value/Total Value) × 360
(b) (Component Value/Total Value) × 100
(c) (Total Value/Component Value) × 360
(d) (Total Value/Component Value) × 100

35. Choose the correct statement from the given below.
(a) Diagrams cannot show a large number of facts at a time.
(b) Diagrams can show only approximated values.
(c) Diagrams as a means of drawing conclusions, can be misused.
(d) All of the above is correct

36. Which bar graph is suitable for representing data with two extreme values?
(a) Broken bar graph
(b) Percentage bar graph
(c) Multiple bar graph
(d) Deviation bar graph

37. Choose the incorrect statement from the given below.
(a) Width of the bar diagrams can vary
(b) Length of the bar diagram can be different
(c) Gaps within each bar should not vary
(d) Proper scale should be used for construction of bar diagrams

38. Less than ogive curve starts from ..... .
(a) origin
(b) maximum point
(c) minimum point
(d) None of the above

39. More than ogive curve starts from ..... .
(a) origin (b) maximum point
(c) minimum point (d) None of these

40. Graphical presentation is used to locate positional averages. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

41. Cubes are an example of three dimensional diagram. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

42. Which of the following is/are parts of graphic presentation?
(a) Graphs of frequency distribution
(b) Graphs of time series
(c) Both (a) and (b)
(d) Neither (a) nor (b)

43. In graphical presentation, data is presented in its accurate form. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

44. Which of the following are types of graphic distribution?
(i) Line frequency graph
(ii) Histogram
(iii) Frequency polygon
(iv) Frequency curve
(v) Cumulative frequency curve
Choose from the options below.
(a) (i), (ii), (iv), (v) (b) (ii), (iii), (iv), (v)
(c) (i), (iii), (iv), (v) (d) (i), (ii), (iii), (iv), (v)

45. Line frequency graphs are also known as
(a) Times series graphs (b) Arithmetic graph
(c) Both (a) and (b) (d) Neither (a) nor (b)

46. Histograms are rectangular bar graphs which are used to represent ..... .
(a) individual series (b) discrete series
(c) continuous series (d) None of these

47. Histograms can be constructed under which of the following cases?
(a) When class intervals are equal
(b) When mid points are given
(c) When class intervals are unequal
(d) All of the above

48. Frequency polygon can be drawn
(a) with histogram only
(b) without histogram only
(c) Both (a) and (b)
(d) Neither (a) nor (b)

49. Graphical presentation of cumulative frequency distributions is known as
(a) Frequency curve
(b) Frequency polygon
(c) Ogive graphs
(d) Histograms

50. Common average lines are used when two variables are given in same unit. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

51. A curve which is drawn by joining the mid-points of a histogram using a straight line is known as
(a) Frequency polygon
(b) Frequency curve
(c) Both (a) and (b)
(d) Neither (a) nor (b)

52. The adjustment factor in a histogram is equal to ..... .
(a) Width of the Class / Width of Highest Class
(b) Width of the Class / Width of Lowest Class
(c) Width of the Lowest Class / Width of the Class
(d) None of the above

53. Frequency distribution of more than ogive curves is arranged in
(a) increasing order
(b) decreasing order
(c) constant order
(d) random order

54. False base lines are used
(a) when extreme values of given series are not known
(b) when there are very less values given in the frequency distribution
(c) when there are higher values given in the frequency distribution
(d) None of the above

55. A symmetrical curve is the one which has ..... .
(a) equal area on both sides of the curve
(b) more area on the right side of the curve
(c) more area on the left side of the curve
(d) None of the above

56. An asymmetrical curve is the one which has ..... .
(a) equal area on both side of the curve
(b) more area on the right side of the curve
(c) more area on the left side of the curve
(d) Either (b) or (c)

57. Ogive graphs can be used to locate which of the following central tendency?
(a) Arithmetic mean
(b) Median
(c) Mode
(d) All of the above

58. Ogive graphs are drawn to represent ..... .
(a) individual series (b) discrete series
(c) continuous series (d) None of these

59. Histograms can be used to locate which of the following central tendency?
(a) Arithmetic mean (b) Median
(c) Mode (d) All of these

60. Histogram always starts from the origin. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

61. Class frequencies of a series are also known as
(a) Ogive
(b) Frequency polygon
(c) Histogram
(d) None of the above

62. Which of the following is/are various shapes of frequency curve?
(a) J-shaped curve
(b) Reverse J-shaped curve
(c) U-shaped curve
(d) All of the above

63. Which of the following is/are type(s) of time series graphs?
(a) One variable graph
(b) Two or more variable graph
(c) Graphs of different units
(d) All of the above

64. A frequency polygon curve having its tail towards right side of the graph results in
(a) normal curve
(b) positively skewed curve
(c) negatively skewed curve
(d) None of the above

65. Choose the correct statement out of the following.
(a) Histograms of inclusive series can only be constructed when converted into exclusive series
(b) Mid value series should be converted into normal frequency distribution in order to draw frequency polygon
(c) Frequency curves are drawn by joining mid points of histograms by a straight line
(d) It is not possible to construct a histogram if frequency distribution is unequal

Assertion-Reasoning MCQs

Direction (Q.Nos. 66 to 70) *There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below*
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

66. **Assertion** (A) A proper proportion between the vertical axis and horizontal axis of the diagram should be marked.
Reason (R) Mathematically, dependent variables are measure on the Y-axis and independent variables on X-axis.

67. **Assertion** (A) Tabulation of data procceedes classification.
Reason (R) In classification, data is arranged based upon varying attributes of the statistics.

68. **Assertion** (A) In the process of tabulation of data, title of the table should be self-explanatory.
Reason (R) Raw data presented in a tabular form organises the data to enhance understanding.

69. **Assertion** (A) Simple bar graphs are drawn on a three dimensional plane.
Reason (R) Bar graphs can be either vertical or horizontal to represent same information.

70. **Assertion** (A) Pie-charts are more useful means of presentation of data as compared to histograms.
Reason (R) Line graphs are used to draw both more than and less than ogive curves.

Case Based MCQs

Direction *Analyse the following case study table and answer questions 71 to 75 on the basis of the same.*

Head note ....

Captions		Stubs				Total (Rows)
Location	**Gender**	**Workers**			**Non-worker**	**Total**
		Main	**Marginal**	**Total**		
Rural	Male	17	3	20	18	38
	Female	6	5	11	25	36
	Total	23	8	31	43	74
Urban	Male	7	1	8	7	15
	Female	1	0	1	12	13
	Total	8	1	9	19	28
All	Male	24	4	28	25	53
	Female	7	5	12	37	49
	Total	31	9	40	62	102
Total (Column)						

Footnote.....

71. Identify the error in the above table from the given below.
(i) Title not mentioned
(ii) Source is not given
(iii) Units are not mentioned
Choose from the options below.
(a) (i) and (ii) (b) (ii) and (iii)
(c) (i) and (iii) (d) All of these

72. Row headings are known as .....
(a) Stubs
(b) Columns
(c) Either (a) or (b)
(d) Neither (a) nor (b)

73. Source of given information should be mentioned ..... the table.
(a) above (b) below
(c) to the right (d) to the left

74. The above table is an example of
(a) simple table (b) complex table
(c) derived table (d) raw/original table

75. In the above table, location and gender are shown in captions. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

Direction *Observe the data given below and answer questions 76 to 80 on the basis of the same.*

Distribution of Students Based on Sections

Sections	No. of Students		Total
	Boys	Girls	
XI-A	20	15	35
XI-B	15	25	40
XI-C	25	10	35
XI-D	18	22	40
Total	78	52	130

76. Which of the following parts of the table is/are missing?
(a) Table no. (b) Caption
(c) Source (d) Both (a) and (c)

77. Which type of diagrammatic presentation is most suitable in the above case?
(a) Simple bar graph
(b) Multiple bar graph
(c) Sub-divided bar graph
(d) Both (b) and (c)

78. Histogram cannot be used in the above case as the data is ..... .
(a) individual (b) discrete
(c) continuous (d) None of these

79. Which of the following is the stub of the given table?
(a) Sections (b) No. of students
(c) Total (d) Both (a) and (c)

80. As per the above table, the total number of boys and girls are equal to
(a) 52 (b) 78
(c) 130 (d) None of these

Direction *Analyse the case study graphs and answer questions 81 to 85 on the basis of the same.*

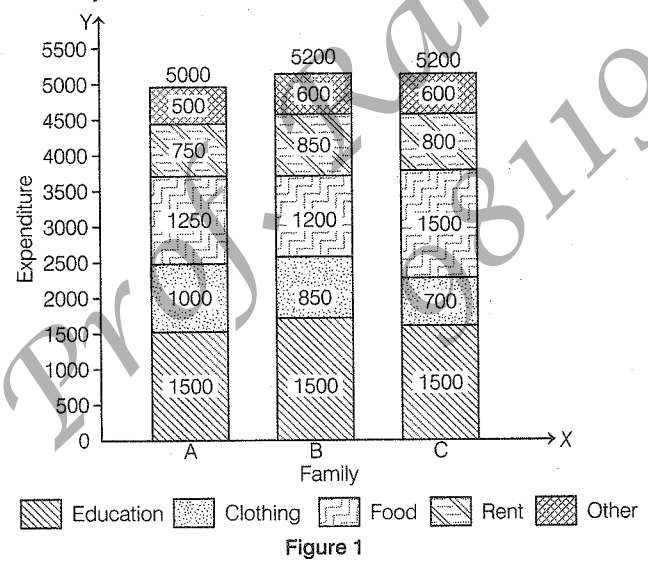


Figure 1

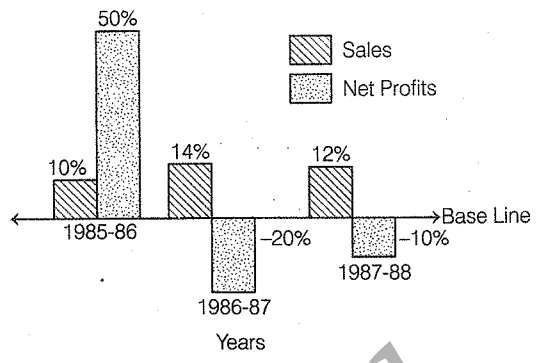


Figure 2

81. Which of the following type of graph is represented in Figure 1?
(a) Sub-divided bar graph
(b) Broken bar graph
(c) Percentage bar graph
(d) Deviation bar graph

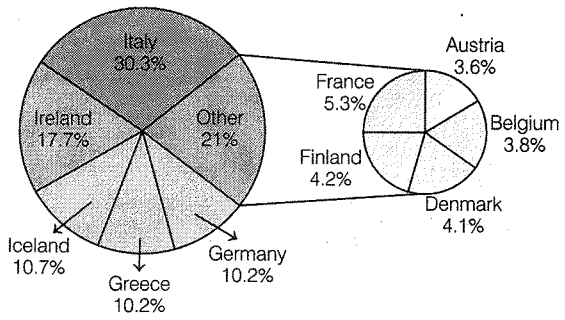
82. Which of the following type of graph is represented in Figure 2?
(a) Sub-divided bar graph
(b) Broken bar graph
(c) Percentage bar graph
(d) Deviation bar graph

83. Sub-divided bar graphs can be replaced by ..... bar graph.
(a) simple
(b) multiple
(c) Either (a) or (b)
(d) None of the above

84. As per Figure 2, the bar below the origin shows
(a) profit
(b) loss
(c) surplus
(d) None of the above

85. As per given Figure 1, which family has the lowest expenditure?
(a) Family A
(b) Family B
(c) Family C
(d) All families have similar income

Direction *Analyse the following case study pie chart and answer questions 86 to 90 on the basis of the same.*



86. What is the degree share of Belgium?
(a) 3.8 degree (b) 13.68 degree
(c) 14.62 degree (d) 16.42 degree

87. Which country has the lowest degree share?
(a) Austria (b) Denmark
(c) Finland (d) Greece

88. As per the data given above, which country has the highest degree share?
(a) Germany
(b) Italy
(c) Ireland
(d) None of the above

89. The segment used to represent the countries under the pie-diagram is known as ..... .
(a) Degree share
(b) Percent share
(c) Both (a) and (b)
(d) Neither (a) or (b)

90. ..... diagram is used when value of some variable is very high or low as compared to other values in the series.
(a) Pie-chart
(b) Histogram
(c) Bar graph
(d) Either (a) or (b)

ANSWERS

Multiple Choice Questions

1. (d)	2. (d)	3. (d)	4. (a)	5. (a)	6. (d)	7. (b)	8. (b)	9. (c)	10. (b)
11. (c)	12. (d)	13. (b)	14. (d)	15. (b)	16. (a)	17. (d)	18. (b)	19. (c)	20. (d)
21. (c)	22. (b)	23. (d)	24. (b)	25. (c)	26. (a)	27. (c)	28. (c)	29. (a)	30. (d)
31. (b)	32. (a)	33. (c)	34. (a)	35. (d)	36. (a)	37. (a)	38. (a)	39. (b)	40. (a)
41. (a)	42. (c)	43. (b)	44. (d)	45. (c)	46. (c)	47. (d)	48. (c)	49. (c)	50. (b)
51. (a)	52. (b)	53. (a)	54. (c)	55. (a)	56. (d)	57. (b)	58. (c)	59. (c)	60. (c)
61. (d)	62. (d)	63. (d)	64. (b)	65. (a)					

Assertion-Reasoning MCQs

66. (b)	67. (c)	68. (b)	69. (c)	70. (c)

Case Based MCQs

71. (d)	72. (a)	73. (b)	74. (b)	75. (a)	76. (d)	77. (d)	78. (b)	79. (b)	80. (c)
81. (a)	82. (d)	83. (b)	84. (b)	85. (a)	86. (a)	87. (a)	88. (b)	89. (a)	90. (d)

Year

OBJECTIVE QUESTIONS

Fill in the Blanks

1. In case of one-dimensional diagrams, the magnitude of the characteristics is shown by _____ of the bar.
2. Under Bar Diagrams, _____ need to be equidistant from each other.
3. Bars may be drawn either _____ or _____.
4. In case of one-dimensional diagrams, _____ of the bar remains the same.
5. Multiple Bar Diagram is also known as _____.
6. A suitable _____ should be given to explain different colours or shades in case of Sub-divided Bar Diagram.
7. _____ is a chart of circular shape broken into sub-divisions.
8. Bar diagrams are _____ dimensional diagrams.
9. Sub-divided bar diagrams are also called _____ bar diagrams.

True or False

1. Pie Diagrams are two-dimensional diagrams.
2. Only the length of bar is considered in case of Bar Diagram.
3. Deviation Bar Diagrams are two-dimensional in nature.
4. In case of one-dimensional diagrams, bars can be drawn only vertically.
5. In Bar Diagrams, the magnitude of the characteristics is shown by the breadth of the bar.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Component Bar Diagram	a. Circle is drawn and is partitioned into sections to show proportions of various components
(ii) Simple Bar Diagram	b. Sub-Divided Bar Diagram
(iii) Deviation Bar Diagram	c. Comprises of group of rectangular bars of equal width for each class
(iv) Pie Diagram	d. Positive values are shown above X-axis and negative values below it
(v) Multiple Bar Diagram	e. Bar diagrams
(vi) One Dimensional Diagrams	f. Compound Bar Diagram

Multiple Choice Questions (MCQs)

1. The most attractive method of data presentation is:
   (a) Diagrammatic (b) Textual (c) Tabular (d) Either (a) or (b)
2. In a bar diagram, the bars are:
   (a) Horizontal (b) Vertical (c) Either (a) or (b) (d) None of the above
3. Diagrammatic representation of data is done by:
   (a) Pictures (b) Charts (c) Diagrams (d) All these
4. Sub–divided bar diagram is used to:
   (a) Study relation between different components (b) Compare different components of a variable
   (c) Either (a) or (b) (d) Both (a) and (b)
5. The most appropriate diagram to represent the data relating to the monthly expenditure on different items by a family is:
   (a) Histogram (b) Pie diagram
   (c) Angular Circle Diagram (d) Both (b) and (c)
6. When for some countries, the magnitudes are small and for other, the magnitudes are very large, to portray the data, it is preferred to construct:
   (a) Deviation bar diagram (b) Duo–directional bar diagram
   (c) Broken–Scale bar diagram (d) Any of the above
7. In case of _____, all the bars are of equal height and width.
   (a) Multiple Bar Diagram (b) Percentage Bar Diagram
   (c) Sub-divided Bar Diagram (d) Simple Bar Diagram
8. In a Pie Diagram, 1% value of data is represented by an angle at the center equal to:
   (a) 3.6° (b) 36° (c) 360° (d) 0.36°

9. The diagram which represents data in a circle is known as:
   (a) Pie Diagram (b) Multiple Diagram
   (c) Bar Diagram (d) Sub-divided bar Diagram

10. If a household spends 70% of his income on food, then degree measure of an angle in the pie diagram will be:
   (a) 200° (b) 210° (c) 252° (d) 70°

11. Bar diagram is a:
   (a) Two Dimensional Diagram (b) One Dimensional Diagram
   (c) Three Dimensional Diagram (d) None of these

12. The other name of Pie Diagram is:
   (a) Bar Diagram (b) Histogram
   (c) Angular Circle Diagram (d) Polygon

13. Which of the following statements is true?
   (a) Breadth of the bar is same (b) Bars may be drawn either vertically or horizontally
   (c) Bars need to be equidistant from each other (d) All of these

14. _____ is used to represent net changes in data like net profit, net exports, etc.
   (a) Pie Diagram (b) Deviation Bar Diagram
   (c) Multiple Bar Diagram (d) Simple Bar Diagram

15. In case of one-dimensional diagrams, the magnitude of the characteristics is shown by:
   (a) Length of the bar (b) Width of the bar (c) Either (a) or (b) (d) Both (a) and (b)

16. Year wise production of rice, wheat and maize for the last five years can be displayed by:
   (a) Sub-divided Bar Diagram (b) Simple Bar Diagram
   (c) Broken Bar Diagram (d) Multiple Bar Diagram

17. One-dimensional diagrams are also known as:
   (a) Pie Diagrams (b) Histogram (c) Bar Diagrams (d) None of these

18. A good diagram should have:
   (a) Scale (b) Accuracy (c) Index (d) All of these

19. Percentage bar diagram is a:
   (a) One-dimensional diagram (b) Two-dimensional diagram
   (c) Three-dimensional diagram (d) None of these

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
   Assertion (A): Bar-diagrams are one dimensional.
   Reason (R): In case of Bar Diagram, only the length of the bar is kept in mind not the width.
   Alternatives:
   (a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
   (b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
   (c) Assertion (A) is True but Reason (R) is False.
   (d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
   Assertion (A): While preparing Sub-divided bar diagram, the various components in each bar need to be kept in the same order.
   Reason (R): In a Percentage bar diagram, all the bars are of height 100.

Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Diagrams are very popular in board meetings, conferences, exhibitions and seminars.
Reason (R): Diagrams are attractive and impressive.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): There are number of diagrams, which can be used to depict statistical data.
Reason (R): All types of diagrams are appropriate for all types of data.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

5. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): In case of one-dimensional diagrams, length or height of the bar remains the same.
Reason (R): Bars need to be equidistant from each other in case of one-dimensional diagrams.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: In case of one-dimensional diagrams, breadth of the bar differs as per the different values of the variable.
Statement 2: Bars need not be equidistant from each other in case of Bar diagrams.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Multiple Bar Diagram is also known as Compound Bar Diagram.
Statement 2: In case of Simple Bar Diagram, different bars are distinguished by different shades or colours to make distinction between the bars.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Simple Bar diagrams depict only one characteristic of the data for various years.
Statement 2: Simple Bar diagrams can be either vertical or horizontal.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: The width of each bar need not be same in case of Sub-Divided Bar Diagram.
Statement 2: Component Bar Diagram is another name for Sub-Divided Bar Diagram.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

5. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: In a percentage bar diagram, all the bars are of same height.
Statement 2: Percentage bar diagram is a two-dimensional diagram.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Length or Height
2. Bars
3. Vertically, Horizontally
4. Breadth or Width
5. Compound Bar Diagram
6. Index
7. Pie Diagram
8. One
9. Component

True or False

1. True
2. True
3. False
4. False
5. False

Matching Type Questions

1. (i) b; (ii) c; (iii) d; (iv) a; (v) f; (vi) e.

Multiple Choice Questions (MCQs)

1. (a)	4. (d)	7. (b)	10. (c)	13. (d)	16. (d)	19. (a)
2. (c)	5. (d)	8. (a)	11. (b)	14. (b)	17. (c)	
3. (d)	6. (c)	9. (a)	12. (c)	15. (a)	18. (d)	

Assertion Reason Questions (ARQs)

1. (a)	2. (b)	3. (a)	4. (c)	5. (d)

Statement Based Questions

1. (b)	2. (c)	3. (a)	4. (d)	5. (c)

OBJECTIVE QUESTIONS

Fill in the Blanks

1. In case of _____ ogive, the cumulative frequency total tends to decrease.
2. In _____ quadrant, the value of X will be positive but that of Y will be negative.
3. To reduce the distance between zero and minimum value on the X-axis, we make use of _____.
4. In case of Frequency Distribution Graphs, class-limits are taken along the _____ axis and frequencies along the _____ axis.
5. Histogram is _____ dimensional, while bar diagram is _____ dimensional.
6. Frequency Polygon can be constructed either for _____ series or for _____ series.
7. Frequency Curve is also known as _____.
8. In case of Frequency Polygon, points are joined by _____, while in case of Frequency Curve, points are joined by _____.
9. _____ ogive so obtained slope downwards from left to right.
10. For 'less than' ogive, less than cumulative frequency is plotted against the _____ limit of the class-interval.
11. Time Series Graph is also known as _____ or _____.

True or False

1. Histogram can be drawn for both equal and unequal class intervals.
2. In the 2nd quadrant, the values of both X and Y are negative.
3. The scale of X-axis should have a scale beginning with 0.
4. In case of Histogram, each rectangle is adjacent to other to give a continuous picture.
5. If the mid-points of various classes are given, then Histogram can be constructed without converting the mid-points into class-intervals.
6. Frequency polygon is multi-dimensional, whereas histogram is two-dimensional figure.
7. Graphical Presentation is objective in nature.
8. Frequency Polygon is drawn by joining the mid-points of all tops of a histogram by free hand.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Smoothed Frequency Curve	a. Values of a variable are recorded with respect to the time of its occurrence
(ii) Time Series Graphs	b. Ogive
(iii) Cumulative Frequency Curve	c. It is used to reduce the distance between 'zero' and 'minimum value' on the X-axis
(iv) Kinked Line	d. Frequency Curve

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Histogram	a. An alternative to histogram and can also be derived from histogram
(ii) Frequency Curve	b. Arithmetic Line Graphs
(iii) Time Series Graphs	c. Vertices of frequency polygon are joined by a smooth curve
(iv) Frequency Polygon	d. It can be used to determine the value of Mode

Multiple Choice Questions (MCQs)

1. Histogram is prepared in case of:
(a) Individual Series (b) Discrete Series (c) Continuous Series (d) None of these

2. Graphs can be useful for:
(a) Showing trends in data (b) Adding visual appeal to business reports
(c) Making comparisons (d) All of the above

3. A comparison among the class frequencies is possible only in:
(a) Ogive (b) Histogram (c) Frequency polygon (d) Either (a) or (b)

4. The breadth of the rectangle is equal to the length of the class–interval in:
(a) Ogive (b) Histogram (c) Both (a) and (b) (d) None of these

5. A frequency polygon is obtained by:
(a) Constructing a frequency histogram (b) Constructing a cumulative frequency histogram
(c) Linking mid–points from a frequency histogram (d) Using a line graph

6. While preparing time series graph, we show _____ on the X–axis:
(a) Time (b) Income (c) Expense (d) all the above

7. Ogive curve occur for:
(a) More than type distribution (b) Less than type distribution
(c) Both (a) and (b) (d) None of (a) and (b)

8. It is always possible to construct a histogram from the:
(a) Data (b) Frequency polygon (c) Both (a) and (b) (d) None of these

9. Mode is found graphically by:
(a) Frequency Polygon (b) Ogive (c) Histogram (d) None of these

10. To find the number of observations less than any given value, we use:
(a) Grouped frequency distribution (b) Single frequency distribution
(c) Cumulative frequency distribution (d) None of these

11. A simple frequency distribution of a discrete variable is represented by:
(a) Ogive (b) Histogram (c) Frequency Polygon (d) None of these

12. Median of a distribution can be obtained from:
(a) Histogram (b) Frequency polygon (c) Less than type ogives (d) None of these

13. Diagrammatic representation of the cumulative frequency distribution is:
(a) Frequency Polygon (b) Ogive (c) Histogram (d) None of these

14. Graph of successive points of a distribution joined by straight lines in statistical terminology is known as:
(a) Frequency Distribution (b) Frequency Polygon
(c) Trend (d) Cumulative distribution curve

15. If you are interested in how earnings of a company have fluctuated over time, it would be best to use:
(a) Bar graph (b) Time series graph (c) Pie chart (d) Histogram

16. When the values are large in magnitude in a chronological series and variation amongst values is small, a graph is better drawn by choosing:
(a) A false base line (b) Wide scale (c) Narrow scale (d) None of these

17. In Quadrant IV of the graph paper:
(a) Both the values of X and Y are negative
(b) Both the values of X and Y are positive
(c) The values Y are positive and the values of X are negative
(d) The values of X are positive and the values of Y are negative

18. Value of _____ can be determined with the help of an ogive.
(a) Mean (b) Median (c) Mode (d) None of these

19. The graph showing a 'Time Series' is called:
(a) Historigram (b) Histogram (c) Arithmetic Line Graphs (d) Both (a) and (c)

20. There are _____ quadrants in a graph paper.
(a) 1 (b) 2 (c) 3 (d) 4

21. A graph of cumulative frequency distribution is called:
(a) Histogram (b) Ogive (c) Historigram (d) Polygon

22. Which of the following diagrams is drawn by joining mid-points of the tops of all rectangles in a histogram:
(a) Frequency Curve (b) Frequency Polygon (c) Ogive (d) None of these

23. Data represented through a histogram can help in finding graphically the value of:
(a) Mode (b) Mean (c) Median (d) None of these

24. An intersecting point of 'Less Than' and 'More Than' Ogives give:
(a) Mean (b) Median (c) Mode (d) None of these

25. Diagrammatic presentation of time series data is known as:
(a) Time Series Graph (b) Arithmetic Line Graph (c) Both (a) and (b) (d) None of these

26. In _____ quadrant, the value of X will be negative but that of Y will be positive.
(a) First (b) Second (c) Third (d) Fourth

27. Frequency Polygon is prepared in case of:
(a) Individual Series (b) Discrete Series (c) Continuous Series (d) Both (b) and (c)

28. In Time Series Graph, the year, month or days are plotted on the:
(a) X-axis (b) Y-axis (c) Either (a) or (b) (d) Both (a) and (b)

29. In a frequency distribution graph, frequencies of distribution are shown on:
(a) X-axis (b) Y-axis (c) Either (a) or (b) (d) None of these

30. The second quadrant of a graph represents:
(a) –X and +Y (b) +X and –Y (c) –X and –Y (d) +X and +Y

31. Which one of the following statement is correct?
(a) In quadrant III, values of X are positive and Y are negative
(b) In case of frequency polygon, points are joined by a smooth curve
(c) In case of frequency curve, vertices of frequency polygon are joined by a smooth curve
(d) Histogram can be drawn only for discrete series

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): If the data consist of prices of the commodity and quantity demanded at different prices, then while constructing graph, 'Price' is taken along the Y-axis while 'Quantity Demanded' is taken along the X-axis.

Reason (R): Price is the dependent variable, while Quantity Demanded is the independent variable.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): In order to reduce the distance between zero and the minimum value on the X-axis, the Kinked Line can be used.
Reason (R): Index is used in Graphical Presentation if different kinds of lines are drawn.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Line Frequency Graph is used to depict continuous series.
Reason (R): While constructing line frequency graph, values of variables are measured on the X-axis and the corresponding frequency on the Y-axis.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Histogram is never drawn for a discrete variable.
Reason (R): Histograms can also be used to determine the value of Mode.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

5. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): In the histogram, class frequencies are shown by the area of rectangles.
Reason (R): Histogram is a two dimensional diagram.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

6. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Frequency Curve is also known as 'Smoothed Frequency Curve.
Reason (R): In case of Frequency Curve, the points are joined by straight lines.

Alternatives:

(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: From the statistical point of view, graphic presentation is more accurate than diagrammatic presentation.
Statement 2: A lot of mathematical and technical knowledge is required to understand the graphs.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: By convention, independent variable is normally measured along the X-axis and the dependent variable on the Y-axis while making graphical presentation.
Statement 2: The scale of X-axis need not begin with 0, but Y-axis should have a scale beginning with 0.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Line frequency graph is used to depict continuous series.
Statement 2: While constructing line frequency graph, values of frequency are measured on the X-axis and the corresponding variables on the Y-axis.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: In case of Histogram, breadth of each rectangle shows the frequency of the class and height indicates the size of class-interval.
Statement 2: A histogram is never drawn for a discrete variable.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

5. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Histograms can also be used to determine the value of Median.
Statement 2: Histogram is a one-dimensional diagram.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

6. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Frequency Polygon can be constructed either for discrete series or for continuous series.
Statement 2: In case of Frequency Polygon, the points obtained are joined by a smooth curve.

Alternatives:

(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

7. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Time series graph is also known as Historigram.
Statement 2: While constructing the Time Series Graph, time is plotted along the X-axis and other variable is measured along the Y-axis.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. More Than
2. 4^{th}
3. Kinked Line
4. X, Y
5. Two, One
6. Discrete, Continuous
7. Smoothed Frequency Curve
8. Straight Line, Free Hand
9. More than
10. Lower
11. Historigram, Line Graph

True or False

1. True
2. False
3. False
4. True
5. False
6. True
7. False
8. False

Matching Type Questions

1. (i) d; (ii) a; (iii) b; (iv) c
2. (i) d; (ii) c; (iii) b; (iv) a

Multiple Choice Questions (MCQs)

1. (c)	6. (a)	11. (c)	16. (a)	21. (b)	26. (b)	31. (c)
2. (d)	7. (c)	12. (c)	17. (d)	22. (b)	27. (d)	
3. (b)	8. (c)	13. (b)	18. (b)	23. (c)	28. (a)	
4. (b)	9. (c)	14. (b)	19. (d)	24. (b)	29. (b)	
5. (c)	10. (c)	15. (b)	20. (d)	25. (c)	30. (a)	

Assertion Reason Questions (ARQs)

1. (a)	2. (b)	3. (d)	4. (b)	5. (b)	6. (c)

Statement Based Questions

1. (c)	2. (a)	3. (b)	4. (d)	5. (b)	6. (c)	7. (a)

5 MEASURES OF CENTRAL TENDENCY

Important Terms and Concepts

1. **Averages or Measures of Central Tendency** mean value which represents a set of data. Averages are also called measures of central tendency, since they tend to lie centrally, within a set of data arranged according to magnitude.

2. The **functions** of an Average are:
   (*a*) It helps to get a representative value of the entire set of data.
   (*b*) It facilitates comparison.
   (*c*) It is a useful tool in decision-making.

3. The **essentials** of a good Average are:
   (*a*) Simple in calculation
   (*b*) Easy to understand
   (*c*) Rigidly defined
   (*d*) Precise value
   (*e*) Based upon all observations
   (*f*) Unaffected by extreme values
   (*g*) Capable for further statistical calculation

4. The **types** of Averages are:
   (*a*) Mathematical Averages, like mean which are to be calculated.
   (*b*) Positional Averages, like median and mode which are to be located.

5. **Arithmetic Mean ($\overline{X}$)** is the most common measure of central tendency. It is obtained by dividing the sum of all observations in a series by the total number of observations.

6. **Calculation of Arithmetic Mean**

For Individual Series/Ungrouped Data:

(*a*) $\overline{X} = \frac{\Sigma X}{N}$	Direct Method
(*b*) $\overline{X} = A + \frac{\Sigma d}{N}$	Assumed Mean Method/Shortcut Method
(*c*) $\overline{X} = A + \frac{\Sigma d'}{N} \times i$	Step Deviation Method

For Discrete and Continuous Series/Grouped Data:

(*a*) $\overline{X} = \frac{\Sigma fX}{\Sigma f}$	Direct Method
(*b*) $\overline{X} = A + \frac{\Sigma fd}{\Sigma f}$	Assumed Mean Method/Shortcut Method
(*c*) $\overline{X} = A + \frac{\Sigma fd'}{\Sigma f} \times i$	Step Deviation Method

7. The **merits** of Arithmetic Mean are:
   (*a*) It is easy to calculate and simple to understand.
   (*b*) It is rigidly defined.
   (*c*) It is a calculated value and not a positional value.
   (*d*) It is based on all observations.
   (*e*) It is used to calculate average production in a factory per shift, average wages in an industrial concern, etc.

8. The **demerits** of Arithmetic Mean are:
   (*a*) It is highly affected by presence of extreme values in the data. It is not advisable if the series has a few extreme items.
   (*b*) It cannot be calculated in open-ended series.
   (*c*) It cannot be ascertained graphically.
   (*d*) Sometimes, it gives misleading and surprising results.

9. **Weighted Arithmetic Mean**. Sometimes, it is important to assign weights to various items according to their importance. In such a case, we compute weighted arithmetic mean. The formula for calculating Weighted Arithmetic Mean is as under:

$$\bar{X}_W = \frac{\Sigma WX}{\Sigma W}$$

10. **Median (M)** is another important measure of central tendency. It is defined as the "middle element" of the series, when the data is arranged in ascending or descending order.

11. **Calculation of Median**

For Individual and Discrete Series:

$$\text{Median (M)} = \text{Size of } \left[\frac{N+1}{2}\right]^{th} \text{ item}$$

For Continuous Series:

$$\text{Median item} = \text{Size of } \left[\frac{N}{2}\right]^{th} \text{ item,}$$

$$\text{Median (M)} = l_1 + \frac{\frac{N}{2} - \text{c.f.}}{f} \times i$$

12. The **merits** of Median are:
   (*a*) It is easy-to-understand and easy-to-compute.
   (*b*) It is not unduly affected by extreme observations.
   (*c*) It can be located graphically with the help of the ogives.
   (*d*) It is the most appropriate average in case of open-ended classes.
   (*e*) It is most suitable average for qualitative measurement such as intelligence, beauty, etc.
   (*f*) It is a positional value and not a calculated value.

13. The **demerits** of Median are:
   (*a*) It is not based on all observations of the series, since it is a positional average.
   (*b*) It requires arrangement of data in ascending or descending order but the other averages do not need this.
   (*c*) It cannot be computed exactly where the number of items in a series are even.

14. **Quartiles** are the measures which divide the distribution into four equal parts, each part contains equal number of observations. There are three quartiles — Q_1, Q_2 and Q_3. The first quartile (denoted by Q_1) is called lower quartile and 25% of the items of the distribution lie below it and 75% of the items lie above it. The second quartile (denoted by Q_2) is called median. It has 50% of items lying below it and 50% of the items lie above it. The third quartile (denoted by Q_3) is called upper quartile and 75% of the items lie below it and 25% of the items lie above it. Thus, Q_1 and Q_3 denote the two limits within which central 50% of items lie.

15. **Calculation of Quartiles**

For Individual and Discrete Series

$$Q_1 = \text{Size of } \left[\frac{N+1}{4}\right]^{th} \text{ item}$$

$$Q_3 = \text{Size of } 3\left[\frac{N+1}{4}\right]^{th} \text{ item}$$

For Continuous Series

$$Q_1 = \text{Size of } \left[\frac{N}{4}\right]^{th} \text{ item}$$

$$Q_1 = l_1 + \frac{\frac{N}{4} - \text{c.f.}}{f} \times i$$

$$Q_3 = \text{Size of } 3\left[\frac{N}{4}\right]^{th} \text{ item}$$

$$Q_3 = l_1 + \frac{3\left[\frac{N}{4}\right] - \text{c.f.}}{f} \times i$$

16. **Percentiles** divide the distribution into 100 equal parts. So you get 99 dividing positions denoted by $P_1, P_2, P_3 \ldots P_{99}$. P_{50} is the median value.

17. **Mode (Z)** is defined as the value which occurs most frequently in a series. In other words, it is a value which has the maximum/highest frequency in a distribution. For example, the mode in the series 20, 21, 23, 23, 23, 23, 25, 26, 26 would be 23 as this value occurs most frequently than any other value. There is greatest concentration of items around this value. Mode can be calculated as:

For Individual Series, there are two ways:

(*a*) Identify the value that occurs most frequently in a series.

(*b*) By converting individual series into discrete series.

For Discrete Series:

(*a*) By inspection method

(*b*) By grouping method. By preparing a grouping table followed by an analysis table.

For Continuous Series:

(*a*) Determination of modal class by inspection method or grouping table with the analysis table.

(*b*) Applying the formula:

$$Z = l_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times i$$

18. The value of mode can be located graphically by means of drawing histogram of the given frequency distribution. The top corners of the rectangle with maximum height are joined with immediate next corner of the adjacent rectangles. A perpendicular is drawn on the *x*-axis from the point of intersection of two lines. This gives the value of **mode** and is known as **graphical location of Mode**.

19. The **merits** of Mode are:

(*a*) It is easy-to-understand and simple-to-calculate.

(*b*) It is not affected by the presence of extreme values.

(*c*) It can be located graphically with the help of histogram.

(*d*) It can be easily calculated in case of open-ended classes.

(*e*) It is most suitable to find average size of readymade garments.

20. The **demerits** of Mode are:

(*a*) It is not rigidly defined. It may be possible that there may be no mode if no value appears more frequently than any other value in the distribution.

(*b*) It may be possible that a series may have two modes (Bi-modal) or more than two modes (Multi-modal).

(*c*) It is not based in all observations.

(*d*) It is not capable of algebraic treatment.

Multiple Choice Questions

1. A good measure of average should be:
(*a*) affected by extreme values
(*b*) affected by sampling fluctuations
(*c*) based on all values
(*d*) incapable of further algebraic treatment

2. Which of these tendencies can take place on extreme values (ends)? **[NCT 2018]**
(*a*) Mean (*b*) Median
(*c*) Quartile (*d*) Mode

3. Median of discrete series is given by:
(*a*) $\left[\frac{(N+1)}{2}\right]^{th}$ value (*b*) $\left[\frac{N}{2}\right]^{th}$ value
(*c*) $\left[\frac{(N+1)}{4}\right]^{th}$ value (*d*) $\left[\frac{N}{4}\right]^{th}$ value

4. Quartiles are:
(*a*) affected by extreme values
(*b*) middle 20% values
(*c*) not affected by extreme values
(*d*) affected by modal values

5.

Variable	97	95	90	80
Frequency	60	30	12	4

In the given table, the data is defined as:
(*a*) unimodal (*b*) bimodal
(*c*) multi-modal (*d*) None of these

6. Mode is found graphically by: **[NCT 2019]**
(*a*) Ogive
(*b*) Histogram
(*c*) Frequency polygon
(*d*) Bar diagram

7. The relative magnitude of Mean, Median and Mode is:
(*a*) Mean > Median > Mode
(*b*) Mode > Median > Mean
(*c*) Median > Mean > Mode
(*d*) Mean > Mode > Median

8. Which type of average is affected most by the presence of extreme items?
(*a*) Median (*b*) Mode
(*c*) Arithmetic Mean (*d*) None of these

9. Which of the following statements is true?
(*a*) The sum of deviations of items from median is zero.
(*b*) Arithmetic mean is a positional value.
(*c*) Upper quartile is the value of top 25% of items.
(*d*) Median is unduly affected by extreme observations.

10. Measures which divide the data into four equal parts are known as:
(*a*) Quartiles
(*b*) Percentiles
(*c*) Both (*a*) and (*b*)
(*d*) Neither (*a*) nor (*b*)

11. The most suitable average for qualitative measurement is:
(*a*) arithmetic mean
(*b*) median
(*c*) mode
(*d*) geometric mean

12. Which average is affected most by the presence of extreme items?
(*a*) median (*b*) mode
(*c*) arithmetic mean (*d*) None of these

13. The algebraic sum of deviation of a set of n values from A.M. is:
(*a*) n (*b*) 0
(*c*) 1 (*d*) None of these

14. Identify the value of Median of the following data:
X: 8, 12, 20, 4, 24
(*a*) 12 (*b*) 20
(*c*) 4 (*d*) 24

15. In the given series, identify the value of mode.

X: 2, 4, 6, 7, 8, 5, 3, 2, 6, 2, 8, 2, 9, 2

(*a*) 4
(*b*) 2
(*c*) 6
(*d*) None of these

16. For an open-ended distribution, _____ is the best measure of central tendency.

(*a*) Mean (*b*) Median
(*c*) Mode (*d*) Quartile

17. _____ measure of central tendency is affected by extreme values.

(*a*) Median
(*b*) Mode
(*c*) Mean
(*d*) None of these

18. Mean of 5 items is 10. If 5 items are 10, 18, 2, *x*, 14, then identify the value of *x*.

(*a*) 12 (*b*) 6
(*c*) 10 (*d*) 2

19. A representative average should be:

(*a*) Simple to calculate
(*b*) Rigidly defined
(*c*) Based on all observations
(*d*) All of these

20. The most commonly used measure of central tendency is:

(*a*) Arithmetic Mean
(*b*) Median
(*c*) Mode
(*d*) None of these

21. The mean of 11 numbers is 7. One of the numbers, 13, is deleted. What is the mean of the remaining 10 numbers?

(*a*) 5.8 (*b*) 6
(*c*) 6.4 (*d*) 7.7

22. Which of the following is not a characteristic of the mean?

(*a*) It minimises the sum of squared deviations.
(*b*) It is affected by extreme scores.
(*c*) It is best used with ordinal data.
(*d*) The sum of the deviations about the mean is 0.

23. Which measure of central tendency cannot be calculated by graphic method? **[DoE]**

(*a*) Mode (*b*) Median
(*c*) Mean (*d*) None of these

24. What is the median of the following set of scores?

19, 5, 12, 10, 14

(*a*) 10 (*b*) 14
(*c*) 19 (*d*) 12

25. Which of these central tendencies can take place on extreme values (ends)? **[NCT 2018]**

(*a*) Mean (*b*) Median
(*c*) Quartile (*d*) Mode

26. Which of the following statements is false regarding Mode?

(*a*) It can be easily identified through inspection.
(*b*) It does not possess the desired algebraic property of the mean that allows further manipulations.
(*c*) Like the median, observations from different data sets have to be merged to obtain a new mode, whether group or ungrouped data are involved.
(*d*) It is affected by extreme values.

27. Which partition value divides the total set of values into four equal parts?

(*a*) Decile (*b*) Percentile
(*c*) Quartile (*d*) Mode

28. Percentile divides the series into:

(*a*) Two equal parts
(*b*) Four equal parts
(*c*) Hundred equal parts
(*d*) None of these

29. Relationship between Mean, Median and Mode is:

(*a*) Mode = 4Median – 2Mean
(*b*) Mode = 2Median – 3Mean
(*c*) Mode = 2Median – 1Mean
(*d*) Mode = 3Median – 2Mean

30. A distribution is skewed if Mean, Median, Mode are:

(*a*) Equal (*b*) Not equal
(*c*) Symmetric (*d*) All of these

31. In a distribution, the value around which the items tend to be most heavily concentrated is called:

(*a*) Mean (*b*) Median
(*c*) Mode (*d*) Upper quartile

32. The values of extreme items do not influence the average in case of:

(*a*) Mean (*b*) Median
(*c*) Mode (*d*) None of these

33. Median is also known as:

(*a*) lower quartile (*b*) upper quartile
(*c*) second quartile (*d*) None of these

34. What do you call the partiton value which divides the series into two equal parts?

(*a*) Upper Quartile
(*b*) Median
(*c*) Mode
(*d*) Lower Quartile

35. The middle most value of a set of observations is:

(*a*) Median (*b*) Mode
(*c*) Mean (*d*) Quartile

36. Most frequent occurring value in a series is called:

(*a*) Mean (*b*) Quartile
(*c*) Median (*d*) Mode

37. Median can be calculated from _____ series.

(*a*) Individual (*b*) Discrete
(*c*) Continuous (*d*) All of these

38. A distribution with more than two modes is called:

(*a*) Bi-modal (*b*) Multi-modal
(*c*) Uni-modal (*d*) None of these

39. Mode of 0, 3, 5, 7, 9, 12, 3 is:

(*a*) 6 (*b*) 0
(*c*) 3 (*d*) 5

40. Histogram is useful to determine graphically the value of:

(*a*) Mean (*b*) Median
(*c*) Mode (*d*) All of these

41. c.f. is used for:

(*a*) Common factor
(*b*) Cumulative frequency
(*c*) Common value
(*d*) None of these

42. Which one of the following average can be computed with the help of ogives?

(*a*) Simple Mean (*b*) Weighted Mean
(*c*) Mode (*d*) Median

43. _____ is called a positional measure.

(*a*) Median (*b*) Mode
(*c*) Mean (*d*) None of these

44. Which of the following averages is most suitable in case of calculating average intelligence of different employees in an office?

(*a*) Mode (*b*) Mean
(*c*) Median (*d*) Median and Mode

45. Find mode from 34, 77, 18, 6, 8, 17, 22, 6, 34, 6 and 56. **[DoE]**

(*a*) 77 (*b*) 34
(*c*) 56 (*d*) 6

46. In case of discrete and continuous series, mode can be calculated by:

(*a*) Inspection Method
(*b*) Grouping Method
(*c*) Summation Method
(*d*) Both (*a*) and (*b*)

47. Median and Quartiles can be calculated in case of continuous series only after arranging the data in:

(*a*) Ascending order
(*b*) Descending order
(*c*) Either (*a*) or (*b*)
(*d*) None of these

48. For a symmetrical distribution, mean is equal to 40. Its mode and median are respectively:

(*a*) 40, 36 (*b*) 36, 40
(*c*) 36, 36 (*d*) 40, 40

49. The most suitable average for qualitative measurement is:

(*a*) Arithmetic Mean
(*b*) Median
(*c*) Mode
(*d*) None of these

50. Which of the following is not affected by presence of extreme values in a series?

(*a*) Mean
(*b*) Median
(*c*) Mode
(*d*) Both (*b*) and (*c*)

51. Simple average is sometimes called:

(*a*) Weighted average
(*b*) Relative average
(*c*) Unweighted average
(*d*) None of these

52. _____ is used when the sum of deviations from the average should be least.

(*a*) Mean (*b*) Mode
(*c*) Median (*d*) None of these

53. Mean should be:

(*a*) Simple
(*b*) Based upon all items
(*c*) Not capable of further algebraic treatment
(*d*) Both (*a*) and (*b*)

54. Average value of given variables is known as:

(*a*) Median (*b*) Mean
(*c*) Mode (*d*) None of these

55. Measures of central tendency are known as:

(*a*) Difference
(*b*) Averages
(*c*) Either (*a*) or (*b*)
(*d*) Neither (*a*) nor (*b*)

56. Which is the correct formula to determine Arithmetic Mean in case of individual series?

(*a*) $\overline{X} = \frac{\Sigma X}{N}$ (*b*) $\overline{X} = A + \frac{\Sigma d}{N}$
(*c*) $\overline{X} = A + \frac{\Sigma d'}{N} \times C$ (*d*) All of these

57. The mean of 12 numbers is 24. If 5 is added in every number, the new mean is:

(*a*) 25 (*b*) 84
(*c*) 29 (*d*) None of these

58. Find median from 5, 9, 10, 6, 4, 17, 23, 3 and 11. **[DoE]**

(*a*) 6 (*b*) 5
(*c*) 9 (*d*) 10

59. The most appropriate measure of central tendency in case of data of varying importance is:

(*a*) Combined Mean (*b*) Weighted Mean
(*c*) Assumed Mean (*d*) All of these

60. Formula for calculating Combined Arithmetic Mean is:

(*a*) $\overline{X}_{12} = \frac{N_1 + N_2}{\overline{X}_1 + \overline{X}_2}$

(*b*) $\overline{X}_{12} = \frac{\overline{X}_1 + \overline{X}_2}{N_1 + N_2}$

(*c*) $\overline{X}_{12} = \frac{\overline{X}_1 N_1 + \overline{X}_2 N_2}{N_1 + N_2}$

(*d*) Both (*a*) and (*b*)

61. Which of the following statements is wrong?

(*a*) Mean is not affected due to sampling fluctuations.

(*b*) Mean is rigidly defined.

(*c*) Mean has some mathematical properties.

(*d*) All of these

62. Which of the following is a measure of central tendency?

(*a*) Mean (*b*) Median

(*c*) Mode (*d*) All of these

63. Formula to determine Arithmetic Mean through short-cut method in case of individual series is:

(*a*) $\overline{X} = \frac{\Sigma X}{N}$ (*b*) $\overline{X} = A + \frac{\Sigma d}{N}$

(*c*) $\overline{X} = A + \frac{\Sigma X}{N}$ (*d*) $\overline{X} = \frac{\Sigma fX}{\Sigma f}$

64. Which of the following statements is correct?

(*a*) Sum of deviations of the observations from their arithmetic mean is always zero.

(*b*) Weighted mean is less than simple arithmetic mean when larger weights are assigned to the larger items and smaller weights to the smaller items.

(*c*) Sum of square of the deviations of the items from their arithmetic mean in minimum.

(*d*) Both (*a*) and (*c*)

65. Weighted mean is computed by the formula:

(*a*) $\frac{\Sigma WX}{\Sigma W}$ (*b*) $\frac{\Sigma WX}{\Sigma X}$

(*c*) $\frac{\Sigma W}{\Sigma X}$ (*d*) None of these

66. Mean of 80 items is 45. It was discovered that three items which should have been 50, 70, 80 were wrongly read as 30, 40, 50 respectively. The correct mean is:

(*a*) 46 (*b*) 43

(*c*) 44 (*d*) 49

67. In a family of 5 persons, there are three earning members having monthly incomes of ₹ 20,000, ₹ 25,000 and ₹ 30,000. The average monthly income of a member in the family is:

(*a*) ₹ 25,000 (*b*) ₹ 15,000

(*c*) ₹ 20,000 (*d*) ₹ 30,000

68. In an office, there are 70% clerks, 20% assistants and 10% executives. On average, the salary of a clerk is ₹ 12,000 p.m., of the assistant ₹ 14,000 p.m. and that of an executive ₹ 20,000 p.m. The average salary of an employee in the office is:

(*a*) ₹ 14,000 p.m. (*b*) ₹ 15,500 p.m.

(*c*) ₹ 13,200 p.m. (*d*) None of these

69. Percentile divide the distribution into: **[DoE]**

(*a*) 10 equal parts (*b*) 100 equal parts

(*c*) 75 equal parts (*d*) 50 equal parts

70. Decile divide the distribution into: **[DoE]**

(*a*) 10 equal parts (*b*) 30 equal parts

(*c*) 20 equal parts (*d*) 50 equal parts

71. Which of the following represent Median?

(*a*) Q_1 (*b*) Q_2

(*c*) Q_3 (*d*) Q_4

72. Sum of deviation about mean is:

(*a*) Zero (*b*) One

(*c*) Minimum (*d*) Maximum

73. Assign weights to various items according to their importance is called: **[DoE]**

(*a*) Arithmetic mean
(*b*) Median
(*c*) Mode
(*d*) Weighted mean

74. The most suitable average for qualitative measurement is: **[DoE]**

(*a*) Arithmetic mean
(*b*) Median
(*c*) Mode
(*d*) Weighted mean

75. Five students obtained 100, 200, 300, 400 and 500 marks, what would be the mean?

(*a*) 300 (*b*) 400
(*c*) 250 (*d*) 350

76. In India, shoe size of most of the men is no. 7. Which measure of central tendency represents it? **[DoE]**

(*a*) Mean (*b*) Median
(*c*) Mode (*d*) Quartile

77. The values of all items are taken into consideration in the calculation of: **[DoE]**

(*a*) Mean (*b*) Median
(*c*) Mode (*d*) Quartile

78. Find out the demerit of median from the following: **[DoE]**

(*a*) Simplicity
(*b*) Ideal average
(*c*) Not based on all observations
(*d*) Graphic presentation

79. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. In a symmetric distribution	(*i*) Mean > Median > Mode
B. In a positively skewed distribution	(*ii*) Mean = Median = Mode
C. In a negatively skewed distribution	(*iii*) Mean < Median < Mode
D. Median divides the series into	(*iv*) Four equal parts

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

80. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Average	(*i*) It is a value which is typical of representation of a set of data.
B. Arithmetic mean	(*ii*) It is when mean of two or more than two series is computed collectively.
C. Weighted mean	(*iii*) It is the sum of values of all observations divided by the number of observations.
D. Combined mean	(*iv*) It is the average when different items of a series are given different weights according to their relative importance.

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

81. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Percentile	(*i*) It divides the distribution into fifty equal parts.
B. Quartile	(*ii*) It divides the data into eight equal parts.
C. Median	(*iii*) It is the first value of the series when the data is arranged in ascending order.
D. Mode	(*iv*) It is the most common value in a series.

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

82. Match the following Column I and Column II and choose the correct alternative:

Column I	Column II
A. Mode	(*i*) Middle value in the arranged data
B. Median	(*ii*) Helps in graphically locating the mode
C. Histogram	(*iii*) Helps in graphically locating the median
D. Ogives	(*iv*) Value occurring most frequently in a set of observations

(*a*) A – (*iii*), B – (*iv*), C – (*ii*), D – (*i*) (*b*) A – (*i*), B – (*iii*), C – (*ii*), D – (*iv*)

(*c*) A – (*iii*), B – (*ii*), C – (*i*), D – (*iv*) (*d*) A – (*iv*), B – (*i*), C – (*ii*), D – (*iii*)

Assertion-Reasoning Type MCQs

Note: In the following questions (Q.83 to Q.95), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) **Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)**

(*b*) **Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)**

(*c*) **Assertion (A) is true but Reason (R) is false**

(*d*) **Assertion (A) is false but Reason (R) is true**

83. Assertion (A): Arithmetic mean is defined as sum of the value of all observations divided by the number of observations.

Reason (R): Sum of deviation of series from actual arithmetic mean is always zero.

84. Assertion (A): Median is graphically located through ogive.

Reason (R): Median is an arithmetic average.

85. Assertion (A): Symmetrical distribution is a bell shaped curve.

Reason (R): In actual life, most of the distributions are symmetrical.

86. Assertion (A): Sum of deviations of the observations from their arithmetic mean is always zero.

Reason (R): Arithmetic mean is a point of balance that is sum of positive deviations from mean is equal to sum of negative deviations.

87. **Assertion (A):** Everyone who computes the mean get the same answer.

Reason (R): Arithmetic mean is rigidly defined by an algebraic formula.

88. **Assertion (A):** A distribution can either be uni-modal, bi-modal or multi-modal.

Reason (R): If each observation occurs the same number of times in a series, then there is no mode in that distribution.

89. **Assertion (A):** Median is a positional average.

Reason (R): Median is that value in the series in which half of the values are below and half of the values are above to it.

90. **Assertion (A):** Mode can be calculated through diagram.

Reason (R): Mode is an arithmetic average.

91. **Assertion (A):** Arithmetic mean can be located graphically.

Reason (R): Averages help in making decisions and in planning various areas.

92. **Assertion (A):** Arithmetic mean cannot be calculated when open-end classes are given.

Reason (R): Averages are used in our daily life.

93. **Assertion (A):** Arithmetic mean is a rigidly defined value.

Reason (R): An average helps in comparing one set of data with the other.

94. **Assertion (A):** Arithmetic mean is a stable measure of central tendency.

Reason (R): Changes in the sample of a series have minimum effect on the arithmetic average.

95. **Assertion (A):** Mode is the best representative value of all items of the series.

Reason (R): Modal value is that value which occurs most frequently in the series.

Case-Based MCQs

1. **Read the given case carefully and answer the following questions on the basis of the same.**

A measure of central tendency is a summary statistics that represents the center point or typical value of a data set. These measures indicate where most values in a distribution fall and are also referred to as the central location of a distribution. One can think of it as the tendency of data to cluster around a middle value. In statistics, the three most common measures of central tendency are the mean, median, and mode. Each of these measures calculate the location of the central point using a different method. Choosing the best measure of central tendency depends on the type of data. The central tendency of a distribution represents one characteristic of a distribution. Another aspect is the variability around that central value. This property describes how far away the data points tend to fall from the center.

(*a*) Which of the following is a measure of central tendency?

(*i*) Arithmetic Mean
(*ii*) Median
(*iii*) Mode
(*iv*) All of these

(*b*) The sum of deviation of a series from actual mean is always:

(*i*) negative (*ii*) positive
(*iii*) zero (*iv*) None of these

(*c*) Measure of central tendencies indicate where _____ values in a distribution fall.

(*i*) least (*ii*) some
(*iii*) most (*iv*) None of these

(*d*) If a shirt manufacturing company wants to decide, which size of shirts is to be produced maximum, the company should use:

(*i*) Arithmetic Mean
(*ii*) Median
(*iii*) Quartile (*iv*) Mode

2. Read the given case carefully and answer the following questions on the basis of the same.

The measures of central tendency summarise the data with a single value, which can represent the entire data. It is a single most typical or representative value to describe the entire mass of data. Arithmetic mean is the most commonly used average. It is simple to calculate and is based on all the observations, but it is also unduly affected by the presence of extreme items. Median is a better summary for such data. Mode is generally used to describe the qualitative data. Further Median and Mode can be easily computed graphically.

(*a*) Which of the following average is considered to be the mostly commonly used average?

(*i*) Arithmetic Mean
(*ii*) Median
(*iii*) Mode
(*iv*) Quartile

(*b*) Which of the following is not capable of algebraic treatment?

(*i*) Mean (*ii*) Median
(*iii*) Mode
(*iv*) Both (*ii*) and (*iii*)

(*c*) Which of these central tendencies can take place on extreme values (ends)?

(*i*) Mean (*ii*) Median
(*iii*) Quartile (*iv*) Mode

(*d*) Which of the following is based on all the observations?

(*i*) Arithmetic mean
(*ii*) Median
(*iii*) Mode
(*iv*) None of these

3. Read the given case carefully and answer the following questions on the basis of the same.

The average is sometimes described as a number which is typical for the whole group. Measures of central value, by condensing the mass of data in the single value, enable us to get a bird's eye view of the entire data. Thus, one value can represent thousands, lakhs and even millions of values. Measures of central value, by reducing the mass of data into one single figure, enable comparisons to be made. Comparison can be made either at a point of time or over a period of time. However, while making comparisons one should also take into consideration the multiplicity of forces that might be affecting the data.

(*a*) Which measure of central tendency takes into account the magnitude of scales?

(*i*) Mean (*ii*) Mode
(*iii*) Median (*iv*) Range

(*b*) _____ is a mathematical average.

(*i*) Mean
(*ii*) Median
(*iii*) Mode
(*iv*) None of these

(*c*) Which of the following is a positional average?

(*i*) Arithmetic Mean
(*ii*) Median
(*iii*) Mode
(*iv*) Both (*ii*) and (*iii*)

(*d*) Comparing _____ wages of a factory with _____ wages of another factory give meaningful conclusion.
(*i*) Mean; Median
(*ii*) Mean; Mode
(*iii*) Mean; Mean
(*iv*) None of these

4. Read the given case carefully and answer the following questions on the basis of the same.

A shoe manufacturing company is interested to know that which size of pair of shoe is mostly in demand by the consumers and also distributes the defective product at free of cost, after getting them repaired to Orphanages. This helped children getting shoes for free. It can also be taken as corporate social responsibility. The company is also getting constant profit for last five years indicating no dispersion in its profits.

(*a*) Which measures of central tendency is useful to see the demand of pair of shoes which is maximum?
(*i*) Mean (*ii*) Median
(*iii*) Mode (*iv*) None of these

(*b*) Which objective is highlighted in the above case, when shoes are distributed free of cost?
(*i*) Economic (*ii*) Political
(*iii*) Social (*iv*) All of these

(*c*) Which of the following can be estimated by a diagram?
(*i*) Mean
(*ii*) Median
(*iii*) Mode
(*iv*) Both (*ii*) and (*iii*)

(*d*) _____ is the highest occurring frequency in the series.
(*i*) Mean (*ii*) Median
(*iii*) Mode (*iv*) Quartile

5. Read the given case carefully and answer the following questions on the basis of the same.

The common measures of location are quartiles and percentiles. Quartiles are special percentiles. The first quartile, Q_1, is the same as the 25th percentile, and the third quartile, Q_3, is the same as the 75th percentile. The median, M, is called both the second quartile and the 50th percentile. Quartiles divide ordered data into quarters. Percentiles divide ordered data into hundredths. To score in the 90th percentile of an exam does not mean, necessarily, that you received 90% on a test. It means that 90% of test scores are the same or less than your score and 10% of the test scores are the same or greater than your test score. Percentiles are useful for comparing values. For this reason, universities and colleges use percentiles extensively.

(*a*) Upper quartile is the lowest value of top _____ percent items.
(*i*) 25 (*ii*) 20
(*iii*) 15 (*iv*) 30

(*b*) _____ partition divides the total set of values into four equal parts.
(*i*) Percentile (*ii*) Decile
(*iii*) Quartile (*iv*) Range

(*c*) Percentile divides the series into:
(*i*) Two equal parts
(*ii*) Hundred equal parts
(*iii*) Four equal parts
(*iv*) None of these

(*d*) What is the median of the following set of scores?
19, 5, 12, 10, 14
(*i*) 10 (*ii*) 14
(*iii*) 19 (*iv*) 12

6. Read the given case carefully and answer the following questions on the basis of the same.

Median is one of the measures of central tendency which can be graphically presented. Median is a positional average and hence it is not influenced by the extreme values. So, median may be more representative than the arithmetic average. Since Median is a positional average, so it is not based upon each and every item of the distribution and cannot be used for further algebraic treatment like it cannot be used for determining combined median.

(*a*) Median is graphically presented through:
- (*i*) Histogram
- (*ii*) Pie diagram
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

(*b*) Which of the following quartiles is equal to median of a distribution?
- (*i*) Q_1 (*ii*) Q_2
- (*iii*) Q_3 (*iv*) Q_4

(*c*) Which of the following is affected by extreme values?
- (*i*) Mean
- (*ii*) Median
- (*iii*) Mode
- (*iv*) Both (*i*) and (*iii*)

(*d*) Less than ogive is always _____ sloping.
- (*i*) upward (*ii*) downward
- (*iii*) horizontal (*iv*) None of these

7. Read the given case carefully and answer the following questions on the basis of the same.

The median by definition refers to the middle value in a distribution. In case of median one-half of the items in the distribution have a value the size of median value or smaller and one-half have a value the size of the median value or larger. The median is called a positional average. The term position refers to the place of a value in a series. The place of the median in a series is such that an equal number of items lie on either side of it. Median is thus the central value of the distribution or the value that divides the distribution into two equal parts. The median may be defined as the middle most or central value of the variable when the values are arranged in order of magnitude, or as the value such that greater and smaller values occur with equal frequency. In the case of a frequency curve the median may be defined as that value of the variable divides the area of a curve into two equal parts.

(*a*) Which of the following is a positional average?
- (*i*) Mean
- (*ii*) Median
- (*iii*) Mode
- (*iv*) Both (*ii*) and (*iii*)

(*b*) Which of the following quartile is equal to median?
- (*i*) Q_1 (*ii*) Q_2
- (*iii*) Q_3 (*iv*) Q_4

(*c*) For calculating median, series _____ be arranged in ascending order.
- (*i*) must (*ii*) need not
- (*iii*) may (*iv*) None of these

(*d*) Identify the value of Median of the given data:
18, 11, 14, 20, 22, 23, 12, 19, 16
- (*i*) 22
- (*ii*) 18
- (*iii*) Both (*i*) and (*ii*)
- (*iv*) None of these

8. Read the given case carefully and answer the following questions on the basis of the same.

The mode or modal value is that value in a series of observations which occur with the greatest frequency. Since this value occurs more frequently than any of the others if a graph of a distribution is available, mode is readily ascertainable as the abscissa of the highest point of the distribution curve. The mode is often said to be the value which occurs most often, that is, with the highest frequency while this statement is quite helpful in interpreting the mode, it cannot safely be applied to any distribution, because of the vagaries of sampling. Rather it should be thought as a value about which the items are most closely concerned. It is the value which has the greatest frequency density in its immediate neighbourhood. For this reason mode is also called the most typical or fashionable value of a distribution. Although mode is that value which occurs most frequently, yet it does not follow that its frequency represents a majority out of all the total number of frequencies.

(*a*) _____ is used to calculate mode.
- (*i*) Ogive
- (*ii*) Multiple Bar Diagram
- (*iii*) Histogram
- (*iv*) Both (*ii*) and (*iii*)

(*b*) Mode is useful for _____ data.
- (*i*) quantitative
- (*ii*) qualitative
- (*iii*) Either (*i*) or (*ii*)
- (*iv*) Both (*i*) and (*ii*)

(*c*) Identify the value of Mode of the given data:

2, 2, 3, 3, 4, 4, 5, 5, 6, 6, 7, 7
- (*i*) 2
- (*ii*) 3
- (*iii*) 4
- (*iv*) Cannot be determined

(*d*) In a symmetrical distribution:
- (*i*) Mode is greater than Median and Mean
- (*ii*) Mode is less than Median and Mean
- (*iii*) Mode is equal to Median and Mean
- (*iv*) Mode is greater than Mean but less than Median

9. Read the given case carefully and answer the following questions on the basis of the same.

Mode is the value occurring most frequently in a set of observations and around which other items of the set cluster most densely. It is extremely used to measure taste and preferences of people for a particular brand of a commodity. A distribution can either be uni-model, bi-modal or multi-modal. However, if each observation occurs the same number of times in a series, then there is no mode in that distribution.

(*a*) In a symmetrical distribution:
- (*i*) Mean > Median > Mode
- (*ii*) Mean < Median < Mode
- (*iii*) Mean = Median = Mode
- (*iv*) All of these

(*b*) Mode can be graphically located through:
- (*a*) Bar diagram (*b*) Histogram
- (*c*) Ogive (*d*) None of these

(*c*) Which of the following methods is used to calculate mode?
- (*a*) Inspection Method
- (*b*) Grouping Method
- (*c*) Step Deviation Method
- (*d*) Both (*a*) and (*b*)

(*d*) Mode by observation is also known as _____ method.
- (*i*) grouping
- (*ii*) inspection
- (*iii*) Either (*i*) or (*ii*)
- (*iv*) Neither (*i*) nor (*ii*)

CHAPTER 5: Measures of Central Tendency

Multiple Choice Questions

1. (c)	2. (d)	3. (a)	4. (c)	5. (a)	6. (d)
7. (a)	8. (c)	9. (c)	10. (a)	11. (b)	12. (c)
13. (b)	14. (a)	15. (b)	16. (b)	17. (c)	18. (b)
19. (d)	20. (a)	21. (c)	22. (c)	23. (c)	24. (d)
25. (d)	26. (d)	27. (c)	28. (c)	29. (d)	30. (b)
31. (c)	32. (b)	33. (c)	34. (b)	35. (a)	36. (d)
37. (d)	38. (b)	39. (c)	40. (c)	41. (b)	42. (d)
43. (a)	44. (c)	45. (d)	46. (d)	47. (a)	48. (d)
49. (b)	50. (d)	51. (c)	52. (a)	53. (d)	54. (b)

55. (*b*) **56.** (*d*) **57.** (*c*) **58.** (*c*) **59.** (*b*) **60.** (*c*)
61. (*a*) **62.** (*d*) **63.** (*b*) **64.** (*d*) **65.** (*a*) **66.** (*a*)
67. (*b*) **68.** (*c*) **69.** (*b*) **70.** (*a*) **71.** (*b*) **72.** (*a*)
73. (*d*) **74.** (*c*) **75.** (*a*) **76.** (*c*) **77.** (*a*) **78.** (*c*)
79. (*c*) **80.** (*a*) **81.** (*d*) **82.** (*d*)

Assertion-Reasoning Type MCQs

83. (*b*) **84.** (*c*) **85.** (*c*) **86.** (*a*) **87.** (*a*) **88.** (*b*)
89. (*a*) **90.** (*c*) **91.** (*d*) **92.** (*b*) **93.** (*b*) **94.** (*a*)
95. (*a*)

Case-Based MCQs

1. (*a*) (*iv*) (*b*) (*iii*) (*c*) (*iii*) (*d*) (*iv*)
2. (*a*) (*i*) (*b*) (*iv*) (*c*) (*iv*) (*d*) (*i*)
3. (*a*) (*i*) (*b*) (*i*) (*c*) (*iv*) (*d*) (*iii*)
4. (*a*) (*iii*) (*b*) (*iii*) (*c*) (*iv*) (*d*) (*iii*)
5. (*a*) (*i*) (*b*) (*iii*) (*c*) (*ii*) (*d*) (*iv*)
6. (*a*) (*iv*) (*b*) (*ii*) (*c*) (*i*) (*d*) (*i*)
7. (*a*) (*iv*) (*b*) (*ii*) (*c*) (*i*) (*d*) (*ii*)
8. (*a*) (*iii*) (*b*) (*iv*) (*c*) (*iv*) (*d*) (*iii*)
9. (*a*) (*iii*) (*b*) (*ii*) (*c*) (*iv*) (*d*) (*ii*)

Objective Questions

Multiple Choice Questions

1. Which of the following is/are objectives of averages?
(i) To facilitate comparison.
(ii) To help in decision-making.
(iii) To trace mathematical relation.
(iv) To understand the features of the problem.
Choose from the options below.
(a) (i), (ii), (iii) (b) (ii), (iii), (iv)
(c) (i), (iii), (iv) (d) All of these

2. Which of the following is/are measures of central tendency?
(a) Mean (b) Median
(c) Mode (d) All of these

3. Which of the following is true about arithmetic mean?
(a) Based on all the items of the series
(b) Used only in case of continuous variable
(c) Both (a) and (b)
(d) Neither (a) nor (b)

4. The most used method of central tendency is median. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

5. Broadly, arithmetic mean is of ..... types.
(a) two (b) three
(c) four (d) five

6. Mean is a number which is always present in the series. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

7. Which of the following is/are not a positional average?
(a) Mean (b) Median
(c) Mode (d) None of these

8. Choose the incorrect statement from given below.
(a) A good average is the one which is least affected by sampling fluctuations
(b) An average should be rigidly defined
(c) An average is based on the extreme observations of the statistical distribution
(d) An average should be capable of further algebraic treatment

9. Sum of deviations taken from actual mean is always equal to
(a) sum of frequency (b) arithmetic mean
(c) zero (d) maximum

10. The average daily wage of a group of 100 workers was ₹ 250. Each worker is now given a raise of ₹ 50. What is the new average daily wage?
(a) 200 (b) 250 (c) 300 (d) 350

11. Arithmetic mean of 5 numbers is 28. When one number is reduced, mean gets reduced by 2. Which number is excluded?
(a) 26 (b) 30 (c) 34 (d) 36

12. Arithmetic mean of 5 observations Y, Y+2, Y+4, Y+6, Y+8 is 11. What is the value of Y?
(a) 4 (b) 5 (c) 6 (d) 7

13. When arithmetic mean is calculated using assumed mean and the sum of deviation from assumed mean is zero, which of the below statement is correct in that situation?
(a) Assumed mean is equal to actual mean
(b) Assumed mean is less than actual mean
(c) Assumed mean is more than actual mean
(d) It's an exception

14. The sum of square of deviations from actual mean is
(a) minimum (b) maximum
(c) zero (d) not defined

15. Simple arithmetic mean can also be referred to as
(a) weighted mean (b) unweighted mean
(c) relative mean (d) geometric mean

16. If the mean of a given series is 10, this indicates that all items of the series are equal to 10. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

17. Arithmetic mean can be calculated under which of the following series?
(a) Cumulative series
(b) Open ended series
(c) Unequal frequency distribution
(d) All of the above

18. Arithmetic mean of a group of 50 students in an exam is 48. If marks of every student are reduced by 3, the new average will be
(a) 45 (b) 48
(c) 51 (d) Can't be calculated

19. The mean value of a particular series of 15. If a constant number is added to all the items of the series, mean value will remain unaffected. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

20. Choose the correct option when equal weights are assigned to all the observations of the data.
(a) Weighted mean > Arithmetic mean
(b) Weighted mean < Arithmetic mean
(c) Weighted mean = Arithmetic mean
(d) They are not related

21. Calculation of mean in which of the following series is not accurate?
(a) Exclusive continuous series
(b) Inclusive continuous series
(c) Open-ended series
(d) Unequal class interval series

22. The arithmetic mean of a distribution is 45. If the sum of frequencies were 20, what will be the product of sum of frequencies with the variable?
(a) 450 (b) 900
(c) 1050 (d) Can't be determined

23. The scores of students in a class scores are 97, 85, 92, 78 and 90. What will be the average score?
(a) 85.4 (b) 88.4
(c) 90.5 (d) 92.4

24. Mean marks obtained by 5 students in a class is 66.4, marks scored by 4 students are 70, 72, 55, 57. What will be the marks obtained by the 5th student?
(a) 75 (b) 77 (c) 78 (d) 83

25. Mean of a given series divides the series into two equal parts. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

26. Combined mean method can be used to combine arithmetic mean of ..... series.
(a) 2 (b) 3
(c) 5 (d) N-number

27. A distribution of three components with total number of terms being 200, 250 and 300 with means 25, 10 and 15 respectively. The combined mean will be equal to
(a) 200
(b) 240
(c) 300
(b) Can't be determined

28. Write the correct pair.

Column I	Column II
A. Assumed mean method	(i) Short-cut method
B. Weighted arithmetic mean	(ii) Equal importance to each item
C. Mode	(iii) Data needs to be arranged
D. Quartile	(iv) Divides data in 8 parts

Codes
(a) A-(i) (b) B-(ii) (c) C-(iii) (d) D-(iv)

29. Arrangement of data in ascending or descending order is only required to calculate median. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

30. Median is always a number present in the same series. Choose from options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

31. Median of a series divides the distribution in ..... equal parts.
(a) 2 (b) 3
(c) 4 (d) None of these

32. Which of the following is known as partition values?
(a) Median (b) Quartiles
(c) Mode (d) None of these

33. Choose the correct statement about median.
(a) Highest value of lowest 25% of the items
(b) Lowest value of highest 25% of the items
(c) Highest value of lowest 50% of the items
(d) All of the above statements are false

34. Quartile of a series is based on which of the following?
(a) Middle 50% items of the series
(b) Upper 25% items of the series
(c) Lower 25% items of the series
(d) All the items of the series

35. Which of the following is true about central tendency?
(a) Mode = 2 Median – Mean
(b) Mode = 3 Median – Mean
(c) Mode = 3 Median – 2 Mean
(d) Mode = 2 Median – 3 Mean

36. Median of a given series is 'k'. If all the item values of series are increased by 'k', then what will be the new median?
(a) $2k$ (b) k^2
(c) $k+2$ (d) Can't be determined

37. Which of the following central tendency can be located using cumulative frequency distribution?
(i) Median (ii) Quartiles
(iii) Mode
Choose from the options below.
(a) (i) and (ii) (b) (ii) and (iii)
(c) (i) and (iii) (d) (i), (ii) and (iii)

38. Identify the correct statement from the given below.
(a) If all the items of a series increase by 5, standard deviation will also increase by 5.
(b) Arithmetic mean cannot be calculated for open ended series.
(c) Lower quartile represents highest value of lowest 25% items of the series.
(d) There can be more than one median in a statistical distribution.

39. Which of the following central tendency can be located using histogram?
(i) Median
(ii) Quartiles
(iii) Mode
Choose from the options below.
(a) Only (i) (b) (ii) and (iii)
(c) Only (iii) (d) (i), (ii) and (iii)

40. Arithmetic mean is free from change of origin. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

41. Choose the correct statement from given below.
(a) Quartiles are positional averages of central tendency
(b) Median can only be located graphically using 'more than' cumulative frequency distribution
(c) Mode of a distribution is the value at the point around which the items tend to be most heavily concentrated
(d) All of the above are correct

42. A series need to be arranged in either ascending or descending order for calculating which of the following?
(a) Median (b) Quartiles
(c) Mode (d) Both (a) and (b)

43. Given the mean value of X variable as 50. What will be the mean value of Y variable in the given equation $Y = 200 - 2X$.
(a) 0 (b) 50
(c) 100 (d) 200

44. Calculation of arithmetic mean for an inclusive frequency distribution is the same as in case of exclusive frequency distribution. The given statement is
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

45. Which of the following are correct for a symmetrical distribution?
(a) Mean > Median > Mode
(b) Median > Mode > Mean
(c) Mean = Median = Mode
(d) Mode > Median > Mean

46. Which of the following is correct for an asymmetrical distribution (negatively skewed)?
(a) Mean > Median > Mode
(b) Median > Mode > Mean
(c) Mean = Median = Mode
(d) Mode > Median > Mean

47. Choose the incorrect statement.
(a) Mode cannot be calculated in open-ended distributions
(b) Median is affected by change in extreme values
(c) Median is not affected by fluctuations in sampling
(d) All of the above is incorrect

48. A frequency distribution with more than 2 modal values, is known as
(a) Bi-modal frequency distribution
(b) Tri-modal frequency distribution
(c) Multi-modal frequency distribution
(d) None of the above

49. A frequency distribution can have
(a) two means (b) two medians
(c) two modes (d) None of these

50. Which of the following is correct for an asymmetrical distribution (positively skewed)?
(a) Mean > Median > Mode
(b) Median > Mode > Mean
(c) Mean = Median = Mode
(d) Mode > Median > Mean

51. Which of the following values of quartiles is equal to median?
(a) Q1 (b) Q2
(c) Q3 (d) None of these

52. Which of the following measures of central tendency is suitable for qualitative measurement?
(a) Median (b) Mode
(c) Both (a) and (b) (d) Neither (a) nor (b)

53. Mode can be calculated only if the series is ..... .
(a) inclusive (b) exclusive
(c) Both (a) and (b) (d) Neither (a) nor (b)

54. What will be the median of the following series?
2, 5, 3, 4, 8, 10, 12
(a) 4 (b) 5
(c) 8 (d) 10

55. What will be the median of the following series?
2, 3, 4, 8, 7, 12, 10, 11
(a) 7 (b) 7.5
(c) 8 (d) 8.5

56. Refer to the data given in question no. 55, what will be the value of Q_1?
(a) 0.25 (b) 4.25
(c) 5.75 (d) 8.25

57. Refer to the data given in question no. 55, what will be the value of Q_3?
(a) 10 (b) 10.50
(c) 0.75 (d) 11

58. The mean of a given items 5, 6, 7, X, 11 and 13 is 44. Value of X will be
(a) 200 (b) 222
(c) 224 (d) 254

59. In order to calculate mean of 'n' natural numbers, the number of items will be equal to
(a) 100 (b) 1000
(c) n (d) Infinity

60. The lowest value of highest 25 percent items of the series is known as lower quartile. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

61. Choose the incorrect statement from the given below.
(a) For a symmetrical distribution, mean, median and mode are equal to each other.
(b) Mid-value series need to be converted in normal frequency distribution in order to calculate median.
(c) Inclusive series need to be converted into exclusive series in order to calculate arithmetic mean.
(d) Mode calculated from the empirical relation is different from value calculated by statistical calculation.

62. Write the correct pair.

Column I	Column II
A. Positional	(i) Mean
B. Affected by extreme values	(ii) Median
C. Located by grouping	(iii) Mode

Codes
(a) A-(i) (b) B-(ii)
(c) C-(iii) (d) None of these

63. By observation method, mode value will lie in which class interval from the given below?

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	20	15	25	28	18	12

(a) 10-20
(b) 20-30
(c) 30-40
(d) None of the above

64. Mode value calculated using the empirical formula differs from the actual value of series. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

65. The mode of the series 3, 4, 8, 7, 7, 8, 9 will be
(a) 8 (b) 7
(c) Both (a) and (b) (d) 9

66. Quartile group is decided in continuous series by using the following formula
(a) (N/4)th term (b) 3(N/4)th term
(c) [(N+1)/ 4]th term (d) Both (a) and (b)

67. Division of one column in ten equal parts is called ..... .
(a) Decile (b) Quartile
(c) Percentile (d) None of these

68. Which of these is correct formula?
(a) $Z = 3M + 2\bar{X}$ (b) $\bar{X} = \frac{3M - Z}{2}$
(c) $2\bar{X} = 3M + Z$ (d) $M = \frac{2\bar{X} - Z}{3}$

69. The highest value of the lowest 25 percent items of the series is upper quartile. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

70. 5 is the mode of the numbers 2, 4, 3, 5, 5, 3, 2. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

71. In an asymmetrical distribution, if mean is 20 and median is 25, what will be the value of mode?
(a) 22 (b) 25
(c) 30 (d) 35

72. Quartiles can be located graphically using
(a) less than ogive only
(b) more than ogive only
(c) Both less than ogive and more than ogive together
(d) Either less than ogive or more than ogive

73. Write the correct pair.

Column I	Column II
A. Mean	(i) It is based on all the values.
B. Median	(ii) It can be ascertained by inspection.
C. Mode	(iii) It is not affected by extreme values.

Codes
(a) A-(i) (b) B-(ii)
(c) C-(iii) (d) None of these

Assertion-Reasoning MCQs

Direction *(Q.Nos. 74 to 80) There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below*
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

74. **Assertion** (A) The sum of deviations taken from their mean is always zero.
Reason (R) For a symmetrical distribution, all the three measures of central tendency are equal to each other.

75. **Assertion** (A) Arithmetic mean is a positional average, which can be calculated using graphical presentation methods.
Reason (R) Histograms and cumulative graphs are used to locate positional averages.

76. **Assertion** (A) Arithmetic mean reduces the sampling fluctuations in both symmetric and asymmetric distribution.
Reason (R) Arithmetic mean is a representative of the whole set of observations.

77. **Assertion** (A) Sum of deviations taken from actual mean is always zero for a symmetrical distribution.

Reason (R) Sum of deviations from assumed mean is equal to zero when actual mean coincides with assumed mean.

78. **Assertion** (A) Median can be located from less than ogive by taking half of total number of items in the series.

Reason (R) Quartiles are one-fourth and three-fourth of total number of items given in a distribution.

79. **Assertion** (A) Median is not dependent on all the data values in a dataset.

Reason (R) The distance between the median and the rest of the values is less than the distance from any other point.

80. **Assertion** (A) Mode of a distribution is the value at the point around which the items tend to be most heavily concentrated.

Reason (R) Median can only be located graphically using 'more than' cumulative frequency distribution.

Case Based MCQs

Direction *Read the following case study and answer questions 81 to 85 on the basis of the same.*

Mr. Viaan's is head of human resources in ABC Limited. His job is to see if his company's employees are being paid relatively equally based on their responsibilities. He needs to review all employee records floor by floor.

The third-floor manager, supervisor, casual labourers to go first. Mr. Viaan surveyed the salaries of all the third-floor staff and finds the following monthly salaries as ₹ 5,000, ₹ 4,200, ₹ 3,000, ₹ 4,200, ₹ 8,000, ₹ 10,000 and ₹ 9,000.

81. Mean wage of ABC Limited will be equal to ..... .

(a) ₹ 5,000 (b) ₹ 6,200
(c) ₹ 6,500
(d) Can't be determined

82. What is the median of the given data?

(a) ₹ 3,000 (b) ₹ 4,200
(c) ₹ 5,000
(d) Can't be determined

83. What will be the value of mode?

(a) ₹ 3,000 (b) ₹ 4,200
(c) ₹ 5,000
(d) Can't be determined

84. If the monthly salary of each staff is increased by ₹ 500. New average will be

(a) ₹ 6,200 (b) ₹ 6,700
(c) ₹ 7,200
(d) Can't be determined

85. What will be the new median if each employee gets a boost of ₹ 500?

(a) ₹ 5,000
(b) ₹ 5,500
(c) ₹ 6,000
(d) Can't be determined

Direction *Read the following case study and answer questions 86 to 90 on the basis of the same.*

Measures of central tendency are an effective statistical tools, which are widely used for different purposes. Two statistical series are given below, observe them carefully and answer the questions that follow.

Series 1	2	8	6	4	10	15
Series 2	Marks	5-10	10-20	20-45	45-60	
	No. of Student	02	03	01	06	

86. What will be the median value of series 1?

(a) 6 (b) 8
(c) 10 (d) None of these

87. Which of the following formula should be used to calculate median in series 2?

(a) $\left(\frac{n+1}{2}\right)$ th term (b) $\left(\frac{N+1}{2}\right)$ th term

(c) $3\left(\frac{N+1}{4}\right)$ th term (d) None of these

88. Mode value of series 2 will be equal to ... .

(a) 12
(b) 16
(c) 28
(d) Can't be determined

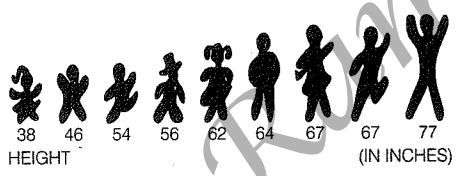
89. Which of the following methods should be used to calculate mode in series 1?

(a) Observation method
(b) Grouping table method
(c) Empirical relation between central tendencies
(d) Can't be determined

90. What will be the mode value in series 1?

(a) 6
(b) 8
(c) 10
(d) None of the above

Direction *Analyse the following case study graph and answer questions 91 to 95 on the basis of the same.*



91. What is the mean height of the above students?

(a) 54 (b) 59 (c) 62 (d) 67

92. Median of a given series divides the data into ..... parts.

(a) two (b) three
(c) four (d) None of these

93. What will be the median value of the above figure?

(a) 52 (b) 56
(c) 62 (d) 65

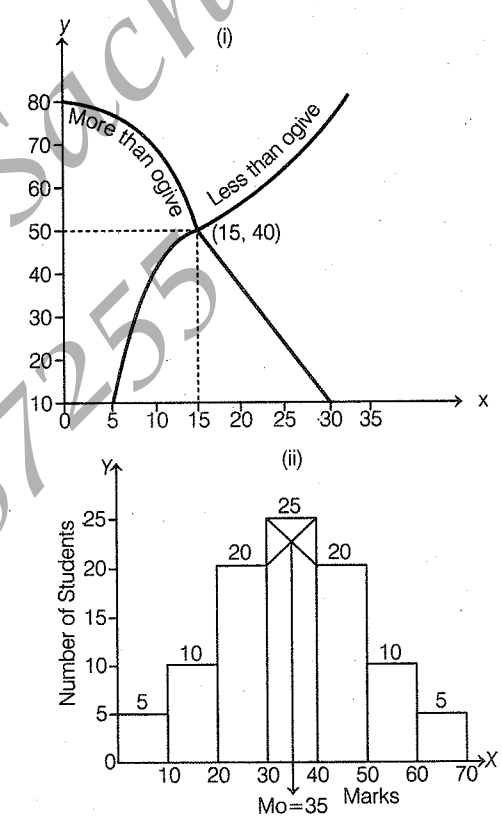
94. If we reverse the data in decreasing order, value of median will be

(a) 52
(b) 55
(c) 64
(d) None of the above

95. What will be the mode value in the above series?

(a) 54
(b) 59
(c) 67
(d) Can't be determined

Direction *Analyse the following case study graphs and answer questions 96 to 100 on the basis of the same.*



96. According to figure one, value of median is equal to ..... .

(a) 15
(b) 20
(c) 30
(d) 40

97. Median can be located graphically using which of the following?
(a) Less than ogive
(b) More than ogive
(c) Both less than ogive and more than ogive together
(d) All of the above

98. Which form of graphical presentation is used to locate mode?
(a) Histogram (b) Bar graphs
(c) Cumulative curves (d) Arithmetic line graphs

99. According to figure two, the approximate value of mode is equal to ..... .
(a) 25
(b) 35
(c) 45
(d) Can't be determined

100. What will be the mean value in case 1?
(a) 10
(b) 15
(c) 25
(d) None of the above

ANSWERS

Multiple Choice Questions

1. (d)	2. (d)	3. (a)	4. (b)	5. (a)	6. (b)	7. (a)	8. (c)	9. (c)	10. (c)
11. (d)	12. (d)	13. (a)	14. (a)	15. (b)	16. (b)	17. (d)	18. (a)	19. (b)	20. (c)
21. (c)	22. (b)	23. (b)	24. (c)	25. (b)	26. (d)	27. (b)	28. (a)	29. (c)	30. (b)
31. (a)	32. (b)	33. (c)	34. (a)	35. (c)	36. (d)	37. (a)	38. (c)	39. (c)	40. (a)
41. (c)	42. (d)	43. (c)	44. (a)	45. (c)	46. (d)	47. (d)	48. (c)	49. (c)	50. (a)
51. (b)	52. (a)	53. (b)	54. (b)	55. (b)	56. (a)	57. (c)	58. (b)	59. (c)	60. (b)
61. (c)	62. (c)	63. (c)	64. (a)	65. (c)	66. (d)	67. (a)	68. (b)	69. (b)	70. (b)
71. (d)	72. (d)	73. (a)							

Assertion-Reasoning MCQs

74. (b)	75. (c)	76. (a)	77. (b)	78. (b)	79. (b)	80. (b)

Case Based MCQs

81. (b)	82. (c)	83. (b)	84. (b)	85. (b)	86. (d)	87. (d)	88. (d)	89. (c)	90. (a)
91. (b)	92. (a)	93. (c)	94. (d)	95. (c)	96. (a)	97. (d)	98. (a)	99. (b)	100. (d)

OBJECTIVE QUESTIONS

Fill in the Blanks

1. Open-end class-intervals are those which do not have the _____ limit of the first class-interval and the _____ limit of the last class-interval.
2. Short-Cut method is also called _____.
3. The sum of deviations of the observations from their arithmetic mean is always _____.
4. Weighted mean is _____ to simple arithmetic mean when equal weights are used for all the items in the series or distribution.
5. The arithmetic mean of 1, 4, 5, 7 and 8 will be _____.
6. $\bar{X}_{1,2} = \frac{N_1\bar{X}_1 + N_2\bar{X}_2}{??}$.
7. The sum of the squares of the deviations of the items from their arithmetic mean is _____.

True or False

1. The sum of deviations from mean is least.
2. To calculate the arithmetic mean, cumulative frequency distribution has to be converted into a simple frequency distribution.
3. Weighted mean is less than simple arithmetic mean when larger weights are assigned to the larger items and smaller weights to the smaller items.
4. Mean cannot be determined graphically.
5. When mid-values are given, then mean is calculated in the usual manner without converting the mid-values into class-intervals.
6. The arithmetic mean of 4 numbers is 50. If 1 is added to every observation, the new mean would also increase by 1.
7. When unequal class-intervals are given, then mean can be determined only after converting unequal class-intervals into equal class-intervals.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Combined Mean	a. $(\bar{X}) = A + \frac{\Sigma fd'}{\Sigma f} \times C$
(ii) Step Deviation Method	b. $(\bar{X}) = \frac{\Sigma fm}{\Sigma f}$
(iii) Direct Method	c. $(\bar{X}) = A + \frac{\Sigma fd}{\Sigma f}$
(iv) Short-Cut Method	d. $\bar{X}_{1,2} = \frac{N_1\bar{X}_1 + N_2\bar{X}_2}{N_1 + N_2}$

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Weighted Mean > Simple Arithmetic Mean	a. When smaller weights are assigned to larger figures and larger weights to the smaller items
(ii) Short-Cut Method	b. $(\bar{X}) = \frac{\Sigma X}{N}$
(iii) Direct Method	c. When larger weights are assigned to the larger items and smaller weights to the smaller items
(iv) Weighted Mean < Simple Arithmetic Mean	d. Assumed Mean Method

Multiple Choice Questions (MCQs)

1. Mean of 0.3, 5, 6, 7, 9, 12, 0.6 is:
(a) 4.9 (b) 5.7 (c) 5.6 (d) None of these

2. Simple average is sometimes called:
(a) Unweighted average (b) Weighted average (c) Relative average (d) None of these

3. _____ is used when the sum of deviations from the average should be least.
(a) Mean (b) Mode (c) Median (d) None of these

4. Mean should be:
(a) Simple (b) Based upon all items (c) Rigidly defined (d) All the above

5. The algebraic sum of deviations of 8, 1, 6 from the A.M. viz., 5 is:
(a) –1 (b) 0 (c) 1 (d) None of these

6. Average value of given variables is known as:
(a) Median (b) Mean (c) Mode (d) Index Number

7. Measures of central tendency are known as:
(a) Difference (b) Averages (c) Both (d) None of these

8. The A.M. of 1, 3, 5, 6, x, 10 is 6. The value of x is:
(a) 10 (b) 11 (c) 12 (d) None of these

9. The values of all items are taken into consideration in the calculation of:
(a) Median (b) Mode (c) Mean (d) None of these

10. Sum of the deviations about mean is:
(a) Zero (b) Minimum (c) Maximum (d) One

11. Measures of central tendency for a given set of observations measure:
(a) The scatterness of the observations (b) The central location of the observations
(c) Both (a) and (b) (d) None of these

12. If there are two groups containing 30 and 20 observations and having 50 and 60 as arithmetic means, then the combined arithmetic mean is:
(a) 51 (b) 54 (c) 53 (d) 52

13. Which is the correct formula to determine Arithmetic Mean in case of individual series?
(a) $\bar{X} = A + \frac{\Sigma d'}{N} \times C$ (b) $\bar{X} = \frac{\Sigma X}{N}$ (c) $\bar{X} = A + \frac{\Sigma d}{N}$ (d) All of the above

14. The mean of 12 numbers is 24. If 5 is added in every number, the new mean is:
(a) 25 (b) 84 (c) 29 (d) None of these

15. Sum of squares of the deviations about mean is:
(a) Maximum (b) Minimum (c) Zero (d) None of these

16. _____ average is obtained by dividing the total of set of observations by their number.
(a) Weighted (b) Simple (c) Both (a) and (b) (d) Neither (a) nor (b)

17. The mean of a set of observations is $\bar{X}$. If each observation is divided by β and then each observation is increased by 10, then the mean of the new set will be:
(a) $\frac{\bar{X}}{\beta}$ (b) $\frac{\bar{X} + 10}{\beta}$ (c) $\frac{\bar{X}}{\beta} + 10$ (d) $\beta\bar{X} + 10$

18. The most appropriate measure of central tendency in case of data of varying importance:
(a) Combined Mean (b) Weighted Mean (c) Assumed Mean (d) All of the above

19. Formula for calculating Combined Arithmetic Mean is:
(a) $\bar{X}_{1,2} = \frac{\bar{X}_1 N_1 + \bar{X}_2 N_2}{N_1 + N_2}$ (b) $\bar{X}_{1,2,3} = \frac{\bar{X}_1 N_1 + \bar{X}_2 N_2 + \bar{X}_3 N_3}{N_1 + N_2 + N_3}$
(c) Both (a) and (b) (d) Neither (a) nor (b)

20. Which of the following statements is wrong?
(a) Mean is not affected due to sampling fluctuations (b) Mean is rigidly defined
(c) Mean has some mathematical properties (d) All of these

21. The number of observations in a group is 50. If the average of first 20 is 5 and that of the remaining 30 is 4, then the average of the whole group is:
(a) 4.1 (b) 4 (c) 4.2 (d) 4.4

22. When equal weights are given to all the observation of data then:
(a) $\bar{X}_w > \bar{X}$ (b) $\bar{X}_w = \bar{X}$ (c) $\bar{X}_w < \bar{X}$ (d) None of these

23. Which of the following is a measure of central tendency?
(a) Mean (b) Median (c) Mode (d) All of these

24. Formula to determine Arithmetic Mean through short-cut method in case of individual series is:
(a) $\bar{X} = A + \frac{\Sigma d}{N}$ (b) $\bar{X} = \frac{\Sigma fX}{\Sigma f}$ (c) $\bar{X} = A + \frac{\Sigma X}{N}$ (d) $\bar{X} = \frac{\Sigma X}{N}$

25. The mean weight of a group of 20 items is 25 and that of another group of n items is 34. The mean of combined group of 20 + n items is found to be 32. The value of n is:
(a) 60 (b) 10 (c) 70 (d) 50

26. Which of the following is a method to find Arithmetic Mean?
(a) Short-cut Method (b) Direct Method
(c) Step Deviation Method (d) All of the above

27. Mathematical property of arithmetic mean is:
(a) $\Sigma(X - \bar{X}) < 0$ (b) $\Sigma(X - \bar{X}) > 0$ (c) $\Sigma(X - \bar{X}) = 0$ (d) None of these

28. Weighted Mean is less than simple arithmetic mean when:
(a) Equal weights are used for all the items in the series or distribution
(b) Larger weights are assigned to the larger items and smaller weights to the smaller items
(c) Smaller weights are assigned to larger figures and larger weights to the smaller items
(d) None of these

29. While computing mean from a grouped frequency distribution, it is assumed that:
(a) The classes are of equal length
(b) All the values of a class are equal to the mid-value of that class
(c) The classes have equal frequency
(d) None of these

30. The algebraic sum of deviations of observations from their arithmetic mean is:
(a) 2 (b) –1 (c) 1 (d) 0

31. Arithmetic Mean in case of individual series can be calculated by the following formula:
(a) $\bar{X} = \Sigma X - N$ (b) $\bar{X} = \frac{N}{\Sigma X}$ (c) $\bar{X} = \Sigma X$ (d) $\bar{X} = \frac{\Sigma X}{N}$

32. The mean of a set of numbers is $\bar{X}$. If each number is increased by λ, then mean of the new set is:
(a) $\bar{X}$ (b) $\lambda\bar{X}$ (c) $\bar{X} + \lambda$ (d) None of these

33. Which of the following statement is correct?
(a) Sum of deviations of the observations from their arithmetic mean is always zero
(b) Sum of squares of the deviations of the items from their arithmetic mean is minimum
(c) Weighted mean is less than simple arithmetic mean when larger weights are assigned to the larger items and smaller weights to the smaller items
(d) Both (a) and (b)

34. Mean of 20 items was found to be 12. On verification, it was found that an item 15 was miscopied as 10. The correct mean is:
(a) 12.10 (b) 12.25 (c) 12.20 (d) None of these

35. Weighted mean is computed by the formula:
(a) $\frac{\Sigma WX}{\Sigma W}$ (b) $\frac{\Sigma WX}{\Sigma X}$ (c) $\frac{\Sigma W}{\Sigma X}$ (d) None of these

36. The mean of 40 observations is 32. If two observations 22 and 42 are deleted, then the mean of the remaining observations is:
(a) 34 (b) 36 (c) 32 (d) None of these

37. The mean of a set of numbers is $\overline{X}$. If each number is multiplied by λ, then the mean of the new set will be:
(a) $\overline{X}$ (b) $\lambda\overline{X}$ (c) $\overline{X} + \lambda$ (d) None of these

38. Mean of 80 items is 45. It was discovered that three items which should have been 50, 70, 80 were wrongly read as 30, 40, 50 respectively. The correct mean is:
(a) 46 (b) 43 (c) 44 (d) 49

39. In a group of students, mean weight of boys is 80 kg and mean weight of girls is 50 kg. If the mean weight of all the students taken together is 60 kg, then the ratio of the number of boys to that of girls is:
(a) 2:1 (b) 1:2 (c) 2:3 (d) None of these

40. The average weight of students in a class of 40 students is 50 kg. If the weight of the teacher be included, the average rises by ½ kg, the weight of the teacher is:
(a) 50.5 kg (b) 70.5 kg (c) 41 kg (d) 70 kg

41. If the mean of n observations $x_1, x_2, x_3, \ldots\ldots, x_n$ is $\overline{X}$, then the mean of the data $x_1 - 3, x_2 - 3, x_3 - 3 \ldots\ldots, x_n - 3$ will be:
(a) $\overline{X} - 3$ (b) $\overline{X} + 3$ (c) $3\overline{X}$ (d) None of these

42. The mean of 5 numbers is 27. If one is excluded, their mean is 25. The excluded number is:
(a) 35 (b) 45 (c) 25 (d) None of these

43. A student obtained 70, 75 and 85 marks respectively in three monthly examination and 90 marks in the final examination. The three monthly examinations are of equal weightage whereas the final examination is weighted twice as much as a monthly examination. His mean marks for Maths is:
(a) 80 (b) 84 (c) 82 (d) None of these

44. In a family of 5 persons, there are three earning members having monthly incomes of ₹ 20,000, ₹ 25,000 and ₹ 30,000. The average monthly income of a member in the family is:
(a) ₹ 25,000 (b) ₹ 15,000 (c) ₹ 20,000 (d) ₹ 30,000

45. The mean of seven observations is 8. A new observation 16 is added. The mean of eight observation is:
(a) 18 (b) 24 (c) 22 (d) 9

46. If the sum of N observations is 1,260 and their mean is 36, then the value of N is:
(a) 35 (b) 40 (c) 30 (d) 25

47. In an office, there are 70% clerks, 20% assistants and 10% executives. On average, the salary of a clerk is ₹ 12,000 p.m., of the assistant ₹ 14,000 p.m. and that of an executive ₹ 20,000 p.m. The average salary of a employee in the office is:
(a) ₹ 14,000 p.m. (b) ₹ 15,500 p.m. (c) ₹ 13,200 p.m. (d) None of these

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Inclusive class-intervals are converted into an exclusive class-interval series before calculating Arithmetic Mean.
Reason (R): Mid-value remains the same in case of both Inclusive as well as Exclusive Class-Interval Series.

Alternatives:

(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): The sum of deviations of the observations from their arithmetic mean is always zero.
Reason (R): The sum of positive deviations from mean is equal to sum of negative deviations.
Alternatives:

(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Arithmetic mean cannot be computed for a qualitative data.
Reason (R): Arithmetic mean gives more importance to higher items of a series.
Alternatives:

(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Arithmetic Mean is widely used in computation of other statistical measures such as mean deviation and standard deviation.
Reason (R): Arithmetic mean is capable of further algebraic treatment.
Alternatives:

(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

5. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): The sum of squares of the deviations of the items from their Arithmetic Mean is minimum.
Reason (R): Of all the averages, arithmetic mean is least affected by fluctuations of sampling.
Alternatives:

(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Average needs to be calculated by considering each and every item of the series.
Statement 2: Average should be capable of further algebraic treatment.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: While calculating arithmetic mean, short-cut method is used when there are very less number of observations.
Statement 2: Short-Cut Method is also called Assumed Mean Method.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Under Step Deviation Method, deviations from assumed mean are multiplied by a common factor to get step deviations.
Statement 2: Short-Cut Method of measuring arithmetic mean can be used only when deviations from assumed mean are divisible by a common factor.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: In case of inclusive class-interval series, mean can be calculated only after converting the series into exclusive series.
Statement 2: When class-intervals are not equal, then there is no need to make class-intervals equal while calculating mean.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

5. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: The sum of deviations of the observations from their arithmetic mean is always zero.
Statement 2: The sum of squares of the deviations of the items from their arithmetic mean is also zero.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

6. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Arithmetic average is not affected by extreme values.
Statement 2: Arithmetic mean can be easily calculated in case of open-end classes without making any assumptions.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

7. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Simple Arithmetic Mean is less than weighted mean when larger weights are assigned to the larger items and smaller weights to the smaller items
Statement 2: While calculating weighted mean, more important items are assigned more weight.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Lower, Upper
2. Assumed Mean Method
3. Zero
4. Equal
5. 5
6. $N_1 + N_2$
7. Minimum

True or False

1. False
2. True
3. False
4. True
5. True
6. True
7. False

Matching Type Questions

1. (i) d; (ii) a; (iii) b; (iv) c.
2. (i) c; (ii) d; (iii) b; (iv) a.

Multiple Choice Questions (MCQs)

1. (b)	**8.** (b)	**15.** (b)	**22.** (b)	**29.** (b)	**36.** (c)	**43.** (c)
2. (a)	**9.** (c)	**16.** (b)	**23.** (d)	**30.** (d)	**37.** (b)	**44.** (b)
3. (a)	**10.** (a)	**17.** (c)	**24.** (a)	**31.** (d)	**38.** (a)	**45.** (d)
4. (d)	**11.** (b)	**18.** (b)	**25.** (c)	**32.** (c)	**39.** (b)	**46.** (a)
5. (b)	**12.** (b)	**19.** (c)	**26.** (d)	**33.** (d)	**40.** (b)	**47.** (c)
6. (b)	**13.** (d)	**20.** (a)	**27.** (c)	**34.** (b)	**41.** (b)	
7. (b)	**14.** (c)	**21.** (d)	**28.** (c)	**35.** (a)	**42.** (a)	

Assertion Reason Questions (ARQs)

1. (d)	**2.** (a)	**3.** (b)	**4.** (a)	**5.** (b)

Statement Based Questions

1. (a)	**2.** (d)	**3.** (b)	**4.** (d)	**5.** (c)	**6.** (b)	**7.** (a)

OBJECTIVE QUESTIONS

Fill in the Blanks

1. _____ is preferable to mean and median when it is desired to know the most typical value.
2. According to Karl Pearson, the relationship between mean, median and mode in an asymmetrical distribution is given by Mode = _____.
3. The sum of deviations of items from median, ignoring signs, is the _____.
4. _____ can be easily located graphically with help of Ogives.
5. The value of the variable which occurs most frequently in a distribution is known as _____.
6. _____ is known to be the best average in open-end class-interval series.
7. Median of a series: 10, 14, 19, 25, 36, is _____.

True or False

1. In a positively skewed distribution, the value of mode is greater than mean.
2. The distribution with two modes is known as multi-modal.
3. Q_1 is known as lower quartile of the series.
4. There can be more than one mode in a series.
5. Median is a value having maximum frequency.
6. For a symmetrical distribution, Mean = Median = Mode.
7. The sum of deviation of items from median is zero.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Mode	a. Middle value in the arranged data
(ii) Median	b. It helps to graphically locate mode
(iii) Histogram	c. It helps to graphically locate the median
(iv) Ogives	d. Value occurring most frequently in a set of observations

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Lower Quartile	a. $l_1 + \frac{\frac{N}{2} - c.f.}{f} \times i$
(ii) Median	b. $l_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times i$
(iii) Mode	c. $l_1 + \frac{\frac{3N}{4} - c.f.}{f} \times i$
(iv) Upper Quartile	d. $l_1 + \frac{\frac{N}{4} - c.f.}{f} \times i$

Multiple Choice Questions (MCQs)

1. In a distribution, the value around which the items tend to be most heavily concentrated is called:
(a) Median (b) Mean (c) Third quartile (d) Mode

2. The sum of absolute deviations is minimum when taken from.
(a) Arithmetic Mean (b) Median (c) Mode (d) None of these

3. The values of extreme items do not influence the average in case of:
(a) Median (b) Mean (c) Mode (d) None of these

4. Median:
(a) Can be determined graphically (b) Affected by extreme items
(c) Cannot be determined (d) Involves complex calculations

5. Which of the following is not a measure of central tendency?
(a) Mean (b) Median (c) Mode (d) Range

6. The second quartile is known as:
(a) Median (b) lower quartile (c) Upper quartile (d) None of these

7. The number of observations smaller than, is the same as the number larger than it.
(a) Median (b) Mode (c) Mean (d) None of these

8. Graphic location of mode is done with reference to:
   (a) Cumulative frequency curve (b) Frequency Polygon
   (c) Frequency Curve (d) Histogram

9. The most widely average used is:
   (a) Arithmetic Mean (b) Median (c) Mode (d) Geometric Mean

10. For an open–end classification, which of the following is the best measure of central tendency:
   (a) Arithmetic Mean (b) Geometric Mean (c) Median (d) Mode

11. What do you call the partition value which divides the series into two equal parts?
   (a) Upper Quartile (b) Median (c) Mode (d) Lower Quartile

12. The middle most value of a set of observations is:
   (a) Median (b) Mode (c) Mean (d) None of these

13. Mode of a series is.
   (a) An average value (b) A middle value
   (c) Highest frequency value (d) None of above.

14. If mean of a series is 32 and median is 40, what would be the value of mode?
   (a) 54 (b) 58 (c) 56 (d) 38

15. Most frequent occurring value in a series is called:
   (a) Mode (b) Median (c) Mean (d) Quartiles

16. Median can be calculated from _____ series:
   (a) Individual (b) Discrete (c) Continuous (d) All the above

17. A distribution with more than two modes is called:
   (a) Bi–modal (b) Multi–modal (c) Uni–modal (d) None of these

18. In a frequency distribution of a large number of values, the mode is:
   (a) Smallest value (b) Largest observation
   (c) Observation with maximum frequency (d) Maximum frequency of an observation

19. To find the median, it is necessary to arrange the data in:
   (a) Descending order (b) Ascending order
   (c) Ascending or descending order (d) Any Random Order

20. For the observations 5, 3, 6, 3, 5, 10, 7, 2, there are _____ modes.
   (a) 2 (b) 3 (c) 4 (d) 5

21. A grouping table has:
   (a) 4 columns (b) 6 columns (b) 8 columns (d) None of these

22. The value of a variate that occurs most often is called:
   (a) Median (b) Mean (c) Mode (d) None of these

23. In case of an even number of observations, which of the following is median?
   (a) Any of the two middle–most value (b) The simple average of these two middle values
   (c) The weighted average of those two middle values (d) Any of these

24. 50% of actual values will be below and 50% of will be above:
   (a) Mode (b) Median (c) Mean (d) None of these

25. Mode of 0, 3, 5, 7, 9, 12, 3 is:
   (a) 6 (b) 0 (c) 3 (d) 5

26. A frequency distribution having two modes is said to be:
(a) Unimodal (b) Bimodal (c) Trimodal (d) without mode

27. Histogram is useful to determine graphically the value of:
(a) Mean (b) Median (c) Mode (d) All the above

28. Half of the number in an ordered set has values less than:
(a) Mean (b) Median (c) Mode (d) None of these

29. If mode is ill defined then it is calculated with the help of formula:
(a) Mode = 2 Median – 3 mean (b) Mode = 2 Median + 3 mean
(c) Mode = 3 Median + 3 mean (d) Mode = 3 Median – 2 mean

30. c.f. is used for:
(a) Common factor (b) Cumulative frequency (c) Common value (d) None of above

31. When the distribution is symmetrical, mean, median and mode:
(a) Coincide (b) Do not coincide (c) Either (a) or (b) (d) None of these

32. Median of 2, 5, 8, 4, 9, 6. 7, is:
(a) 9 (b) 8 (c) 8 (d) 6

33. In case of continuous frequency distribution, the size of _____ indicates class-interval in which the median lies.
(a) $\left[\frac{N+1}{2}\right]^{th}$ item (b) $\left[\frac{N}{2}\right]^{th}$ item
(c) $\left[\frac{N-1}{2}\right]^{th}$ item (d) None of these

34. Which one of the following average can be computed with the help of ogives?
(a) Simple Mean (b) Weighted Mean (c) Mode (d) Median

35. In case of an even number of observations, which of the following is median?
(a) Weighted average of the two middle values (b) Simple average of the two middle values
(c) Any of the two middle-most values (d) None of these

36. To calculate _____, it is essential to make class-intervals equal and frequencies have to be adjusted.
(a) Mean (b) Mode (c) Median (d) None of these

37. _____ is called a positional measure.
(a) Median (b) Mode (c) Mean (d) None of these

38. For ordering shoes of various sizes for resale, a _____ size will be more appropriate.
(a) Modal (b) Mean (c) Median (d) None of these

39. Quartiles divide a series into _____ parts:
(a) 2 (b) 3 (c) 4 (d) 5

40. Which average is most suitable in case of calculating average intelligence of different employees in an office?
(a) Mode (b) Mean (c) Median (d) Median and Mode

41. The following value can be located through graph:
(a) Mode (b) Median (c) Both (a) and (b) (d) None of these

42. The most common value in a series is:
(a) Mode (b) Mean (c) Median (d) All of these

43. Which of the following formula is used to find out median?
(a) $Me = l_1 + \frac{\frac{N}{2} - f}{c.f.} \times i$ (b) $Me = l_2 + \frac{\frac{N}{2} - c.f.}{f} \times i$
(c) $Me = l_1 + \frac{N - c.f.}{f} \times i$ (d) $Me = l_1 + \frac{\frac{N}{2} - c.f.}{f} \times i$

44. In case of discrete and continuous series, mode can be calculated by:
(a) Inspection Method (b) Grouping Method (c) Both (a) and (b) (d) None of these

45. Which Quartile is called Median?
(a) Q_1 (b) Q_2 (c) Q_3 (d) None of these

46. In a symmetrical distribution:
(a) Mean = Median = Mode (b) Mean > Median > Mode
(c) Mean < Median < Mode (d) None of these

47. Median and Quartiles can be calculated in case of continuous series only after arranging the data in:
(a) Ascending Order (b) Descending Order (c) Either (a) or (b) (d) None of the above

48. To calculate _____, data must be arranged in the form of a frequency distribution.
(a) Median (b) Mean (c) Mode (d) None of these

49. Lower quartile is.
(a) First Quartile (b) Second Quartile
(c) Upper Quartile (d) None of these

50. In an arranged series of *N* observations (*N* being an odd number), the median is the value of:
(a) $\left[N + \frac{1}{2}\right]^{th}$ item (b) $\left[\frac{N}{2} + 1\right]^{th}$ item
(c) $\left[\frac{N+1}{2}\right]^{th}$ item (d) None of these

51. For a symmetrical distribution, mean is equal to 40. Its mode and median are respectively:
(a) 40, 36 (b) 36, 40 (c) 36, 36 (d) 40, 40

52. For a negatively skewed distribution:
(a) Mean = Mode = Median (b) Mean > Median > Mode
(c) Mean < Median < Mode (d) None of these

53. The percentage of values in a set of values which are less than or more than the median value is:
(a) 90% (b) 75% (c) 50% (d) 25%

54. The value of the variable corresponding to the highest point of a frequency distribution curve represents:
(a) Median (b) Mean (c) Mode (d) None of these

55. The point of intersection of two cumulative frequency curves provides:
(a) Mode (b) Median (c) Mean (d) None of these

56. The most suitable average for qualitative measurement is:
(a) Arithmetic Mean (b) Median (c) Mode (d) None of these

57. Which of the following is not affected by presence of extreme values in a series?
(a) Mode (b) Median (c) Both (a) and (b) (d) None of these

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Median is known to be the best average in open-end class-interval series.
Reason (R): While calculating median, missing limits need to be assumed depending on the pattern of class-intervals.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Mode of a frequency distribution can be located graphically with the help of histogram.
Reason (R): Mode is preferable to mean and median when it is desired to know the most typical value.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Median is a positional average which divides the distribution into two equal parts.
Reason (R): Positional Averages like median are affected by extreme items of the series.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Median is easy to calculate and simple to understand.
Reason (R): The value of median can also be determined graphically with the help of ogive curves.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

5. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): In case of symmetrical distribution, the values of mean, median and mode are equal.
Reason (R): The frequency curve is not bell shaped in case of symmetrical distribution.

Alternatives:

(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Median is equal to middle item of distribution in case of even number of items.
Statement 2: To calculate median in an individual series, the data needs to be first arranged in ascending or descending order.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: In case of inclusive class-interval series, median can be calculated without converting the series into exclusive series.
Statement 2: When mid–values are given, then there is no need to convert mid-values into class-intervals while calculating median.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Median is known to be the best average in open-end class-interval series.
Statement 2: In case of an open-end series, there is no need to find missing limits and median is calculated in usual manner.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Median can be easily located graphically with help of Ogives.
Statement 2: Median is not influenced by the extreme values.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

5. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Mode is preferable to mean and median when it is desired to know the most typical value.
Statement 2: In a frequency distribution, mode is determined by the value corresponding to minimum frequency.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

6. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: In case of symmetrical distribution, the values of mean, median and mode are equal.
Statement 2: According to Karl Pearson, the relationship between mean, median and mode in an asymmetrical distribution is given by: Mode = 3Mean – 3Median.
Alternatives:
(a) Both the statements are true.
(b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false.
(d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Mode
2. 3 Median – 2 Mean
3. Minimum
4. Median
5. Mode
6. Median
7. 19

True or False

1. False
2. False
3. True
4. True
5. False
6. True
7. False

Matching Type Questions

1. (i) d; (ii) a; (iii) b; (iv) c.
2. (i) d; (ii) a; (iii) b; (iv) c.

Multiple Choice Questions (MCQs)

1. (d)	10. (c)	19. (d)	28. (b)	37. (a)	46. (a)	55. (b)
2. (b)	11. (b)	20. (a)	29. (d)	38. (a)	47. (a)	56. (b)
3. (a)	12. (a)	21. (b)	30. (b)	39. (c)	48. (c)	57. (c)
4. (a)	13. (c)	22. (c)	31. (a)	40. (c)	49. (a)	
5. (d)	14. (c)	23. (b)	32. (d)	41. (c)	50. (c)	
6. (a)	15. (a)	24. (b)	33. (b)	42. (a)	51. (d)	
7. (a)	16. (d)	25. (c)	34. (d)	43. (d)	52. (c)	
8. (d)	17. (b)	26. (b)	35. (b)	44. (c)	53. (c)	
9. (a)	18. (c)	27. (c)	36. (b)	45. (b)	54. (a)	

Assertion Reason Questions (ARQs)

1. (c)	2. (b)	3. (c)	4. (b)	5. (c)

Statement Based Questions

1. (d)	2. (b)	3. (a)	4. (a)	5. (c)	6. (c)

6.
MEASURES OF CORRELATION

OBJECTIVE QUESTIONS

Fill in the Blanks

1. _____ is said to exist if the amount of change in one variable tends to bear a constant ratio to the amount of change in the other variable.
2. Under _____, the relationship between two variables is examined keeping other variables as constant.

3. _____ is a diagrammatic representation of a bivariate distribution to determine the nature of correlation between the variables.
4. The Karl Pearson's coefficient of correlation is also known as _____ or _____.
5. Correlation coefficient ranges between _____ and _____.
6. If two variables X and Y are independent, coefficient of correlation between them will be _____.
7. If all the points of scatter diagram fall on a straight line with positive slope, then the correlation is said to be _____.
8. When both the variables change in the same direction, then correlation is called _____.
9. Maximum positive value of coefficient of correlation is _____.

True or False

1. Correlation coefficient is always positive.
2. The coefficient of correlation can be calculated only if both the variables are in the same unit.
3. If r = 0, it means there is absence of correlation.
4. The correlation between age of applicants for life insurance and premium of insurance is positive.
5. Correlation coefficient is independent of change in origin and scale.
6. When X falls, Y also falls. There is perfect correlation between the two. The correlation coefficient between the two is –1.
7. Rank correlation can be computed only for quantitative data.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Actual Mean Method	a. $r = \frac{N\Sigma dxdy - \Sigma dx \times \Sigma dy}{\sqrt{N\Sigma dx^2 - (\Sigma dx)^2} \times \sqrt{N\Sigma dy^2 - (\Sigma dy)^2}}$
(ii) Short – Cut Method	b. $r = \frac{N\Sigma XY - \Sigma X.\Sigma Y}{\sqrt{N\Sigma X^2 - (\Sigma X)^2} \times \sqrt{N\Sigma Y^2 - (\Sigma Y)^2}}$
(iii) Step Deviation Method	c. $r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$
(iv) Direct Method	d. $r = \frac{N\Sigma dx'dy' - \Sigma dx' \times \Sigma dy'}{\sqrt{N\Sigma dx'^2 - (\Sigma dx')^2} \times \sqrt{N\Sigma dy'^2 - (\Sigma dy')^2}}$

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Linear Correlation	a. When relationship between two variables is examined keeping other variables as constant
(ii) Zero Correlation	b. When relationship among three or more than three variables is studied

(iii) Rank Correlation	c. When change in one variable tends to bear a constant ratio to the amount of change in other variable
(iv) Multiple Correlation	d. When there is no relationship between the two variables
(v) Partial Correlation	e. Charles Edward Spearman

Multiple Choice Questions (MCQs)

1. A scatter diagram:
(a) Is a statistical test (b) Must be linear
(c) Must be curvilinear (d) Is a graph of x and y values

2. Maximum value of rank correlation coefficient is:
(a) 0 (b) +1 (c) –1 (d) None of these

3. If the relationship between x and y is positive, as variable y decreases, variable x:
(a) Increases (b) Decreases (c) Remains same (d) Changes linearly

4. The correlation coefficient will be – 1 if the slope of the straight line in a scatter diagram is:
(a) Positive (b) Negative (c) Zero (d) None of these

5. In a 'negative' relationship:
(a) As x increases, y increases (b) As x decreases, y decreases
(c) As x increases, y decreases (d) Both (a) and (b)

6. If there is a perfect disagreement between the marks in Geography and Statistics, then what would be the value of rank correlation coefficient?
(a) 1 (b) Any value (c) –1 (d) (b) or (c)

7. The correlation between ages of husbands and wives is:
(a) Positive (b) Negative (c) Zero (d) None of these

8. Scatter diagram helps us to:
(a) Find the nature of correlation between two variables
(b) Obtain the mathematical relationship between two variables
(c) Compute the extent of correlation between two variables
(d) Both (a) and (c)

9. The lowest strength of association is reflected by which of the following correlation coefficients?
(a) 0.95 (b) – 0.60 (c) – 0.35 (d) 0.29

10. Karl Pearson's coefficient is defined from:
(a) Ungrouped data (b) Grouped data (c) Both (a) and (b) (d) None of these

11. When r = 1, all the points in a scatter diagram would lie:
(a) On a straight line directed from lower left to upper right
(b) On a straight line
(c) On a straight line directed from upper left to lower right
(d) Both (a) and (b)

12. Tick the incorrect statement.
(a) Correlation Coefficient lies between 0 and – 1.
(b) Karl Pearson's method calculates deviations from actual or assumed mean
(c) Spearman's method of rank correlation measures coefficient of correlation for quantitative data
(d) Both (a) and (c)

13. There is a high degree of negative correlation between 'overweight' and 'life expectancy'. A correlation coefficient consistent with the above statement is:
(a) r = 0.80 (b) r = 0.20 (c) r = – 0.20 (d) r = – 0.80

14. Correlation coefficient is _____ of the units of measurement.
(a) Independent (b) Dependent (c) Both (a) and (b) (d) None of these

15. The correlation between sale of cold drinks and day temperature is:
(a) Positive (b) Negative (c) Zero (d) None of these

16. There is a high direct association between measures of 'cigarette smoking' and 'lung damage'. The correlation coefficient consistent with the above statement is:
(a) 0.30 (b) 0.80 (c) – 0.80 (d) – 0.30

17. Simple correlation is called:
(a) Linear correlation (b) Nonlinear correlation (c) Both (a) and (b) (d) None of these

18. For finding the degree of agreement about beauty between two judges in a beauty contest, we use:
(a) Coefficient of correlation (b) Coefficient of rank correlation
(c) Scatter diagram (d) Coefficient of concurrent deviation

19. If all the plotted points in a scatter diagram lie on a single line, then the correlation is:
(a) Perfect positive (b) Perfect negative (c) Both (a) and (b) (d) Either (a) or (b)

20. If r is the correlation coefficients between the two variables, then:
(a) $-1 \le r \le 0$ (b) $1 \le r \le 2$ (c) $-1 \le r \le 1$ (d) $0 \le r \le 1$

21. The correlation between sale of woollen garments and day temperature is:
(a) Positive (b) Negative (c) Zero (d) None of these

22. The correlation between shoe size and intelligence is:
(a) Zero (b) Negative (c) Positive (d) None of these

23. Which of the following statements is correct?
(a) Relationship between height and weight is an example of negative correlation
(b) Coefficient of correlation is independent of change of scale
(c) Coefficient of correlation is independent of change of origin
(d) Both (b) and (c)

24. The highest strength of association is reflected by which of the following correlation coefficients?
(a) – 1.0 (b) – 0.95 (c) 0.1 (d) 0.85

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Karl Pearson's Coefficient of Correlation ranges between +1 and –1.
Reason (R): Karl Pearson's Coefficient of Correlation is based on most important statistical measures like mean and standard deviation.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): The correlation between height and weight of a person is positive.
Reason (R): Positive correlation means the movement of two variables in the same direction.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Relationship of rice output with fertilizers and rainfall is studied under Simple Correlation.
Reason (R): In case of simple correlation, only two variables are studied.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Any constant added or subtracted to all the observations does not affect the value of correlation coefficient.
Reason (R): The coefficient of correlation is independent of the change of origin.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

5. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Karl Pearson's method of calculating coefficient of correlation is based on covariance of the concerned variables.
Reason (R): The coefficient of correlation between two variables X and Y will be zero if they are independent.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

6. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Actual Mean Method of Karl Pearson's Coefficient of Correlation is very lengthy.
Reason (R): In case of Actual Mean Method, actual means of both the series are to be calculated and then deviations are taken.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Correlation analysis does not tell anything about cause and effect relationship between the variables.
Statement 2: In non-linear correlation, the amount of change in one variable does not bear a constant ratio to the amount of change in the other related variable.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: The value of correlation coefficient (r) normally lies in between +1 and 0.
Statement 2: The measure of rank correlation was developed by Karl Pearson.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Scatter Diagram is a non-mathematical method of studying correlation between two variables.
Statement 2: The method of Scatter Diagram provides the exact numerical value of correlation.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: If two variables X and Y are independent, then coefficient of correlation between them will be +1.
Statement 2: Coefficient of correlation is independent of change of scale and origin.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

5. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Rank correlation gives more importance to extreme values, while Karl Pearson's method of correlation gives less importance to extreme values.
Statement 2: Karl Pearson's method of correlation measures correlation for quantitative data, while Spearman's Rank Correlation measures coefficient of correlation for qualitative data.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Linear Correlation
2. Partial Correlation
3. Scatter Diagram
4. Product Moment Correlation, Simple Correlation Coefficient
5. +1, –1
6. Zero
7. Perfectly Positive
8. Positive
9. +1

True or False

1. False
2. False
3. True
4. True
5. True
6. False
7. False

Matching Type Questions

1. (i) c; (ii) a; (iii) d; (iv) b.
2. (i) c; (ii) d; (iii) e; (iv) b; (v) a.

Multiple Choice Questions (MCQs)

1. (d)	**5.** (c)	**9.** (d)	**13.** (d)	**17.** (a)	**21.** (b)
2. (b)	**6.** (c)	**10.** (a)	**14.** (a)	**18.** (b)	**22.** (a)
3. (b)	**7.** (a)	**11.** (a)	**15.** (a)	**19.** (d)	**23.** (d)
4. (b)	**8.** (a)	**12.** (d)	**16.** (b)	**20.** (c)	**24.** (a)

Assertion Reason Questions (ARQs)

1. (b)	**2.** (a)	**3.** (d)	**4.** (a)	**5.** (b)	**6.** (a)

Statement Based Questions

1. (a)	**2.** (b)	**3.** (c)	**4.** (d)	**5.** (d)

7.
INDEX NUMBERS

OBJECTIVE QUESTIONS

Fill in the Blanks

1. Price Index Numbers measure general changes in prices between _____ and _____ year.
2. Index numbers measure the effect of changes in relation to _____ or place.

3. Index of industrial production is a _____ index.
4. The index used to measure changes in total money value is called _____.
5. Inflation is generally measured with the help of _____ index.
6. Laspeyre's index number is based on the quantities of _____ year.
7. Purchasing power of money is determined by _____ index.
8. Index number for the base year period is _____.
9. Fisher's Ideal Index is the _____ mean of the Laspeyre and Paasche indices.

True or False

1. Index numbers are specialised averages.
2. Index numbers measure changes which are not directly measurable.
3. Index numbers cannot be used in forecasting.
4. Index numbers are expressed in percentages.
5. Laspeyre's formula is a weighted aggregated index, in which weights are represented by the quantities of the commodities in the current year.
6. Price index number expresses the changes in the prices of commodities of two years.
7. Paasche's formula is a weighted aggregate index with base year quantity weights.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Weighted Average of Price Relatives Method	a. $P_{01} = \frac{\Sigma p_1 q_0}{\Sigma p_0 q_0} \times 100$
(ii) Aggregate Expenditure Method	b. $P_{01} = \frac{\Sigma p_1}{\Sigma p_0} \times 100$
(iii) Simple Aggregative Method	c. $CPI = \frac{\Sigma p_1 q_0}{\Sigma p_0 q_0} \times 100$
(iv) Laspeyre's Method	d. $P_{01} = \frac{\Sigma RW}{\Sigma W}$

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Consumer Price Index	a. $\frac{1}{\text{Consumer Price Index}} \times 100$
(ii) Wholesale Price Index Number	b. Measure general changes in prices between current and base year
(iii) Price Index Numbers	c. Helps in finding out the rate of inflation
(iv) Purchasing Power	d. Compare total value of some period with total value of base period
(v) Value Index Numbers	e. Price of Living Index Numbers

Multiple Choice Questions (MCQs)

1. Which of the following statement is correct?
(a) Consumer Price Index is used to measure purchasing power of the consumer in rupees
(b) Index numbers are expressed in percentages
(c) Index Numbers measure the changes which are capable of direct measurement
(d) Both (a) and (b)

2. Index number for the base period is always taken as:
(a) 100 (b) 50 (c) 1 (d) 200

3. Fisher's Ideal index is the:
(a) Mean of Laspeyre's and Paasche's indexes
(b) Median of Laspeyre's and Paasche's indexes
(c) Geometric mean of Laspeyre's and Paasche's indexes
(d) None of the above

4. The aggregate index formula using base period quantities is known as:
(a) Laspeyre's index (b) Fisher's Ideal index (c) Bowley's index (d) Paasche's index

5. The index used to measure changes in total money value is called:
(a) Price index (b) Quantity index (c) Value index (d) None of the above

6. We use price index numbers:
(a) To measure and compare prices (b) To compare prices
(c) To measure prices (d) None of these

7. The best average for constructing an index numbers is:
(a) Harmonic Mean (b) Arithmetic Mean (c) Geometric Mean (d) None of these

8. P_1 in an index number indicates:
(a) Price of the current year (b) Average price of base year and current year
(c) Price of the base year (d) Quantity of the current year

9. Index Number by Laspeyre's Method is calculated with the help of following formula:
(a) $P_{01} = \frac{\Sigma p_1 q_1}{\Sigma p_0 q_1} \times 100$ (b) $P_{01} = \frac{\Sigma p_1 q_0}{\Sigma p_0 q_0} \times 100$
(c) $P_{01} = \sqrt{\frac{\Sigma p_1 q_0}{\Sigma p_0 q_0} \times \frac{\Sigma p_1 q_1}{\Sigma p_0 q_1}} \times 100$ (d) $P_{01} = \frac{\Sigma RW}{\Sigma W}$

10. Tick the incorrect statement.
(a) Index numbers are specialised averages (b) Index numbers also consider qualitative changes
(c) Index numbers give perfect accuracy (d) Both (b) and (c)

11. Rate of inflation is generally measured with the help of:
(a) Wholesale Price Index (b) Consumer Price Index
(c) Index Number of Industrial Production (d) None of these

12. Which of the following is used as weight under Paasche's method?
(a) Quantity of the Base Year (b) Quantity of the Current Year
(c) Average of Quantities of base year & current year (d) None of these

13. Consumer Price Index is also known as:
    (a) Wholesale Price Index (b) Retail Price Index Numbers
    (c) Cost of Living Index (d) Both (b) and (c)

14. Whose method is considered ideal for the construction of Index Numbers?
    (a) Laspeyre's Method (b) Paasche's Method (c) Fisher's Method (d) None of these

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
   Assertion (A): Index Numbers act as economic barometers.
   Reason (R): Index Numbers are used in planning and formulating various government and business policies.
   Alternatives:
   (a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
   (b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
   (c) Assertion (A) is True but Reason (R) is False.
   (d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
   Assertion (A): The value of index number for base period is always taken as 100.
   Reason (R): The determination of base period is at the discretion of statistician.
   Alternatives:
   (a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
   (b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
   (c) Assertion (A) is True but Reason (R) is False.
   (d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
   Assertion (A): Price Index Numbers measure the general changes in prices between the current year and the base year.
   Reason (R): The level of physical output in an economy can be easily studied by Quantity Index Numbers.
   Alternatives:
   (a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
   (b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
   (c) Assertion (A) is True but Reason (R) is False.
   (d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
   Assertion (A): The first step while constructing index numbers is to carefully define and decide the purpose of its construction.
   Reason (R): Every index has a limited and specific use or purpose.
   Alternatives:
   (a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
   (b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
   (c) Assertion (A) is True but Reason (R) is False.
   (d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Price Index Numbers measure the general changes in prices between current & base year.
Statement 2: Price Index may be a Wholesale Price Index or a Retail Price Index, depending on the type of prices used.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Determination of base period primarily depends on the objective of index number.
Statement 2: Statistical Data should be available for the base year.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Out of the different types of averages, only arithmetic mean can be used in preparing index numbers.
Statement 2: Fisher's Method is said to be appropriate for all types of index numbers.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: The difference between base year and current year should be very large.
Statement 2: The base period should be free from all sorts of abnormalities like, wars, floods, earthquakes, labour strikes, etc.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

5. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Under Laspeyre's Method, weights are represented by the quantities of the commodities in the base year.
Statement 2: Fisher's Ideal Index is the geometric mean of the Laspeyre and Paasche indices.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Current, Base
2. Time
3. Quantity
4. Value Index
5. Wholesale Price
6. Base
7. Consumer Price
8. 100
9. Geometric

True or False

1. True
2. True
3. False
4. True
5. False
6. True
7. False

Matching Type Questions

1. (i) d; (ii) c; (iii) b; (iv) a.
2. (i) e; (ii) c; (iii) b; (iv) a; (v) d.

Multiple Choice Questions (MCQs)

1. (d)	3. (c)	5. (c)	7. (c)	9. (b)	11. (a)	13. (d)
2. (a)	4. (a)	6. (a)	8. (a)	10. (d)	12. (b)	14. (c)

Assertion Reason Questions (ARQs)

1. (b)	2. (c)	3. (b)	4. (a)

Statement Based Questions

1. (a)	2. (a)	3. (b)	4. (d)	5. (a)

8.
MEASURES OF DISPERSION

OBJECTIVE QUESTIONS

Fill in the Blanks

1. Standard Deviation is independent of change of _____.
2. The measures of dispersion which are expressed in terms of original units of a series are termed as _____.
3. _____ is known as the half of difference of upper quartile and the lower quartile.
4. _____ is the square root of the arithmetic average of the squares of the deviations measured from the mean.
5. Quartile Deviation is not based on all the observations as it ignores the first _____ and the last 25% of the items.
6. The sum of the squares of the deviations of the items from their arithmetic mean is the _____.
7. _____ is defined as the difference between the largest and the smallest item in a distribution.
8. Standard deviation is a measure of _____ dispersion.
9. For a given set of observations, Standard Deviation is _____ than Mean Deviation from mean.
10. _____ is the difference between third and first-quartiles in a series.
11. Semi-interquartile Range is another name of _____.
12. _____ is the square of standard deviation.
13. If $Q_1 = 10$, $Q_3 = 40$, than coefficient of quartile deviation is _____.
14. If in a series, coefficient of variation is 55 and mean is 10, than value of standard deviation is _____.

True or False

1. An important property of standard deviation is that sum of the squares of the deviations of the items from the arithmetic mean is maximum.
2. Standard deviation is independent of origin.
3. If all the observations are multiplied by 4, then the standard deviation also gets multiplied by 4.
4. Dispersion can also be measured with the help of Pie Diagram.
5. The variance and the coefficient of variation are the same.
6. If the lower limit of the class of the lowest value is zero, the value of coefficient of range is one.
7. Mean deviation is always computed from arithmetic mean.
8. Standard deviation can be calculated from any average.
9. Quartile deviation is suitable for open-ended distribution.
10. Reducing each and every item by 4 will also reduce standard deviation by 4.
11. Measures of dispersion are the averages of second order.

Matching Type Questions

Q. 1. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Range	a. $\frac{Q_3 - Q_1}{2}$
(ii) Coefficient of Quartile Deviation	b. $\frac{\text{Largest item} - \text{Smallest item}}{\text{Largest item} + \text{Smallest item}}$
(iii) Quartile Deviation	c. Largest item – Smallest item
(iv) Coefficient of Range	d. $\frac{Q_3 - Q_1}{Q_3 + Q_1}$

Q. 2. Match the statements given under A with the correct options given under B.

(A)	(B)
(i) Coefficient of Standard Deviation	a. Mean Deviation ÷ Mean
(ii) Coefficient of Variation	b. Standard Deviation ÷ Mean
(iii) Variance	c. (Standard Deviation ÷ Mean) × 100
(iv) Coefficient of Mean Deviation	d. Square of Standard Deviation

Multiple Choice Questions (MCQs)

1. The standard deviation of a set of 50 observations is 8. If each observation is multiplied by 2, then the new value of standard deviation will be:
(a) 4 (b) 8 (c) 16 (d) None of the above

2. The standard deviation of a set of 50 observations is 6.5. If the value of each observation is increased by 5, then the standard deviation is:
(a) 2.5 (b) 6.5 (c) 3.5 (d) None of the above

3. Which of the following statements is correct?
(a) Standard deviation is independent of change of origin
(b) Mean deviation can be calculated from both mean and median
(c) Standard deviation is independent of change of scale
(d) Both (a) and (b)

4. A set of values is said to be relatively uniform if it has:
(a) High dispersion (b) Zero dispersion (c) Little dispersion (d) Negative dispersion

5. Which one is difficult to compute?
(a) Relative measures of dispersion (b) Absolute measures of dispersion
(c) Both (a) and (b) (d) Range

6. If the variables are increased or decreased by the same proportion, the standard deviation changes by:
(a) Same proportion (b) Different proportion (c) Both (a) and (b) (d) None of these

7. The most commonly used measure of dispersion is:
(a) Coefficient of variation (b) Standard Deviation (c) Range (d) Quartile deviation

8. "Root–Mean Square Deviation from Mean" is:
(a) Standard Deviation (b) Quartile deviation (c) Both (a) and (b) (d) None of these

9. Which of the following is not a measure of dispersion?
(a) Variance (b) Mean deviation (c) Standard Deviation (d) Mode

10. Which of the following is a relative measure of dispersion?
(a) Standard deviation (b) Variance (c) Coefficient of variation (d) All of the above

11. Which of the following is a unit less measure of dispersion?
(a) Standard Deviation (b) Mean deviation (c) Coefficient of variation (d) Range

12. The standard deviation of 25 numbers is 40. If each of the numbers is increased by 5, then the new standard deviation will be:
(a) 40 (b) 45 (c) 41.5 (d) None of these

13. Semi–interquartile range is also known as:
(a) Mean deviation (b) Standard Deviation (c) Quartile deviation (d) Quartile range

14. For comparison of two different series, the best measure of dispersion is:
(a) Mean deviation (b) Range
(c) Standard Deviation (d) Coefficient of variation

15. If the minimum value in a set is 9 and its range is 57, the maximum value of the set is:
(a) 33 (b) 66 (c) 48 (d) None of these

16. If mean and coefficient of variation of a set of data is 10 and 5, respectively, then the standard deviation is:
(a) 10 (b) 0.5 (c) 5 (d) none of the above

17. If all the observations are multiplied by 5, then new Standard Deviation (SD) would be:
(a) Multiplied by 5 (b) Increased by 5 (c) Half of the previous SD (d) Decreased by 5

18. The measure of dispersion which ignores signs of the deviations from a central value is:
(a) Quartile deviation (b) Range (c) Standard Deviation (d) Mean deviation

19. Which measure of dispersion has a different unit other than the unit of measurement of values?
(a) Mean deviation (b) Range (c) Standard Deviation (d) Variance

20. Which measure of dispersion is based on the absolute deviations only?
(a) Quartile deviation (b) Mean Variation (c) Standard Deviation (d) Range

21. Which measure of dispersion is not affected by the presence of extreme observations?
(a) Standard Deviation (b) Mean deviation (c) Range (d) Quartile deviation

22. The range of the following set of observations 2, 3, 5, 9, 8, 7, 6, 5, 7, 4, 3 is:
(a) 6 (b) 7 (c) 5.5 (d) 11

23. Which measures of dispersion is the quickest to compute?
(a) Mean deviation (b) Quartile deviation (c) Standard Deviation (d) Range

24. Which one is an absolute measure of dispersion?
(a) Standard Deviation (b) Mean Deviation (c) Range (d) All of the above

25. Which of the following measures of dispersion can attain a negative value?
(a) Range (b) Mean deviation (c) Standard Deviation (d) Variance

26. The measure of variation which is mostly affected by extreme items is:
(a) Range (b) Quartile deviation (c) Standard Deviation (d) Mean deviations

27. Coefficient of variation is:
(a) Absolute measure (b) Relative measure (c) Both (a) and (b) (d) None of these

28. The range represents the:
(a) Difference between highest and lowest value (b) Middle number
(c) Highest number (d) Lowest number

29. The appropriate measure of dispersions for open–end classification is:
(a) Mean deviation (b) Standard Deviation (c) Quartile deviation (d) All these measures

30. Quartile deviation is called:
(a) Interquartile range (b) Quartile range (c) Both (a) and (b) (d) None of these

31. If the first quartile is 104 and quartile deviation is 8, the third quartile is:
(a) 130 (b) 120 (c) 136 (d) 146

32. Which measure is based on only the central fifty per cent of the observations?
(a) Mean deviation (b) Quartile deviation (c) Standard Deviation (d) All these measures

33. The square of standard deviation is known as:
(a) Variance (b) Mean deviation (c) Standard Deviation (d) None of these

34. When it comes to comparing two or more distributions, we consider:
(a) Relative measures of dispersion (b) Absolute measures of dispersion
(c) Both (a) and (b) (d) Either (a) or (b)

35. Standard Deviation is:
(a) Absolute measure (b) Relative measure (b) Both (a) and (b) (d) None of these

36. Which of the following measure of dispersion is always computed from arithmetic mean?
(a) Mean deviation (b) Quartile deviation (c) Standard Deviation (d) All of these

37. If the values of a set are measured in cm, the unit of variance will be:
(a) Cm (b) No unit (c) Cm^2 (d) Cm^3

38. Which of the following statements is correct about mean deviation?
(a) It is based on all observations (b) It is less affected by extreme values
(c) Both (a) and (b) (d) It is capable of further algebraic treatment

Assertion Reason Questions (ARQs)

1. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Standard Deviation is the square root of the arithmetic average of the squares of the deviations measured from the mean.
Reason (R): Standard Deviation and variance are measures of variability and they are closely related.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

2. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Range is a measure of absolute dispersion.
Reason (R): Range can be usefully employed to compare variability of two distributions expressed in different units.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

3. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Mean deviation when calculated from mode is very reliable.
Reason (R): In many cases, mode has no fixed value.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

4. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Range cannot be calculated in open-end distributions.
Reason (R): There is absence of highest and lowest class boundaries in case of open-end distributions.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

5. Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives:
Assertion (A): Mean Deviation is calculated either from mean or from median, but median is supposed to be better.
Reason (R): Sum of deviations from Median is less than the sum of the deviations from mean.
Alternatives:
(a) Both Assertion (A) & Reason (R) are True & Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) & Reason (R) are True & Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is True but Reason (R) is False.
(d) Assertion (A) is False but Reason (R) is True.

Statement Based Questions

1. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Measures of dispersion are also termed as 'Averages of Second Order'.
Statement 2: Absolute measures of dispersion are expressed in concrete units, while relative measures are measured as a percentage or ratio of the average.
Alternatives:
(a) Both the statements are true.
(b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false.
(d) Statement 2 is true & Statement 1 is false.

2. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Range is a measure of Absolute Dispersion.
Statement 2: Range is based on all the observations.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

3. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Quartile Deviation is capable of further algebraic treatment.
Statement 2: Quartile Deviation is the only measure of dispersion which can be used to deal with a distribution having open-end classes.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

4. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Mean deviation is also known as 'Second Moment of Dispersion'.
Statement 2: Mean deviation is not based on all the items of the series.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

5. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Mean deviation can be easily computed for distribution with open-end classes.
Statement 2: Mean deviation when calculated from mode is more reliable as compared to mean deviation calculated from median.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

6. Read the following statements carefully and choose the correct alternative from the following:
Statement 1: Coefficient of Variation is the most appropriate measure when two or more groups of similar data are to be compared with respect to consistency.
Statement 2: Standard Deviation is affected by change of origin.
Alternatives:
(a) Both the statements are true. (b) Both the statements are false.
(c) Statement 1 is true & Statement 2 is false. (d) Statement 2 is true & Statement 1 is false.

ANSWERS OF OBJECTIVE QUESTIONS

Fill in the Blanks

1. Origin
2. Absolute Measures
3. Quartile Deviation
4. Standard Deviation
5. 25%
6. Minimum
7. Range
8. Absolute
9. More
10. Interquartile Range
11. Quartile Deviation
12. Variance
13. 0.6
14. 5.5

True or False

1. False
2. True
3. True
4. False
5. False
6. True
7. False
8. False
9. True
10. False
11. True

Matching Type Questions

1. (i) c; (ii) d; (iii) a; (iv) b.
2. (i) b; (ii) c; (iii) d; (iv) a.

Multiple Choice Questions (MCQs)

1. (c)	7. (b)	13. (c)	19. (d)	25. (a)	31. (b)	37. (c)
2. (b)	8. (a)	14. (d)	20. (b)	26. (a)	32. (b)	38. (c)
3. (d)	9. (d)	15. (b)	21. (d)	27. (b)	33. (a)	
4. (c)	10. (c)	16. (b)	22. (b)	28. (a)	34. (a)	
5. (a)	11. (c)	17. (a)	23. (d)	29. (c)	35. (a)	
6. (d)	12. (a)	18. (d)	24. (d)	30. (a)	36. (c)	

Assertion Reason Questions (ARQs)

1. (b)	2. (c)	3. (d)	4. (a)	5. (a)

Statement Based Questions

1. (a)	2. (c)	3. (d)	4. (b)	5. (b)	6. (c)

SOME IMPORTANT CASE STUDY QUESTIONS

Q. 1. Read the following article and answer Questions (i)–(iv) on the basis of the same:

Scarcity is the root cause of all economic problems. If there had been no scarcity there would have been no economic problem. This would have not necessitated the study of economics. In our daily life, we face various forms of scarcity. The queues at the railway booking counters, over crowded buses, heavy traffic on roads, the rush to get a ticket to watch a movie of a popular film actor or actress, are all the manifestations of scarcity. We face scarcity because the things that satisfy our wants are limited in availability. Further, the resources which the producers have are limited and also have alternative uses. For instance, take the case of food that we eat everyday. It satisfies our want of nourishment. Farmers employed in agriculture grow crops that produce our food. At any point of time, the resources in agriculture like land, labour, water, chemical fertilizers, etc, all these resources have alternative uses. The same resources can be used in the production of non-food crops. Thus, alternative uses of resources give rise to the problem of choice between different commodities that can be produced by those resources.

(i) An economic problem arises because:
- (a) Resources have alternate uses
- (b) Resources are limited
- (c) Human wants are unlimited
- (d) All of these

(ii) Resources are _____ and human wants are _____.
- (a) Unlimited, Limited
- (b) Zero, Unlimited
- (c) Limited, Unlimited
- (d) None of these

(iii) _____ is the root cause of all economic problems.
- (a) Unlimited Human Wants
- (b) Alternate use of resources
- (c) Scarcity of resources
- (d) None of these

(iv) Scarcity of resources calls for _____ of resources.
- (a) Misuse
- (b) Optimum use
- (c) Wastage
- (d) None of these

Ans. (i) (d) All of these
(ii) (c) Limited, Unlimited
(iii) (c) Scarcity of resources
(iv) (b) Optimum use

Q. 2. Read the following article and answer Questions (i)–(iv) on the basis of the same:

Economics activities are those activities which are associated with the production, exchange, distribution, and consumption of merchandise, at every level of the society. These activities are performed with the sole aim of earning money and producing wealth, to satisfy human wants, with limited resources. These activities form a basis for the economic development of the country as it add

value to the gross domestic product. Non-economic activities refer to a human activity undertaken sheerly out of love, affection, sympathy or patriotism. These activities are conducted voluntarily with an aim of rendering services to others for free, i.e. it cannot be measured in terms of money. It includes all those activities which are performed for the satisfaction of human sentiments that can be social, religious, cultural, personal, recreational, charity, patriotic.

(i) Which of the following is an economic activity?
(a) Mother Teaching to her Child
(b) Chef Cooking Food at a Hotel
(c) Kids lighting diyas on Diwali
(d) Mother Cooking Food for family

(ii) _____ activities form a basis for the economic development of the country.
(a) Economic
(b) Non-economic
(c) Either (a) or (b)
(d) Neither (a) nor (b)

(iii) _____ activities play a very important role in gross domestic product of a country while _____ activities enhance the total welfare of the country.
(a) Non-economic, Economic
(b) Economic, Non-economic
(c) Human, Economic
(d) Non-economic, Human

(iv) Which of the following is a non-economic activity?
(a) An old lady attending Satsang
(b) A student praying in temple for good marks in Examination
(c) Both (a) and (b)
(d) Doctor treating patients at his clinic

Ans. (i) (b) Chef Cooking Food at a Hotel (ii) (a) Economic
(iii) (b) Economic, Non-economic (iv) (c) Both (a) and (b)

Q. 3. Read the following article and answer Questions (i)–(iii) on the basis of the same:

In the plural sense, the word statistics refers to numerical facts and figures collected in a systematic manner with a definite purpose in any field of study. In this sense, statistics are also aggregates of facts which are expressed in numerical form. For example, statistics on industrial production, statistics or population growth of a country in different years, etc.

In a singular sense, it refers to the science comprising of methods which are used in the collection, analysis, interpretation and presentation of numerical data. These methods are used to draw conclusion about population parameters.

(i) Statistics is defined in terms of statistical methods in the:
(a) Singular Sense
(b) Plural Sense
(c) Either (a) or (b)
(d) Both (a) and (b)

(ii) Statistics in singular sense includes:
(a) Interpretation of data
(b) Collection of data
(c) Analysis of data
(d) All of these

(iii) Statistics in plural sense is concerned with:
(a) Isolated facts
(b) Single Facts
(c) Aggregates of facts
(d) None of these

Ans. (i) (a) Singular Sense (ii) (d) All of these
(iii) (c) Aggregates of facts

Q. 4. Read the following article and answer Questions (i)–(iii) on the basis of the same:

Primary data is information collected through original or first-hand research. For example, surveys and focus group discussions. On the other hand, secondary data is information which has been collected in the past by someone else. For example, researching the internet, newspaper articles and company reports.

The objective of any study defines whether primary or secondary data is to be collected. For example, if a company intends to enter into women's apparel and wants the India market size, then it can resort to secondary data like industry reports & newspaper articles while if it wants to study the preference of consumers for a new type of fabric/style, then it must conduct primary research like surveys.

Usually, collection of primary data is costly & more time-consuming than secondary data but it serves a specific need and control biases.

(i) _____ data is obtained from published or unpublished sources.
- (a) Primary
- (b) Secondary
- (c) Both (a) and (b)
- (d) None of these

(ii) Collection of primary data is _____ as compared to secondary data.
- (a) Costly
- (b) Time-consuming
- (c) Both (a) and (b)
- (d) None of these

(iii) Data collected by a student from a business magazine to prepare project report is:
- (a) Secondary Data
- (b) Primary Data
- (c) Internal Data
- (d) None of these

Ans. (i) (b) Secondary (ii) (c) Both (a) and (b)
(iii) (c) Secondary

Q. 5. Read the following article and answer Questions (i)–(iii) on the basis of the same:

The Census Method is a method in which each and every item in the universe is selected for the data collection. The census method is most commonly used by the government in connection with the national population, housing census, agriculture census, etc. where the vast knowledge about these fields is required. Whenever the entire population is studied to collect the detailed data about every unit, then the census method is applied. One of the major advantages of census method is the accuracy as each and every unit of the population is studied before drawing any conclusions of the research. When more and more data are collected the degree of correctness of the information also increases. Also, the results based on this method are less biased.

A sample is defined as a smaller set of data that a researcher chooses or selects from a larger population by using a pre-defined selection method. In most cases, it is impossible or costly and time-consuming to research the whole population. Hence, examining the sample provides insights that the researcher can apply to the entire population. The process of deriving a sample is called a sampling method.

(i) When population under investigation is limited, then _____ method should be preferred.
- (a) Census
- (b) Sample
- (c) Either (a) or (b)
- (d) Neither (a) nor (b)

(ii) Census Method is preferred when:
- (a) Limited Time is available
- (b) Population is infinite
- (c) Economical Method is required
- (d) Highest Accuracy is required

(iii) _____ method is used for the estimation of population in a country.
- (a) Sample
- (b) Census
- (c) Both (a) and (b)
- (d) None of these

Ans. (i) (a) Census (ii) (d) Highest Accuracy is required
(iii) (b) Census

Q. 6. Read the following article and answer Questions (i)–(iv) on the basis of the same:

Exclusive Method is used for those series in which the upper limit of one class becomes the lower limit of the next class. It is called an exclusive series because the frequencies of the upper limit of a class interval are not included in that particular class. In such a type of series, the upper limit of one class becomes the lower limit of the next class, for example, 0-10, 10-20, 20-30 and so on. This method is most appropriate for data of continuous variables.

Under Inclusive Method of classification of data, the classes are formed in such a manner that the upper limit of a class interval does not repeat itself as the lower limit of the next class interval. In such a series, both the upper limit and the lower limit are included in the particular class interval, for example, 1-5, 6-10, 11-15, and so on. The interval 1-5 includes both the limits i.e. 1 and 5.

(i) In case of inclusive series:
- (a) Upper limit of each class–interval is included
- (b) Lower limit of each class–interval is included
- (c) Both (a) and (b)
- (d) None of these

(ii) _____ method is most appropriate for data of continuous variables.
- (a) Inclusive
- (b) Exclusive
- (c) Both (a) and (b)
- (d) Neither (a) nor (b)

(iii) In case of _____ series, every class interval excludes items corresponding to its upper limit.
- (a) Exclusive
- (b) Inclusive
- (c) Both (a) and (b)
- (d) None of these

(iv) In case of inclusive series, upper limit of one class and lower limit of next class are _____.
- (a) Same
- (b) Different
- (c) Either (a) or (b)
- (d) None of these

Ans. (i) (c) Both (a) and (b) (ii) (b) Exclusive (iii) (a) Exclusive (iv) (b) Different

Q. 7. Read the following article and answer Questions (i)–(iii) on the basis of the same:

Tabulation is a systematic & logical presentation of numeric data in rows and columns to facilitate comparison and statistical analysis. It facilitates comparison by bringing related information close to each other and helps in further statistical analysis and interpretation. In other words, the method of placing organised data into a tabular form is called as tabulation. It may be complex, double or simple depending upon the nature of categorisation. Tabulation reduces the bulk of information and serves as the best source of organised data for further statistical analysis.

(i) Tabulation aims:
- (a) To simplify the complex data
- (b) To make the data complex
- (c) Either (a) or (b)
- (d) None of these

(ii) Tabulation helps in:
- (a) Further statistical analysis
- (b) Comparison between rows and columns
- (c) Reducing bulk of information
- (d) All of these

(iii) The process of presenting data in the form of a table is termed as:
- (a) Classification
- (b) Presentation
- (c) Tabulation
- (d) None of these

Ans. (i) (a) To simplify the complex data (ii) (d) All of these (iii) (c) Tabulation

Q. 8. Read the following article and answer Questions (i)–(iii) on the basis of the same:

Diagrams are various geometrical shape such as bars, circles etc. Diagrams are based on scale but are not confined to points or lines. Diagrammatic presentation helps in quick understanding of data. Confirmation of this can be found in the financial pages of news papers, journals, advertisement, etc. There are many methods of representing the numerical figures through diagrams but sometimes, it is very difficult to decide that which is the best diagram in a specific situation. A large number of observations become easy to understand through diagrams. Diagrams are more attractive and impressive than the numbers. Through the diagrams, one can easily compare the data related to different areas and time. An index explaining different shades and colours should be given for clear identification and understanding. Diagrams need to be drawn accurately by using proper scales of measurements.

(i) Diagrammatic Presentation facilitates:
- (a) Quick understanding of data
- (b) Comparison of data
- (c) Both (a) and (b)
- (d) None of these

(ii) _____ is the most attractive method of data presentation.
- (a) Tabulation
- (b) Diagrammatic Presentation
- (c) Textual Presentation
- (d) None of these

(iii) A good diagram should have:
- (a) Scale
- (b) Index
- (c) Accuracy
- (d) All of these

Ans. (i) (c) Both (a) and (b)
(ii) (b) Diagrammatic Presentation
(iii) (d) All of these

Q. 9. Read the following article and answer Questions (i)–(iii) on the basis of the same:

Graphical representation refers to the use of charts and graphs to visually display, analyze, clarify, and interpret numerical data, functions, and other qualitative structures. Data can be effectively presented by means of graphs. A graph consists of curves or straight lines. Graphs provide a very good method of showing fluctuations and trends in statistical data. Graphs can also be used to make predictions and forecasts. The aim of presenting data graphically is to utilise the power of visual display to communicate information efficiently, while avoiding deception or confusion.

Graph is divided into four quadrants, in which Quadrant I represents positive values of X and Y, in Quadrant II, X is negative and Y is positive, while both X and Y are negative in Quadrant III. In Quadrant IV, X is positive and Y is negative.

(i) Graphs can be useful for:
- (a) Making predictions and forecasts
- (b) Showing fluctuations and trends
- (c) Adding visual to communicate information efficiently
- (d) All of these

(ii) In which quadrant, the value of X is positive but that of Y is negative?
- (a) First
- (b) Second
- (c) Third
- (d) Fourth

(iii) The second quadrant of a graph represents:
- (a) +X and –Y
- (b) –X and +Y
- (c) –X and –Y
- (d) +X and +Y

Ans. (i) (d) All of these
(ii) (d) Fourth
(iii) (b) –X and +Y

Q. 10. Read the following article and answer Questions (i)–(iii) on the basis of the same:

The arithmetic mean is often known as the mean. It is an average, a measure of the centre of a set of data. The arithmetic mean is calculated by adding up all the values and dividing the sum by the total number of values. Some of the examples include the average rainfall of a place, the average income of employees in an organisation. The arithmetic mean is calculated using numerous methods, which is based on the amount of the data, and the distribution of the data. In addition to mathematics and statistics, the arithmetic mean is used frequently in many diverse fields such as economics, anthropology and history and it is used in almost every academic field to some extent. For example, per capita income is the arithmetic average income of a nation's population.

(i) The average value of given variables is termed as:
(a) Mode (b) Median
(c) Arithmetic Mean (d) None of these

(ii) Arithmetic Mean of items 5, 8, 10, 12, 18 will be:
(a) 10 (b) 10.6
(c) 8.75 (d) None of these

(iii) The concept of arithmetic mean is used in:
(a) Mathematics (b) Statistics
(c) History (d) All of these

Ans. (i) (c) Arithmetic Mean (ii) (b) 10.6
(iii) (d) All of these

Q. 11. Read the following article and answer Questions (i)–(iii) on the basis of the same:

Median represents the middle value for any group. It is the point at which half the data is more and half the data is less. Median helps to represent a large number of data points with a single data point. The median is the easiest statistical measure to calculate. For calculation of median, the data has to be arranged in either ascending or descending order, and then the middlemost data point represents the median of the data. Further, the calculation of the median depends on the number of data points. For an odd number of data, the median is the middlemost data, and for an even number of data, the median is the average of the two middle values.

(i) _____ divides a series into two parts.
(a) Arithmetic Mean (b) Median
(c) Mode (d) None of these

(ii) For calculating median, all items of the series are arranged in:
(a) Descending order (b) Ascending order
(c) Either (a) or (b) (d) None of these

(iii) Median of numbers: 7, 4, 2, 8,10 will be:
(a) 2 (b) 4
(c) 7 (d) 8

Ans. (i) (b) Median (ii) (c) Either (a) or (b)
(iii) (c) 7

Q. 12. Read the following article and answer Questions (i)–(iii) on the basis of the same:

Mode is the value of a variate which is repeated most often in the data set. The genesis of the word 'mode' lies in the French word 'le mode' that means fashion. Mode is, therefore, considered to be the most common or most fashionable value. Mode is often considered to be that value of the variate which occurs most frequently. But it is not exactly true for every frequency distribution. Rather it is

that value of the variate around which the other items tend to concentrate most heavily. It shows the centre of concentration of the frequency in and around a given value

(i) Mode refers to that value of a series which occurs _____ number of times.
(a) Zero (b) Minimum
(c) Maximum (d) None of these

(ii) Mode of numbers: 7, 6, 8, 6,10, 6, 8, 7, 6 will be:
(a) 6 (b) 7
(c) 8 (d) 10

(iii) The value of the variable which occurs most frequently in a distribution is termed as:
(a) Arithmetic Mean (b) Median
(c) Mode (d) None of these

Ans. (i) (c) Maximum (ii) (a) 6
(iii) (c) Mode

Q. 13. Read the following article and answer Questions (i)–(iii) on the basis of the same:

The concept of Standard Deviation was introduced by Karl Pearson in 1893. It is by far the most important and widely used measure of dispersion. Its significance lies in the fact that it is free from those defects which afflicted earlier methods and satisfies most of the properties of a good measure of dispersion. Standard Deviation is also known as root-mean square deviation as it is the square root of means of the squared deviations from the arithmetic mean. Standard deviation is the measure of dispersion of a set of data from its mean. It measures the absolute variability of a distribution; the higher the dispersion or variability, the greater is the standard deviation and greater will be the magnitude of the deviation of the value from their mean.

(i) While calculating standard deviation, deviations are taken only from _____ value of the series.
(a) Median (b) Mean
(c) Mode (d) None of these

(ii) Square root of the arithmetic average of the squares of the deviations measured from mean is termed as:
(a) Mean Deviation (b) Quartile Deviation
(c) Standard Deviation (d) None of these

(iii) _____ is the most widely used measure of dispersion.
(a) Standard Deviation (b) Range
(c) Quartile Deviation (d) Mean Deviation

Ans. (i) (b) Mean (ii) (c) Standard Deviation
(iii) (a) Standard Deviation

Q. 14. Read the following article and answer Questions (i)–(iv) on the basis of the same:

Correlation refers to the statistical relationship between two entities. In other words, it's how two variables move in relation to one another. It expresses the extent to which two variables are linearly related. It's a common tool for describing simple relationships without making a statement about cause and effect. The correlation coefficient ranges from –1 to +1 and is denoted by *r*. The three possible results of a correlational study can be positive correlation, negative correlation and no correlation.

Positive Correlation is a relationship between two variables in which both variables move in the same direction. Therefore, when one variable increases as the other variable increases, or one variable decreases while the other decreases. An example of positive correlation would be height and weight. Taller people tend to be heavier.

Negative Correlation is a relationship between two variables in which an increase in one variable is associated with a decrease in the other. An example of negative correlation would be height above sea level and temperature.

Zero Correlation exists when there is no relationship between two variables. For example there is no relationship between the amount of tea drunk and level of intelligence.

(i) When two variables change in the same direction, then such a correlation is called:
(a) Positive Correlation (b) Negative Correlation
(c) Zero Correlation (d) None of these

(ii) Coefficient of correlation lies between:
(a) –1 and 0 (b) 0 and +1
(c) –1 and +1 (d) None of these

(iii) Correlation between two variables can be:
(a) Negative (b) Positive
(c) Zero (d) All of the above

(iv) Coefficient of correlation can never be:
(a) More than +1 (b) Less than +1
(c) More than 0 (d) None of these

Ans. (i) (a) Positive Correlation (ii) (c) –1 and +1
(iii) (d) All of the above (iv) (a) More than +1

Q. 15. Read the following article and answer Questions (i)–(iii) on the basis of the same:

The value of money does not remain constant over time. It rises or falls and is inversely related to the changes in the price level. A rise in the price level means a fall in the value of money and a fall in the price level means a rise in the value of money. Thus, changes in the value of money are reflected by the changes in the general level of prices over a period of time. Changes in the general level of prices can be measured by a statistical device known as 'Index Number'.

Index number is a technique of measuring changes in a variable or group of variables with respect to time, geographical location or other characteristics. Conventionally, index numbers are expressed in terms of percentages to show the extent of relative change. Of the two periods, the period with which the comparison is to be made, is known as the base period. The value in the base period is given the index number 100. Price index numbers measure and permit comparison of the prices of certain goods. Quantity index numbers measure the changes in the physical volume of production, construction or employment

(i) _____ is a statistical device used to measure relative changes in a large number of items.
(a) Correlation (b) Standard Deviation
(c) Index Number (d) None of these

(ii) Price index numbers are used to:
(a) Measure prices (b) Measure and compare prices
(c) Compare prices (d) None of these

(iii) Index number for the base period is taken as:
(a) 50 (b) 75
(c) 100 (d) None of these

Ans. (i) (c) Index Number (ii) (b) Measure and compare prices
(iii) (c) 100

SOME IMPORTANT VALUE BASED QUESTIONS

Q. 1. A Cloth manufacturer distributes its defective product at free of cost (after getting them repaired from Nari Niketan at lower cost) to orphanage. Which objective is being highlighted? Also identify the values involved in this act.

Ans. The Social objective is highlighted. The values involved in this act are:

(i) "Social welfare" through help to needy class of society and providing employment to members of Nari Niketan.

(ii) "Efficient use of resources" through full utilisation of defective product after improvement.

Q. 2. While selecting employees, X Ltd. is ignoring applicants from women & weaker sections of the society.

(i) What is wrong with the selection process of X Ltd.?

(ii) What should be the possible remedy?

Ans. (i) The selection policy of X Ltd. is not good. It is ignoring the values of "Equality". The company is also gender biased.

(ii) Company should give equal opportunity to all the prospective candidates.

Q. 3. An organisation has started using CFL's and LED's instead of bulbs and tube lights. Which values are attained by the organisation?

Ans. The values attained by the organisation are: (i) "Efficient use of Resources" by saving electricity; (ii) Environment Protection.

Q. 4. An industrial unit, working in a backward area, opens schools for education at nominal cost for the children of its employees and local people. Highlight the social values involved in this decision.

Ans. The social values involved in this decision are:

(i) Helpful in increasing literacy rate.

(ii) Community Development.

(iii) Increase in Employment opportunities in backward areas.

Q. 5. Mr. Rajesh, a supervisor in a manufacturing unit, humiliates a worker (for a very minor mistake) in front of other workers. Which value is he lacking?

Ans. Respect for an individual dignity.

Q. 6. A factory is established in a residential colony. The factory uses machines, which create heavy noise while running. Due to noise pollution, students are unable to study properly and residents can't sleep properly. Which values do you find disturbing?

Ans. The disturbing values are:

(i) Noise Pollution;

(ii) Bad effect on the health of employees of the factory;
(iii) Bad effect on the studies of children and health of nearby residents.

Q. 7. A doctor charges high fees for consultation from his patients and refuses to treat the poor patients without the consultation fees. Moreover, he accepts gifts and commission from medical representatives and prescribes costly medicines.
(i) In your view, is it professional behaviour of doctor?
(ii) Identify any one value, which you find disturbing in the above para?

Ans. (i) No, the doctor is not following the professional behaviour. He is disobeying the professional code of conduct.
(ii) The disturbing value in the above para is: "Lack of social responsibility" as the doctor should also take care of poor patients.

Q. 8. Shyam is a salesman in a water purifier company. He made a false claim to a customer about the quality of water purifier, in order to make sales. Which quality and value is lacking in Shyam?

Ans. Honesty is lacking. A good salesman must be honest. He should not try to win customers through false and misleading representations.

Q. 9. The Government is planning to remove mobile towers from the residential area. Identify the values being observed by this planning of Government.

Ans. (i) Environment Protection; (ii) Safety of health of society.

Q. 10. Government is planning to construct warehouses in the remote areas to store the necessity goods, so that the goods can be made available at all times. Which values are being considered here to be achieved by government?

Ans. The values considered by the government are:
(i) "Fulfilling social responsibility" by ensuring price stability through regular supply of goods;
(ii) Control on hoarding and black-marketing.

Q. 11. In order to reduce the cost, an organisation is planning to reduce the charities given to the social and religious institutions. Which value will be discarded by this decision?

Ans. Social responsibility.

Q. 12. A cosmetic manufacturing co. claims in an advertisement that its face cream improves the face complexion. On using, it was found incorrect.
(i) Do you think such advertising is going to reap positive results for the company in the long run?
(ii) Which values are being discarded?

Ans. (i) Such false advertising can bring sales in the short run, but in the long run, it will adversely affect the public image and sales of the company. Moreover, the company can also be sued for misleading advertisement.
(ii) The company is not being "Honest" as it is confusing the consumers by misleading advertisements. Company is also ignoring "social welfare".

Q. 13. A Supervisor hears the suggestions from the workers and also implements the good suggestions while taking decisions? Which value has been given importance here?

Ans. The values, which have been given importance, are:
(i) Development of the feeling of the cooperation and oneness towards the organisation.
(ii) Promotion of "Initiative".
(iii) Cordial atmosphere.

Q. 14. In a company, control standards were set according to the efficiency of the average employee. Which value has been kept in mind while setting the standards?

Ans. Increase in the morale of the employees.

Q. 15. A foreign company manufacturing fast food is planning to open a chain of cheap fast food centers near various educational institutes. Do you think it is justified on the grounds of increasing tendency of obesity and health problems among students?

Ans. No, it is not at all justified. It will lead to adverse effect on the health of students as they will be induced to increase the consumption of fast food due to easy availability.

Q. 16. The management of the company has manipulated its financial statements to attract investors and creditors. Which values are affected here?

Ans. The management of the company is not being "Honest" as financial statement does not present true and fair position of the company. By providing false information, the management is trying to cheat the investors and lenders.

Q. 17. A toy manufacturing company uses low quality plastic and harmful colours to cut down its cost of production. It has adversely affected the health of children. Do you think company is justified in its method of cost cutting?

Ans. No, company is not justified. Company's cost cutting policy is putting adverse effect on the health of children. Moreover, company is also ignoring the value of "Environment Conservation" as use of low quality plastic pollutes the environment.

Q. 18. A commercial unit uses rocks, trees, electric poles, historical monuments and walls to advertise its products. This advertising policy has made their product known to the public. Do you think the company is justified by using public property for its personal interest? What should be done to avoid such things?

Ans. No, the company is not at all justified. By doing this, company is damaging the natural beauty and destroying the charm of historical monuments. A strict action against such firms should be taken. The public property can be safeguarded through law and code of conduct for the advertisers.

Q. 19. The demand for petrol is increasing continuously. However, being a non-renewable resource, its supply is limited. Discuss any 2 steps that can be taken to overcome this problem.

Ans. The following steps can ease the situation (Any Two):

(i) Use of CNG (Compressed Natural Gas) run vehicles need to be promoted.
(ii) Public Transport (like Metro service in Delhi) should be used as much as possible.
(iii) Encourage car pooling. Carpooling with co-workers or family members is a great way to save petrol.
(iv) Use Alternate Form of transportation (like bicycle, electronic bikes), whenever possible.
(v) Turn the Engine off when not in motion. For example, turning the engine off at the red light.

Q. 20. The efficient use of resources is more important and crucial in a developing country like India as compared to developed countries? Do you agree?

Ans. Yes, I agree with the given statement. India is on the developmental path and it needs more resources as compared to developed countries. With the constraint of limited resources, the only option left with Indian economy is to make efficient and optimum use of available resources.

Q. 21. Almost one-third of Indians consume some form of tobacco and many use more than one type of tobacco product. The consumption of tobacco is a reason for almost 40% of non-communicable diseases like cancer, cardiovascular diseases and lung disorders. What can be done to come out of this situation?

Ans.
- The most effective way to reduce tobacco use is to raise the price of tobacco through increase in taxes. Higher prices discourage youth from initiating cigarette smoking and encourage current smokers to quit.
- Tobacco users should be made fully aware of high risks of disease and premature death caused by tobacco use.
- Laws relating to restriction on smoking in public places should be more strictly applied.

Q. 22. Pulp and paper production is the third largest producer of air, water and land pollution. Suggest three ways to overcome this problem.

Ans. We can overcome this problem through following ways:

(i) Promote Digital Age: Promote use of e-bills, e-cards, e-book, e-newspaper instead of paper invoices, cards, etc.

(ii) Use both sides of each paper. On a notebook, write on both sides of the sheet.

(iii) Promote use of recycled paper products whenever possible.

Q. 23. Vehicular pollution in India is increasing at an alarming high rate. State any two ways in which it can be controlled.

Ans. The following steps will help to control the pollution:

(i) Use of alternative fuels: Fuels like LPG, CNG and battery operated vehicles should be promoted as they release less pollution as compared to petrol and diesel.

(ii) Regular Pollution Check up: It must be ensured that the pollution check for the vehicle is done at regular intervals.

Q. 24. A farmer gets more profit in producing opium than in production of wheat. If the economy is facing the situation of famine, which crop should be produced by the farmer? Which value needs to be followed by the farmer?

Ans. The farmer should produce wheat because in the situation of famine, food grain like wheat is required more than opium. The farmer needs to produce wheat on the grounds of "Social Welfare".

Q. 25. Children are the future policy makers of our country. However, many of the poor children are ill-treated and are forced to work at a tender age. Discuss the steps that need to be taken to reduce child labour.

Ans. The following steps can be taken to reduce child labour:

(i) Government should take serious steps against employers who hire child labour.

(ii) Government should make education compulsory and accessible to the poorest of the poor.

Q. 26. The Delhi government enforced a complete ban on the manufacture, sale and storage of "Gutka" in the national capital. How will it affect the market demand and supply of gutka? Identify the value involved in the ban.

Ans. The ban on gutka will lead to decrease in its supply as firms producing gutka will shift their factors of production in the production of other related goods.

The ban will also lead to decrease in demand for gutka. In this way, both the demand and supply of gutka will reduce. The value involved is "Social Health Consciousness".

Q. 27. The availability of fresh water may become the most crucial problem over the coming decades. Enumerate some of the steps which need to be taken to save water?

Ans. The following steps can help to save water:

(i) Turn off the tap while brushing or shaving. When washing dishes, turn off the tap whenever possible. Do not let water run purposelessly while soaping or cleaning.

(ii) Install rainwater harvesting system: It is economical and effective way of saving water.

(iii) Avoid using a shower for bathing. Try using a bucket instead.

(iv) Ensure that your home has no leakages. Any type of leakage should be taken care of immediately.

(v) Spread awareness regarding water conservation.

(vi) Do not wash just couple of your clothes daily. Plan a day and wash the complete load of clothes together.

PRACTICE PAPER – 1

General Instructions:

(i) All questions are compulsory.

(ii) Each question carries 1 mark.

Section A: Statistics for Economics

1. Which of the following statements is wrong?

(*a*) Mean is not affected due to sampling fluctuations.

(*b*) Mean is rigidly defined.

(*c*) Mean has some mathematical properties.

(*d*) All of these

Ans. (*a*)

2. Today's activities of my friend Darshit who is a singer, are given below:

(*i*) In the morning, he performed stage show for singing and get ₹ 10,000 as a fee.

(*ii*) In the evening, he celebrated his 4 years daughter's birthday at home and sang a song for her.

On the basis of the above information, identify the correct statement.

(*a*) Activity 1 is an economic activity and Activity 2 is a non-economic activity.

(*b*) Activity 1 is non-economic and Activity 2 is an economic activity.

(*c*) Activity 1 and Activity 2 both are economic activities.

(*d*) Activity 1 and Activity 2 both are non-economic activities.

Ans. (*a*)

3. Which of the following statements is incorrect?

(*a*) Scarcity is the root cause of all economic problems.

(*b*) 'A person teaching his daughter for her Board Exams' is an economic activity.

(*c*) Welfare definition of Economics has been given by Alfred Marshall.

(*d*) Attending a marriage is a non-economic activity.

Ans. (*b*)

4. **Identify the correct pair from Column I and Column II and choose the correct alternative:**

Column I	Column II
A. Investigator	(*i*) Person who helps the investigator in collecting the information
B. Enumerator	(*ii*) Person who conducts statistical enquiries to collect the data
C. Survey	(*iii*) Method of gathering information from various individuals
D. Informant	(*iv*) Person who response the questions asked by the investigator

(*a*) A – (*i*) **(*b*) B – (*ii*)**
(*c*) C – (*iii*) **(*d*) D – (*iv*)**

Ans. (*c*)

5. **When the collected data is grouped with reference to time, it is known as:**

(*a*) Chorological classification **(*b*) Geographical classification**
(*c*) Qualitative classification **(*d*) Quantitative classification**

Ans. (*a*)

6. **In singular sense, which of the following is not a characteristic of Statistics?**

(*a*) Collection of Data **(*b*) Aggregate of facts**
(*c*) Presentation of data **(*d*) Interpretation of Data**

Ans. (*b*)

7. **Relationship between Mean, Median and Mode is:**

(*a*) Mode = 4Median – 2Mean **(*b*) Mode = 2Median – 3Mean**
(*c*) Mode = 2Median – 1Mean **(*d*) Mode = 3Median – 2Mean**

Ans. (*d*)

8. **Nationality of a student is a/an:**

(*a*) attribute **(*b*) discrete variable**
(*c*) continuous variable **(*d*) Either (*a*) or (*c*)**

Ans. (*a*)

9. **c.f. is used for:**

(*a*) Common factor **(*b*) Cumulative frequency**
(*c*) Common value **(*d*) None of these**

Ans. (*b*)

10. **In case of discrete and continuous series, mode can be calculated by:**

(*a*) Inspection Method **(*b*) Grouping Method**
(*c*) Summation Method **(*d*) Both (*a*) and (*b*)**

Ans. (*d*)

11. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. In a symmetric distribution	(*i*) Mean > Median > Mode
B. In a positively skewed distribution	(*ii*) Mean = Median = Mode
C. In a negatively skewed distribution	(*iii*) Mean < Median < Mode
D. Median divides the series into	(*iv*) Four equal parts

(*a*) A – (*i*) **(*b*) B – (*ii*)** **(*c*) C – (*iii*)** **(*d*) D – (*iv*)**

Ans. (*c*)

12. Choose the correct statement.

(*a*) Discrete variable data are normally expressed in fractions.

(*b*) Cumulative frequency is the frequency of a class.

(*c*) A frequency distribution should not have more than 5 classes of the class mid-points.

(*d*) Statistical calculations in classified data are based on the class mid-points.

Ans. (*d*)

In the given questions (Q.13 to Q.15), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

(*b*) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)

(*c*) Assertion (A) is true but Reason (R) is false

(*d*) Assertion (A) is false but Reason (R) is true

13. Assertion (A): Mode is the best representative value of all items of the series.

Reason (R): Modal value is that value which occurs most frequently in the series.

Ans. (*a*)

14. Assertion (A): Direct Personal Investigation is not suitable when the area of coverage is large.

Reason (R): In Direct Personal Investigation more time and money is spent.

Ans. (*a*)

15. Assertion (A): Economics is a study of man in ordinary business of life.

Reason (R): Economics is the science which studies human behaviour as a relationship between ends and scarce resources which have alternative uses.

Ans. (*b*)

Read the given case study carefully and answer the question numbers 16-19 on the basis of the same.

When frequencies are added they are called cumulative frequencies and then frequencies are listed in a table called cumulative frequencies table. The curve obtained by plotting cumulative frequencies is called cumulative frequency curve or ogive. There are two methods of constructing ogive.

I. **Less than method:** In this method, we start with the upper limits of the classes and go on adding the frequencies. When these frequencies are plotted we get a rising curve.

II. **More than method:** In this method, we start with the lower limits of the classes and from the frequencies we subtract the frequency of each class. When these frequencies are plotted we get a declining curve.

16. Which of the following is the alternative name given to Ogive?

(*a*) Histogram **(*b*) Cumulative frequency curve**
(*c*) Both (*a*) and (*b*) **(*d*) None of these**

Ans. (*b*)

17. In which series, Ogive can be constructed?

(*a*) Individual series **(*b*) Discrete series**
(*c*) Continuous series **(*d*) Both (*b*) and (*c*)**

Ans. (*c*)

18. Ogive constructed through less than method can never be:

(*a*) rising **(*b*) declining** **(*c*) constant** **(*d*) None of these**

Ans. (*b*)

19. In more than method, frequencies are:

(*a*) added **(*b*) subtracted** **(*c*) multiplied** **(*d*) None of these**

Ans. (*b*)

Read the given case study carefully and answer the question numbers 20-23 on the basis of the same.

The median by definition refers to the middle value in a distribution. In case of median one-half of the items in the distribution have a value the size of median value or smaller and one-half have a value the size of the median value or larger. The median is called a positional average. The term position refers to the place of a value in a series. The place of the median in a series is such that an equal number of items lie on either side of it. Median is thus the central value of the distribution or the value that divides the distribution into two equal parts. The median may be defined as the middle most or central value of the variable when the values are arranged in order of magnitude, or as the value such that greater and smaller values occur with equal frequency. In the case of a frequency curve the median may be defined as that value of the variable divides the area of a curve into two equal parts.

20. Which of the following is a positional average?

(*a*) Mean **(*b*) Median** **(*c*) Mode** **(*d*) Both (*b*) and (*c*)**

Ans. (*d*)

21. Which of the following quartile is equal to median?

(*a*) Q_1 **(*b*) Q_2** **(*c*) Q_3** **(*d*) Q_4**

Ans. (*b*)

22. For calculating median, series _____ be arranged in ascending order.

(*a*) must **(*b*) need not** **(*c*) may** **(*d*) None of these**

Ans. (*a*)

23. **Identify the value of Median of the given data:**

18, 11, 14, 20, 22, 23, 12, 19, 16

(*a*) 22 (*b*) 18

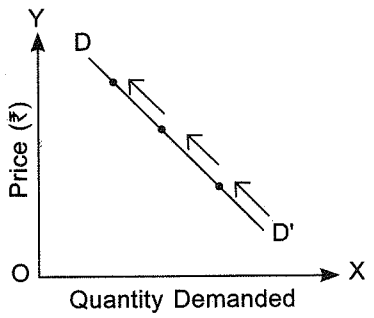
(*c*) 26 (*d*) None of these

Ans. (*b*)

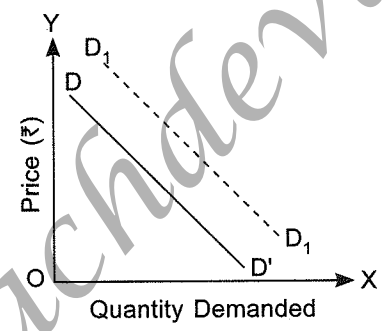
Section B: Introductory Microeconomics

24. **Which of the following diagrams given below show decrease in demand for the given good?**

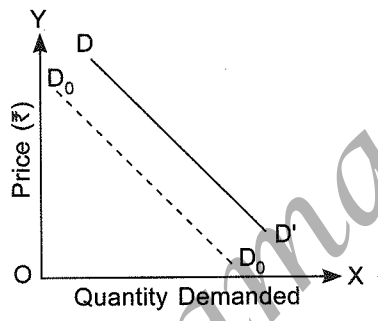
(*a*)



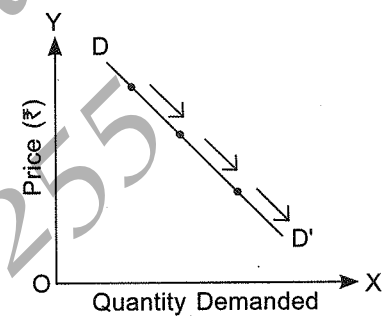
(*b*)



(*c*)



(*d*)



Ans. (*c*)

25. **Arvind is working at a salary of ₹ 70,000 per month. He receives two job offers:**

(*i*) **To work as an accountant at a salary of ₹ 60,000 per month.**

(*ii*) **To work as a sales manager at a salary of ₹ 50,000 per month.**

In the given case, his opportunity cost will be:

(*a*) ₹ 50,000 (*b*) ₹ 60,000

(*c*) ₹ 70,000 (*d*) ₹ 1,30,000

Ans. (*b*)

26. **The Government of India decided to produce 1,000 million quintals of wheat this year. The decision regarding quantity of production is a part of which central problem of the economy?**

(*a*) What to produce (*b*) How to produce

(*c*) For whom to produce (*d*) None of these

Ans. (*a*)

27. According to law of demand, other things being constant:
   (*a*) there exists negative relationship between quantity demanded and price of a commodity.
   (*b*) with increase in price, there is rightward shift in demand curve.
   (*c*) there exists positive relationship between quantity demanded and price of a commodity.
   (*d*) with increase in price, there is leftward shift in demand curve.

Ans. (*a*)

28. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Substitute goods	(*i*) Goods which are consumed together and demanded collectively
B. Inferior goods	(*ii*) Goods that have a direct relationship with the income of consumers
C. Demand curve	(*iii*) Graphical representation of the demand schedule
D. Complementary goods	(*iv*) Goods which can be used in place of one another

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

Ans. (*c*)

29. Which of the following is the salient feature of resources?
   (*a*) These are limited as compared to wants.
   (*b*) They have alternative uses.
   (*c*) Both (*a*) and (*b*)
   (*d*) They are unlimited.

Ans. (*c*)

30. According to law of diminishing marginal utility, while eating cake the satisfaction derived from the second slice of it consumed is:
   (*a*) greater than the consumption of first slice.
   (*b*) less than the consumption of first slice.
   (*c*) not comparable to that from the first.
   (*d*) equal to that from the first.

Ans. (*b*)

In the given questions (Q.31 and Q.32), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

(*b*) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)

(*c*) Assertion (A) is true but Reason (R) is false

(*d*) Assertion (A) is false but Reason (R) is true

31. **Assertion (A):** Complementary goods have joint demand.

Reason (R): Complementary goods are demanded simultaneously to satisfy a particular want.

Ans. (*a*)

32. **Assertion (A):** Sun rises in the east is a positive statement.

Reason (R): Positive statements are based upon facts and figures.

Ans. (*a*)

Read the given case study carefully and answer the question numbers 33-36 on the basis of the same.

Marginal Utility theory and derivation of demand curve through marginal utility theory was criticised for its assumptions. So, many economists tried to find a new theory without these assumptions. Ultimately JR Hicks and RG(D) Allen presented a scientific treatment to the consumer theory on the basis of ordinal utility, graphically represented by indifference curves. An indifference curve shows a set of different combinations of quantities of two goods that yield same satisfaction to the consumer. This theory was based upon the assumption of rationality, ordinality, consistency and transitivity of choices.

33. **Ordinal utility can be:**

(*a*) **measured** (*b*) **ranked**
(*c*) **Both (*a*) and (*b*)** (*d*) **None of these**

Ans. (*b*)

34. **A curve that shows various combinations of two goods giving same level of satisfaction to the consumer is _____.**

(*a*) **Indifference Curve** (*b*) **Marginal Utility Curve**
(*c*) **Total Utility Curve** (*d*) **Budget Line**

Ans. (*a*)

35. **Which of the following is not a property of indifference curve?**

(*a*) **It is negatively sloped.**
(*b*) **Two indifference curves can interest each other.**
(*c*) **Higher the indifference curve, higher the level of satisfaction**
(*d*) **None of these**

Ans. (*b*)

36. **Which of the following is not a condition for a consumer to be in equilibrium with indifference curve analysis?**

(*a*) **Indifference curve must be tangent to budget line**
(*b*) **Indifference curve must intersect budget line**
(*c*) **Indifference curve must be concave to origin**
(*d*) **Both (*b*) and (*c*)**

Ans. (*d*)

Read the given case study carefully and answer the question numbers 37-40 on the basis of the same.

Cardinal utility analysis is one such theory which tries to explain the inverse price demand relationship. According to this theory, the law of demand or inverse relationship between price and demand is based

upon law of diminishing marginal utility. The goods and services that we consume have the quality or capability of satisfying our wants. This want satisfying quality of a good or a service is called utility. If a good does not have this want satisfying quality, we should certainly not use it even if it is available free of cost. Utility is a subjective phenomenon, it does not carry any moral or ethical connotations. The want satisfying power of a commodity varies from person to person, depends upon the intensity of his wants.

37. According to utility analysis, all the points on the demand curve indicates:

(*a*) Marginal Utility = Price **(*b*) Marginal Utility > Price**

(*c*) Marginal Utility < Price **(*d*) None of these**

Ans. (*a*)

38. When Marginal Utility is zero, Total Utility is:

(*a*) Constant **(*b*) Maximum**

(*c*) Both (*a*) and (*b*) **(*d*) Zero**

Ans. (*c*)

39. Which of the following goods does not have utility, in spite used by consumers?

(*a*) Food **(*b*) Milk**

(*c*) Cigarette **(*d*) None of these**

Ans. (*d*)

40. If Marginal Rate of Substitution is increasing throughout, the Indifference Curve will be:

(*a*) downward sloping convex. **(*b*) downward sloping concave.**

(*c*) downward sloping straight line. **(*d*) upward sloping convex.**

Ans. (*b*)

PRACTICE PAPER – 2

General Instructions:

(i) All questions are compulsory.

(ii) Each question carries 1 mark.

Section A: Statistics for Economics

1. Which of the following is the correct formula to determine Arithmetic Mean in case of individual series?

(*a*) $\overline{X} = \frac{\Sigma X}{N}$

(*b*) $\overline{X} = A + \frac{\Sigma d}{N}$

(*c*) $\overline{X} = A + \frac{\Sigma d'}{N} \times C$

(*d*) All of these

2. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Pie diagram	(*i*) It is the graphical representation of a cumulative frequency distribution.
B. Frequency curve	(*ii*) It records class frequencies in a frequency distribution.
C. Ogive	(*iii*) It is a chart of circular shape broken in sub-divisions.
D. Frequency polygon	(*iv*) It refers to a curve representing a frequency distribution.

(*a*) A – (*i*)

(*b*) B – (*ii*)

(*c*) C – (*iii*)

(*d*) D – (*iv*)

3. Median and Quartiles can be calculated in case of continuous series only after arranging the data in:

(*a*) Ascending order

(*b*) Descending order

(*c*) Either (*a*) or (*b*)

(*d*) None of these

4. For presenting the 12th class exam results of different faculty (Science, Commerce and Arts) of a school pertaining the last 3 years in an impressive way, which of the following diagrams will be suitable?

(*a*) Simple bar diagram (*b*) Multiple bar diagram
(*c*) Sub-divided bar diagram (*d*) Both (*b*) and (*c*)

5. The most appropriate measure of central tendency in case of data of varying importance is:

(*a*) Combined Mean (*b*) Weighted Mean
(*c*) Assumed Mean (*d*) All of these

6. An advertising agency mailed 100 questionnaires to the viewers to know the impact of the advertisement. It received only one questionnaire back. It is not possible to apply statistics because:

(*a*) it does not deal with qualitative data. (*b*) it does not deal with single result.
(*c*) the answer replied is not clear. (*d*) it is not confidential.

7. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Percentile	(*i*) It divides the distribution into fifty equal parts.
B. Quartile	(*ii*) It divides the data into eight equal parts.
C. Median	(*iii*) It is the first value of the series when the data is arranged in ascending order.
D. Mode	(*iv*) It is the most common value in a series.

(*a*) A – (*i*) (*b*) B – (*ii*)
(*c*) C – (*iii*) (*d*) D – (*iv*)

8. The statistical data collected by _____ released through its quarterly journal called _____.

(*a*) ISO; Sarvekshana (*b*) DCI; Sanchetna
(*c*) AIS; Sanchetna (*d*) NSSO; Sarvekshana

9. In a family of 5 persons, there are three earning members having monthly incomes of ₹ 20,000, ₹ 25,000 and ₹ 30,000. The average monthly income of a member in the family is:

(*a*) ₹ 25,000 (*b*) ₹ 15,000
(*c*) ₹ 20,000 (*d*) ₹ 30,000

10. Which of the following is not the source of government publications?

(*a*) Annual Survey of Industry (*b*) Report on Currency
(*c*) Finance Commission Report (*d*) Agricultural Statistics of India

11. Histogram is useful to determine graphically the value of:

(*a*) Mean (*b*) Median
(*c*) Mode (*d*) All of these

12. Formula for calculating Combined Arithmetic Mean is:

(*a*) $\overline{X}_{12} = \frac{N_1 + N_2}{\overline{X}_1 + \overline{X}_2}$ (*b*) $\overline{X}_{12} = \frac{\overline{X}_1 + \overline{X}_2}{N_1 + N_2}$

(*c*) $\overline{X}_{12} = \frac{\overline{X}_1 N_1 + \overline{X}_2 N_2}{N_1 + N_2}$ (*d*) Both (*a*) and (*b*)

In the given questions (Q.13 to Q.15), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

(*b*) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)

(*c*) Assertion (A) is true but Reason (R) is false

(*d*) Assertion (A) is false but Reason (R) is true

13. **Assertion (A):** Median is graphically located through Ogive.
Reason (R): Median is an arithmetic average.

14. **Assertion (A):** Symmetrical distribution is a bell shaped curve.
Reason (R): In actual life, most of the distributions are symmetrical.

15. **Assertion (A):** Mode can be calculated through diagram.
Reason (R): Mode is an arithmetic average.

Read the given case study carefully and answer the question numbers 16-19 on the basis of the same.

Statistics may be defined as the science of collection, organisation, presentation, analysis and interpretation of numerical data. There are five stages in a statistical investigation.

Collection of data form the foundation of statistical analysis. if data are faulty then conclusions drawn can never be reliable.

Organisation of data means classification of raw data for a statistical enquiry. Classification is done on the basis of some common characteristic.

Presentation of data means giving order to data for statistical investigation.

Interpretation of data means drawing conclusions from the analysed data which require a high degree of skill and experience.

Analysis of data means use of some statistical method like measures of central tendency, correlation etc.

16. _____ means classification of raw data for a statistical enquiry.

(*a*) Collection of data (*b*) Organisation of data

(*c*) Presentation of data (*d*) Analysis of data

17. Which of the following is the first stage of statistics in singular sense?

(*a*) Organisation (*b*) Presentation
(*c*) Collection (*d*) None of these

18. _____ means giving order to data for statistical investigation.

(*a*) Collection (*b*) Presentation
(*c*) Interpretation (*d*) Analysis

19. Statistical methods are used in _____ of data.

(*a*) Collection (*b*) Presentation
(*c*) Interpretation (*d*) Analysis

Read the given case study carefully and answer the question numbers 20-23 on the basis of the same.

Frequency distribution is a table, which shows how the different values of a variable are distributed in different classes along with their corresponding class frequencies. The frequency distribution summarises the raw data by making it concise and comprehensible. However, it does not show the details that are found in raw data and leads to loss of information. Frequency distribution can also be done for two variables known as bivariate frequency distribution. When the data is classified on the basis of two variables such as sales and purchase, export and imports etc. the distribution is known as bi-variate frequency distribution or two way frequency distribution.

20. Frequency distribution leads to loss of information as variable is arranged in:

(*a*) ascending order (*b*) descending order
(*c*) a class (*d*) All of these

21. Univariate frequency distribution has _____ variable.

(*a*) one (*b*) two
(*c*) Both (*a*) and (*b*) (*d*) three

22. _____ is calculated through univariate variable.

(*a*) Mean (*b*) Median
(*c*) Mode (*d*) All of these

23. Mid-value series is an example of _____ series.

(*a*) individual (*b*) discrete
(*c*) continuous (*d*) None of these

Section B: Introductory Microeconomics

24. Which of these is a condition for consumer's equilibrium by indifference curve analysis?

(*a*) $MU_X = P_X$ (*b*) $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$

(*c*) $MRS_X = \frac{P_X}{P_Y}$ (*d*) $MU_X = MU_Y$

25. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Demand schedule	(*i*) Shows the relationship between the price and quantity demanded of a commodity
B. Total utility	(*ii*) Additional satisfaction derived from the consumption of an additional unit of a commodity
C. Budget line	(*iii*) A line showing same combinations of two goods which a consumer can attain with given income and market price of the good
D. Indifference curve	(*iv*) A set of indifference curves placed together in a diagram

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

26. Which of the following is not a factor effecting elasticity of demand?

(*a*) Nature of goods (*b*) Number of uses of the commodity
(*c*) Availability of substitute goods (*d*) Quantity of the commodity demanded

27. One factor that causes a leftward shift of the demand curve out of the following is:

(*a*) Fall in income (*b*) Rise in the price of complementary goods
(*c*) Rise in income (*d*) Fall in the price of substitute goods

28. Giffen good is:

(*a*) An inferior good
(*b*) One with high negative income elasticity of demand
(*c*) Consumed by low-paid workers
(*d*) All of these

29. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Utility	(*i*) Satisfaction an individual derives from the consumption of a given commodity
B. Cardinal utility	(*ii*) Utility as expressed in terms of ranks such as first, second, third and fourth
C. Ordinal utility	(*iii*) Utility as expressed in terms of units such as 2, 4, 6, 8 and 10
D. Market demand	(*iv*) Quantity of a commodity that a consumer is willing and able to buy at a given price over a period of time

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

30. Marginal Utility of nth unit is calculated as:

(*a*) $MU_n = TU_n - TU_{n+1}$ (*b*) $MU_n = TU_n + TU_{n+1}$

(*c*) $MU_n = TU_n + TU_{n-1}$ (*d*) $MU_n = TU_n - TU_{n-1}$

In the given questions (Q.31 and Q.32), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

(*b*) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)

(*c*) Assertion (A) is true but Reason (R) is false

(*d*) Assertion (A) is false but Reason (R) is true

31. **Assertion (A):** Budget line is also known as consumption possibility curve.

Reason (R): Budget line is a negatively sloped straight line.

32. **Assertion (A):** An indifference curve is always convex to the origin.

Reason (R): MRS is always diminishing because of law of diminishing marginal utility.

Read the given case study carefully and answer the question numbers 33-36 on the basis of the same.

Microeconomics can be regarded as the study of decisions that people and businesses make in terms of allocation of resources including land, labour, capital and price of goods and services.

- Microeconomics mainly focuses on supply and demand and other forces that determine the price levels prevalent in the economy.
- Macroeconomics, on the other hand, is the field of economics that studies the behaviour of the economy as a whole and not just on specific company or individuals, but the entire industries and economies.
- This looks at wider phenomena, such as Gross National Product (GNP) and how it is affected by changes of unemployment, national income, rate of growth, and price levels.
- For example, macroeconomics would look at how an increase or decrease in net exports would affect a nation's capital account or how GNP would be affected by such indexes like unemployment rate.
- The summed up inference is that microeconomics takes a wholesome approach to analysing the economy while macroeconomics takes a superficial approach.

33. Microeconomics is not concerned with the behaviour of:

(*a*) national income (*b*) a consumer

(*c*) a firm (*d*) a producer

34. Which of the following is the example of macroeconomics?

(*a*) National Income (*b*) Population Growth

(*c*) Unemployment (*d*) All of these

35. Price theory is studied under _____ branch of economics.

(*a*) Micro (*b*) Macro

(*c*) Both (*a*) and (*b*) (*d*) None of these

36. Total output of an economy is the sum of total output of individual producers. This statement proves that:

(*a*) macroeconomics depends on microeconomics.

(*b*) there is no correlation between micro and macroeconomics.

(*c*) study of micro and macroeconomics is independent of each other.

(*d*) microeconomics is dependent on macroeconomics.

Read the given case study carefully and answer the question numbers 37-40 on the basis of the same.

Elasticity of demand refers to the degree or the extent of change in the demand of a commodity in response to a given change in price. We know that, other things being equal, a change in price of a commodity causes a change in its demand. But the change in demand in case of different goods in response to a change in price may be of varying magnitudes. It means given the change in price of two goods their demand may change differently. This degree of responsiveness or extent to change in quantity demanded to a given change in price is called elasticity of demand. Elasticity of demand also affect the shape of demand curve.

37. When two demand curves intersect, which one has higher elasticity at the point of intersection?

(*a*) Flatter to *x*-axis (*b*) Steeper to *x*-axis

(*c*) Both have same elasticity (*d*) None of these

38. When demand curve of a commodity is inelastic, its curve is:

(*a*) Parallel to *y*-axis (*b*) Parallel to *x*-axis

(*c*) Steeper to *x*-axis (*d*) None of these

39. Which of the following demand curves is rectangular hyperbola?

(*a*) Less than unit elastic (*b*) More than unit elastic

(*c*) Unit elastic (*d*) None of these

40. When price of a good rises from ₹ 10 to ₹ 20 per unit, its demand remains the same. What will be its elasticity?

(*a*) Perfectly inelastic (*b*) Perfectly elastic

(*c*) Inelastic (*d*) Both (*a*) and (*c*)

ANSWERS

1. (*d*)	**2.** (*d*)	**3.** (*a*)	**4.** (*d*)	**5.** (*b*)	**6.** (*b*)
7. (*d*)	**8.** (*d*)	**9.** (*b*)	**10.** (*c*)	**11.** (*c*)	**12.** (*c*)
13. (*c*)	**14.** (*c*)	**15.** (*c*)	**16.** (*b*)	**17.** (*c*)	**18.** (*b*)
19. (*d*)	**20.** (*c*)	**21.** (*a*)	**22.** (*d*)	**23.** (*c*)	**24.** (*c*)
25. (*a*)	**26.** (*d*)	**27.** (*a*)	**28.** (*d*)	**29.** (*a*)	**30.** (*d*)
31. (*b*)	**32.** (*a*)	**33.** (*a*)	**34.** (*d*)	**35.** (*a*)	**36.** (*a*)
37. (*a*)	**38.** (*c*)	**39.** (*c*)	**40.** (*a*)		

PRACTICE PAPER – 3

General Instructions:

(i) All questions are compulsory.

(ii) Each question carries 1 mark.

Section A: Statistics for Economics

1. Which of the following is not a characteristic of the mean?

(*a*) It minimises the sum of squared deviations.

(*b*) It is affected by extreme scores.

(*c*) It is best used with ordinal data.

(*d*) The sum of the deviations about the mean is 0.

2. The factors of production are:

(*a*) manager, labour, raw material and land

(*b*) machinery, factory, electricity and labour

(*c*) entrepreneur, land, labour and capital

(*d*) money, labour, entrepreneur and raw material

3. The relative magnitude of Mean, Median and Mode is:

(*a*) Mean > Median > Mode (*b*) Mode > Median > Mean

(*c*) Median > Mean > Mode (*d*) Mean > Mode > Median

4. Which of the following is the correct sequence of steps of statistical tools?

(*a*) Collection of data, Organisation of data, Presentation of data, Analysis of data, Interpretation of data

(*b*) Organisation of data, Presentation of data, Collection of data, Interpretation of data, Analysis of data

(*c*) Collection of data, Analysis of data, Presentation of data, Organisation of data, Interpretation of data

(*d*) Collection of data, Analysis of data, Organisatgion of data, Presentation of data, Interpretation of data

5. Which of the following is prepared by using class intervals and frequencies?

(*a*) Histograms, Frequency Polygons and Ogive
(*b*) Histograms, Pie chart and Ogive
(*c*) Histograms, Frequency Polygons and Time series graph
(*d*) Histograms, Pie chart and Time series graph

6. Match the following Column I and Column II and choose the correct alternative:

Column I	Column II
A. Mode	(*i*) Middle value in the arranged data
B. Median	(*ii*) Helps in graphically locating the mode
C. Histogram	(*iii*) Helps in graphically locating the median
D. Ogives	(*iv*) Value occurring most frequently in a set of observations

(*a*) A – (*iii*), B – (*iv*), C – (*ii*), D – (*i*)
(*b*) A – (*i*), B – (*iii*), C – (*ii*), D – (*iv*)
(*c*) A – (*iii*), B – (*ii*), C – (*i*), D – (*iv*)
(*d*) A – (*iv*), B – (*i*), C – (*ii*), D – (*iii*)

7. A grouped frequency distribution with uncertain first or last class is known as:

(*a*) Inclusive class distribution
(*b*) Exclusive class distribution
(*c*) Discrete frequency distribution
(*d*) Open-ended distribution

8. Which of the following is not a form of presentation of data?

(*a*) Descriptive presentation
(*b*) Tabular presentation
(*c*) Caption presentation
(*d*) Diagrammatic presentation

9. In an office, there are 70% clerks, 20% assistants and 10% executives. On average, the salary of a clerk is ₹ 12,000 p.m., of the assistant ₹ 14,000 p.m. and that of an executive ₹ 20,000 p.m. The average salary of an employee in the office is:

(*a*) ₹ 14,000 p.m.
(*b*) ₹ 15,500 p.m.
(*c*) ₹ 13,200 p.m.
(*d*) None of these

10. The scope of statistics extends to:

(*a*) government
(*b*) industry
(*c*) economics
(*d*) All of these

11. Which of the following statements is true?

(*a*) The sum of deviations of items from median is zero.
(*b*) Arithmetic mean is a positional value.
(*c*) Upper quartile is the value of top 25% of items.
(*d*) Median is unduly affected by extreme observations.

17. Mode is useful for _____ data.

(*a*) quantitative (*b*) qualitative (*c*) Either (*a*) or (*b*) (*d*) Both (*a*) and (*b*)

18. Identify the value of Mode of the given data:

2, 2, 3, 3, 4, 4, 5, 5, 6, 6, 7, 7

(*a*) 2 (*b*) 3

(*c*) 4 (*d*) Cannot be determined

19. In a symmetrical distribution:

(*a*) Mode is greater than Median and Mean

(*b*) Mode is less than Median and Mean

(*c*) Mode is equal to Median and Mean

(*d*) Mode is greater than Mean but less than Median

Read the given case study carefully and answer the question numbers 20-23 on the basis of the same.

Census of India is a decennial publication of the Government of India. It is published by Registrar General and Census Commissioner, under Ministry of Home Affairs, Government of India. It is a very comprehensive source of secondary data. It relates to population size and various aspects of demographic changes in India. It may be of historical interest that though the population Census of India is a major administrative function; the census Organisation was set up on an ad-hoc basis for each Census till the 1951 Census. The Census Act was enacted in 1948 to provide for the scheme of conducting population census with duties and responsibilities of census officers. The Government of India decided in May 1949 to initiate steps for developing systematic collection of statistics on the size of the population, its growth, etc., and of Home Affairs under Registrar General and ex-Officio Census Commissioner, India.

20. Census of India is carried out once in _____ years.

(*a*) 10 (*b*) 15 (*c*) 20 (*d*) 25

21. Data originally collected in the process of investigation is known as _____ data.

(*a*) primary (*b*) secondary (*c*) Either (*a*) or (*b*) (*d*) Neither (*a*) nor (*b*)

22. The problem of double conclusion arises in _____ method.

(*a*) Direct personal investigation (*b*) Indirect oral investigation

(*c*) Mailing questionnaire (*d*) None of these

23. Post independence, the first Census of India was conducted in _____.

(*a*) 1949 (*b*) 1950 (*c*) 1952 (*d*) 1951

Section B: Introductory Microeconomics

24. Expansion in demand occurs due to:

(*a*) Rise in price of the given good (*b*) Fall in price of the given good

(*c*) Rise in price of substitute goods (*d*) Fall in price of complementary goods

12. Identify the correct pair from Column I and Column II and choose the correct alternative:

Column I	Column II
A. Frequency distribution	(*i*) Discrete series
B. Frequency array	(*ii*) Continuous series
C. Exclusive series	(*iii*) Upper limit of the class is included
D. Inclusive series	(*iv*) Both limits of the class are included

(*a*) A – (*i*) (*b*) B – (*ii*) (*c*) C – (*iii*) (*d*) D – (*iv*)

In the given questions (Q.13 to Q.15), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

(*b*) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)

(*c*) Assertion (A) is true but Reason (R) is false

(*d*) Assertion (A) is false but Reason (R) is true

13. **Assertion (A):** Arithmetic mean is a rigidly defined value.
Reason (R): An average helps in comparing one set of data with the other.

14. **Assertion (A):** All data is not statistics.
Reason (R): Data which is comparable is statistics.

15. **Assertion (A):** Classification is the process of arranging data into sequence and groups.
Reason (R): Data are classified according to their common characteristics for separating them into different but related groups.

Read the given case study carefully and answer the question numbers 16-19 on the basis of the same.

The mode or modal value is that value in a series of observations which occur with the greatest frequency. Since this value occurs more frequently than any of the others if a graph of a distribution is available, mode is readily ascertainable as the abscissa of the highest point of the distribution curve. The mode is often said to be the value which occurs most often, that is, with the highest frequency while this statement is quite helpful in interpreting the mode, it cannot safely be applied to any distribution, because of the vagaries of sampling. Rather it should be thought as a value about which the items are most closely concerned. It is the value which has the greatest frequency density in its immediate neighbourhood. For this reason mode is also called the most typical or fashionable value of a distribution. Although mode is that value which occurs most frequently, yet it does not follow that its frequency represents a majority out of all the total number of frequencies.

16. _____ is used to calculate mode.

(*a*) Ogive (*b*) Multiple Bar Diagram
(*c*) Histogram (*d*) Both (*b*) and (*c*)

25. Opportunity cost is:

(*a*) the additional benefit of buying an additional unit of a product

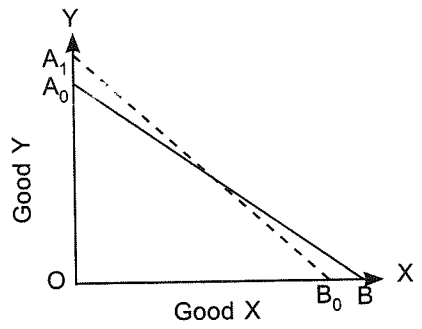
(*b*) the cost incurred in the past before we make a decision about what to do in future

(*c*) a cost that is borne in terms of discomfort and pain while supplying factors of production

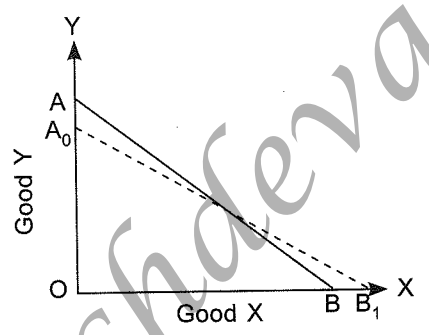
(*d*) that which we forgo, or give up, while making a choice or a decision

26. When P_X falls and P_Y rises, the shift in the budget line is shown by which diagram?

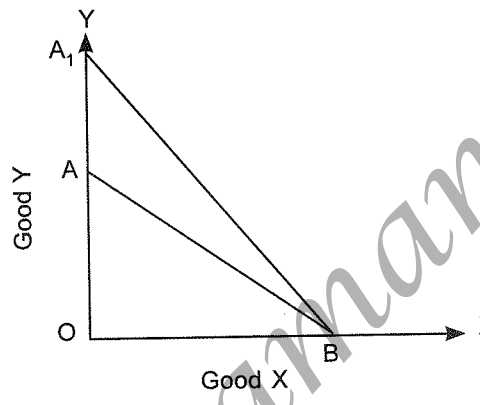
(*a*)



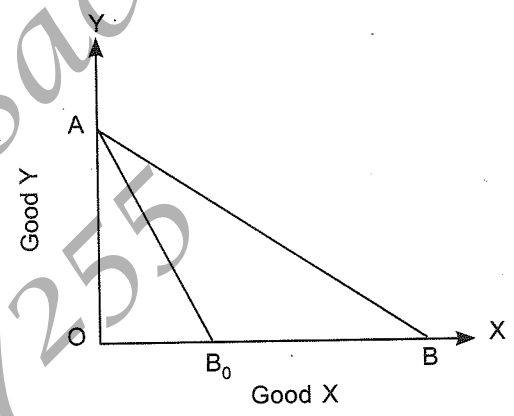
(*b*)



(*c*)



(*d*)



27. In the context of rising prices, following statements are made by two people:

Hemant: Prices in the economy are continuously rising.

Sachin: The Government should take reasonable steps to control rising prices.

Identify the statements as Positive Statement and Normative Statement.

(*a*) Hemant: Positive; Sachin: Normative

(*b*) Hemant: Normative; Sachin: Positive

(*c*) Both are Positive Statements

(*d*) Both are Normative Statements

28. A negative sign with coefficient of price elasticity of demand denotes:

(*a*) Direct relation between price and quantity demanded of a good

(*b*) Inverse relation between price and quantity demanded of a good

(*c*) No relation between price and quantity demanded of a good

(*d*) None of these

29. The necessary condition under utility approach to attain consumer's equilibrium in case of two commodity is:

(*a*) $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$ (*b*) $MRS_X = \frac{P_X}{P_Y}$ (*c*) $MU_X = P_X$ (*d*) None of these

30. Match the following Column I and Column II and choose the correct alternate:

Column I	Column II
A. Normative economics	(*i*) Discovery of new natural resources
B. Microeconomics	(*ii*) It is suggestive in nature.
C. Growth of resources	(*iii*) Cotton Industry
D. What to produce	(*iv*) Selection of goods and services to be produced

(*a*) A – (*ii*), B – (*iii*), C – (*i*), D – (*iv*) (*b*) A – (*iii*), B – (*ii*), C – (*iv*), D – (*i*)
(*c*) A – (*iv*), B – (*ii*), C – (*i*), D – (*iii*) (*d*) A – (*iv*), B – (*i*), C – (*ii*), D – (*iii*)

In the given questions (Q.31 and Q.32), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(*a*) **Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)**

(*b*) **Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)**

(*c*) **Assertion (A) is true but Reason (R) is false**

(*d*) **Assertion (A) is false but Reason (R) is true**

31. **Assertion (A):** Marginal Utility can never be zero.
Reason (R): Total Utility is maximum, when Marginal Utility is zero.

32. **Assertion (A):** Scarcity is the mother of all economic problems.
Reason (R): Scarcity and choice go hand in hand.

Read the given case study carefully and answer the question numbers 33-36 on the basis of the same.

We defined demand as the amount of some product that a consumer is willing and able to purchase at each price. This suggests at least two factors, in addition to price, that affect demand. 'Willingness to purchase' suggests a desire to buy, and it depends on what economists call tastes and preferences. If you neither need nor want something, you won't be willing to buy it. 'Ability to purchase' suggests that income is important. The price of related goods can also affect demand. If you need a new car, for example, the price of a Honda may affect your demand for a Ford. Finally, the size or composition of the population can affect demand. The more children a family has, the greater is their demand for clothing. The more driving-age children a family has, the greater is their demand for car insurance and the less is their demand for diapers and baby formula.

33. Which of the following is an element of demand?

(*a*) Willingness to purchase
(*b*) Ability to purchase at a given price
(*c*) Both (*a*) and (*b*)
(*d*) None of these

34. 'Willingness to purchase' depends upon _____ of the consumer.

(*a*) taste
(*b*) preference
(*c*) income
(*d*) Both (*a*) and (*b*)

35. 'Ability to purchase' depends upon _____.

(*a*) taste
(*b*) income
(*c*) preference
(*d*) All of these

36. Which of the following is not the factor that affects demand?

(*a*) Price of related goods
(*b*) Income of a consumer
(*c*) Price of given good
(*d*) None of these

Read the given case study carefully and answer the question numbers 37-40 on the basis of the same.

A consumer's choices are limited by the budget available. Total spending for goods and services can fall short of the budget constraint but may not exceed it.

Algebraically, we can write the budget constraint for two goods X and Y as:

$$P_X \cdot Q_X + P_Y \cdot Q_Y \leq B$$

where PX and PY are the prices of goods X and Y and QX and QY are the quantities of goods X and Y chosen. The total income available to spend on the two goods is B, the consumer's budget. Equation states that total expenditure on goods X and Y (the left-hand side of the equation) cannot exceed B.

For a consumer who buys only two goods, the budget constraint can be shown with a budget line. A budget line shows graphically the combinations of two goods a consumer can buy with a given budget.

37. Which of the following is an important element of budget line?

(*a*) Price of first commodity
(*b*) Price of second commodity
(*c*) Income of consumer
(*d*) All of these

38. Budget line represents all those combinations in which entire money income _____ spend.

(*a*) is not
(*b*) need not
(*c*) is
(*d*) might be

39. All the combinations that lie inside the budget line are the part of _____.

(*a*) budget set
(*b*) budget line
(*c*) Both (*a*) and (*b*)
(*d*) None of these

40. Keeping other factors constant, if price of a good on *x*-axis increases, budget line will:

(*a*) move rightward on *x*-axis
(*b*) move leftward on *x*-axis
(*c*) shift rightward on both axis
(*d*) None of these

ANSWERS

1. (*c*)	**2.** (*c*)	**3.** (*a*)	**4.** (*a*)	**5.** (*a*)	**6.** (*d*)
7. (*d*)	**8.** (*c*)	**9.** (*c*)	**10.** (*d*)	**11.** (*c*)	**12.** (*d*)
13. (*b*)	**14.** (*a*)	**15.** (*a*)	**16.** (*c*)	**17.** (*d*)	**18.** (*c*)
19. (*c*)	**20.** (*a*)	**21.** (*a*)	**22.** (*b*)	**23.** (*d*)	**24.** (*b*)
25. (*d*)	**26.** (*b*)	**27.** (*a*)	**28.** (*b*)	**29.** (*a*)	**30.** (*a*)
31. (*d*)	**32.** (*b*)	**33.** (*c*)	**34.** (*b*)	**35.** (*b*)	**36.** (*d*)
37. (*a*)	**38.** (*c*)	**39.** (*a*)	**40.** (*b*)		

PRACTICE PAPER – 4

Section-A
Statistics for Economics

Multiple Choice Questions

Direction (Q.Nos. 1 to 11) *All the questions have four options out of which only one is correct. Choose the correct option as your answer.*

1. According to Prof. Adam Smith, the subject matter of economics is restricted to study of human behaviour. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

2. Which of the following is not a method of statistical enquiry?
(a) Collecting of primary data
(b) Organisation of data
(c) Analysis of statistical data
(d) Summarising the statistical data

3. All the measures are equal to each other in case of ..... .
(a) symmetrical distribution
(b) asymmetrical distribution
(c) continuous frequency distribution
(d) cumulative frequency distribution

4. You are given with a statistical information related to production of face mask across different parts of the country during the pandemic time. The above case refers to which type of classification of data?
(a) Spatial classification
(b) Temporal classification
(c) Chronological classification
(d) None of the above

5. Which of the following method of presentation of data have a long lasting impact on mind of people who are reading the data?
(a) Tabular presentation
(b) Diagrammatic presentation
(c) Graphical presentation
(d) Both (b) and (c)

6. An act of earning livelihood by doing some productive work is known as a ..... .
(a) Market economic activity
(b) Non-market economic activity
(c) Non-economic activity
(d) Either (a) or (b)

7. Arithmetic mean is the only measure of central tendency which cannot be calculated using the empirical relationship. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

8. As per the property of arithmetic mean, it is ..... of change in origin.
(a) dependent (b) independent
(c) affected (d) None of these

9. Mode is the most ill-defined measure of central tendency as compared to arithmetic mean and median. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

10. Which of the following measures should be used to analyse higher quarter of the data arranged in increasing order?
(a) Median (b) Lower quartile
(c) Upper quartile (d) Both (b) and (c)

11. Tabulation is the process of presenting statistical information with heterogeneous characteristics in the same group. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

Assertion-Reasoning MCQs

Direction (Q.Nos. 12 to 13) *There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

12. **Assertion** (A) Bi-variate frequency distributions can be used to present more than two attributes of a statistical enquiry.

Reason (R) The statistical data arranged based upon the homogeneous attributes are capable of further statistical analysis.

13. **Assertion** (A) Any individual quantitative information do not contribute to a statistical enquiry.

Reason (R) Statistics is aggregate of facts which includes quantitative information placed in groups according to common attributes.

Case Based MCQs

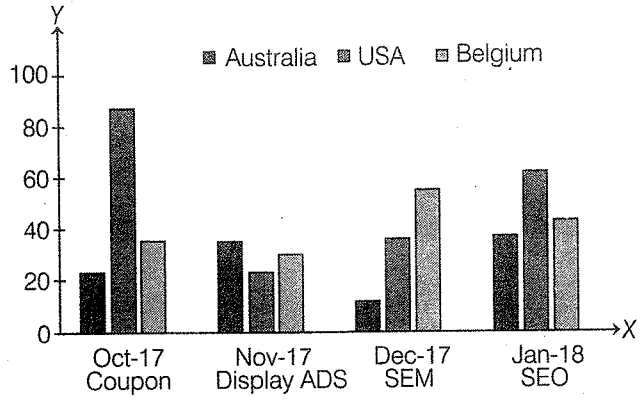
Direction *Analyse the following case study table and graph and answer questions 14 to 18.*

Given below are the two different forms of presentation of data

Age Cohort	Male		Female		Total	
	N	%	N	%	N	%
0-14	90	20.7	90	20.7	180	41.4
20-34	45	10.3	80	18.4	125	28.7
35-44	70	16.1	20	4.6	90	20
45-54	20	4.6	5	1.1	25	5.7
55 and above	5	1.1	10	2.3	15	3.4
Total	**230**	**52.8**	**205**	**47.1**	**435**	**100**

Source : *Author's field work, 2015*

Trend Analysis–Graphical Representation
Amount of Sales per month per country (2017-18)



14. Which of the following components is missing from the table given above?
(a) Title of the table
(b) Stubs
(c) Captions
(d) Source

15. The division based upon the gender in the above table is ..... .
(a) stub (b) caption
(c) body of the table (d) None of these

16. The information presented using the graphical mode represents deviation bar graph. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

17. ..... are used to present more than one related components together in a graphical form.
(a) Simple horizontal bar graphs
(b) Simple vertical bar graphs
(c) Multiple bar graphs
(d) None of the above

18. In the above table, which of the following unit of measurement is used to present the information?
(a) Absolute number
(b) Proportionate number
(c) Percentage number
(d) None of the above

Direction *Analyse the following case study graphs and answer questions 19 to 23.*

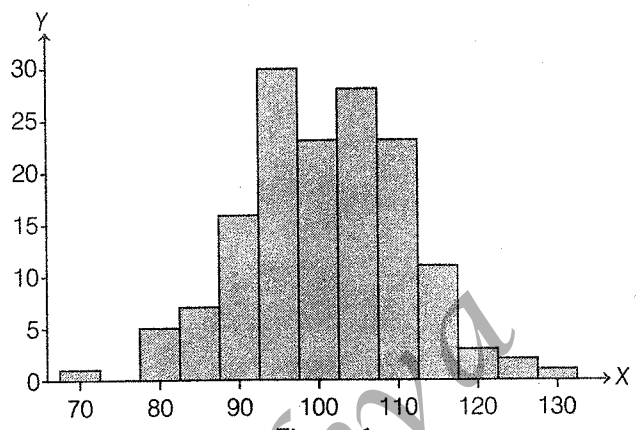


Figure-1

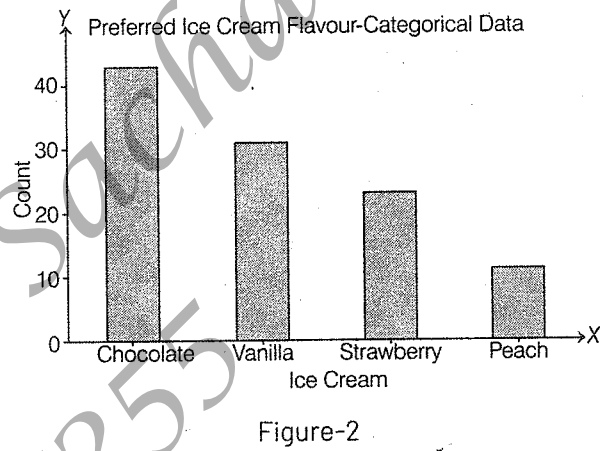


Figure-2

19. As per figure-1, arithmetic mean value will lie in which of the following range?
(a) 80-90 (b) 90-100
(c) 100-110
(d) Can't be calculated with the help of given data

20. As per figure-1, mode value will lie in which of the following range?
(a) 80-90 (b) 90-100
(c) 100-110
(d) Can't be calculated

21. Which of the following flavours of ice-cream represent the mode value in figure-2?
(a) Peach (b) Strawberry
(c) Vanilla (d) Chocolate

22. Mode value of a given series can be located using ..... .
(a) Histogram only
(b) Bar graphs only
(c) Both (a) and (b)
(d) Neither (a) nor (b)

23. Median cannot be located graphically using figure-1 alone. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

Section B
Introductory Microeconomics

Multiple Choice Questions

Direction (Q.Nos. 24 to 32) *All the questions have four options out of which only one is correct. Choose the correct option as your answer.*

24. At all points on an indifference curve, a consumer gets ..... level of satisfaction.
(a) same (b) increasing
(c) decreasing
(d) All of the above

25. In which of the following case, demand curve for a normal good will not shift from its original position?
(a) Increase in income of the consumer
(b) Increase in the price of good concerned
(c) Decrease in the price of its complementary goods
(d) None of the above

26. Choose the incorrect pair from given below.

Column I	Column II
A. Economic problems	(i) Problem of choice
B. Scarcity	(ii) Limited supply
C. Theory of income determination	(iii) Macroeconomics
D. Market economy	(iv) Profit motive

Codes
(a) A - (i) (b) B - (ii)
(c) C - (iii) (d) D - (iv)

27. Elasticity of demand for comfort goods are ..... .
(a) highly elastic (b) moderately elastic
(c) inelastic (d) highly inelastic

28. Demand curve of a giffen good is upward sloping. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

29. The demand of sanitizers suddenly increase during the covid-19 pandemic. Study of this market comes under the scope of study of which of the following branches of Economics?
(a) Microeconomics (b) Macroeconomics
(c) Both (a) and (b) (d) Neither (a) nor (b)

30. Normative statements can never be converted in positive economics under any circumstance. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

31. Which of the following goods follows law of demand?
(a) Normal goods
(b) Inferior goods (which are not giffen)
(c) Both (a) and (b) (d) Neither (a) nor (b)

32. Choose the correct pair from given below.

Column I	Column II
A. Cardinal approach of utility	(i) Prof. Allen
B. Ordinal approach of utility	(ii) Quantitative in nature
C. Utility of a commodity	(iii) Objective in nature

Codes
(a) A – (i)
(b) B – (ii)
(c) C – (iv)
(d) All of the above pairs are incorrect

Assertion-Reasoning MCQs

Direction (Q.Nos. 33 to 35) *There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

33. **Assertion** (A) Verification of any given statement is possible only in case of normative sciences.

Reason (R) Economist uses various statements to represent different economic situations either based upon judgement or facts.

34. **Assertion** (A) When more of a good is demanded at the same price, Law of DMU does not hold true for that good.

Reason (R) Law of DMU has universal acceptability with few assumptions, postponements and exceptions.

35. **Assertion** (A) Elasticity of demand plays a vital role in deciding the shape of demand curve for a normal good.

Reason (R) Demand curve for a luxury good is flatter as compared to the demand curve of a normal good.

Case Based MCQs

Direction *Read the following case study and answer questions 36 to 40.*

The research of Vietnam Public Health University shows that each year, smoking kills 40,000 Vietnamese, four times the fatalities from traffic accidents. Total expenditures of treating three common diseases involving smoking include lung cancer, chronic obstructive pulmonary disease and ischemia heart disease comes to 1,100 billion VND/year.

According to Mrs. Hoang Anh from Health Bridge Organisation in Hanoi, at the same brand of cigarette, a pack of it in Vietnam has the cheapest price. The average retail price of cigarettes is 0.22 USD/pack - a price that almost cannot be found anywhere in the world. Thus, the youth is easier to approach smoking since cigarettes are too cheap and too simple to buy.

In fact, as the statistics of SAVY (Survey Assessment of Vietnamese Youth) in 2003 - 2004, in the age of 14 - 25, 43.6 per cent smoker is male and 1.2 per cent is female, the rate of smokers increase with age. 71.7 per cent male smoker continues smoking. Mrs. Hoang Anh said the reason of low-cost cigarette is because in Vietnam, the tax imposed on cigarettes are among the lowest.

Recently, the WHO has recommended the cigarette tax should be at 65 per cent/retail costs, however, Vietnam has just reached 46 per cent. The price elasticity concepts can be used in this case in an effort to deter people from smoking.

Tobacco products are kind of goods with inelastic demand since there is almost no substitute goods for them. Therefore, it is hard to reduce the amount of people smoking once they have been addicted. Moreover, cigarettes also have a high-income elasticity of demand as people with high income will be willing to buy a lot more of packs of cigarettes, thus, they become more and more addicted.

36. Demand of cigarettes among youth in the above case is ..... .

(a) elastic (b) inelastic
(c) perfectly elastic (d) perfectly inelastic

37. Impact on demand for tobacco product is found to be ..... in teenagers.

(a) elastic (b) inelastic
(c) perfectly inelastic (d) perfectly elastic

38. In Indian markets, it has been observed that in spite of increased taxes demand for tobacco products remained high.

Choose the most appropriate reason from the given below points.

(a) Strong taste and preferences
(b) Unawareness about the ill effects
(c) No proper implication of policies
(d) All of the above

39. What will be the demand curve of perfectly inelastic demand curve?

(a) Horizontal line parallel to X-axis
(b) Vertical line parallel to Y-axis
(c) Straight line passing through origin
(d) Rectangular hyperbola

40. **Assertion** (A) Total expenditure remains high on the commodity with low price elasticity of demand.

Reason (R) Consumption of tobacco products including cigarettes have inelastic demand as compared to non-tobacco products.

Alternatives

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (a) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

PRACTICE PAPER – 5

Section-A
Statistics for Economics

Multiple Choice Questions

Direction (Q.Nos. 1 to 11) *All the questions have four options out of which only one is correct. Choose the correct option as your answer.*

1. Which of the following definition of economics studies about the "Mankind in the ordinary business of life"?
(a) Wealth definition (b) Welfare definition
(c) Both (a) and (b) (d) Neither (a) nor (b)

2. A teacher helping his own son in doing his homework is an example of ..... activity.
(a) non-market economic
(b) market economic
(c) self-satisfying
(d) non-economic

3. An ideal questionnaire should be comprised of multiple choice questions as much as possible. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

4. Which of the following methods of presentation uses degree as a unit of measurement?
(a) Bar graphs
(b) Arithmetic line graphs
(c) Histograms
(d) Pie-diagrams

5. If mode of a given data is 20 while median is 18 and mean is 15, the given data will be ..... .
(a) symmetrical distribution
(b) positively skewed distribution
(c) negatively Skewed distribution
(d) Can't be predicted

6. Statistics deals only with quantitative facts. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

7. In which of the following methods of collecting primary data, the investigator does not come in direct contact with respondents?
(a) Indirect oral investigation
(b) Questionnaire filled by enumerators
(c) Both (a) and (b)
(d) Neither (a) nor (b)

8. The measure of central tendency which is calculated on the basis of the weights assigned to each unit of the data is called ..... .
   (a) Unweighted mean (b) Combined mean
   (c) Weighted mean (d) Corrected mean

9. There can be more than one median value in an asymmetrical distribution. Choose from the options below.
   (a) True
   (b) False
   (c) Partially true
   (d) Incomplete statement

10. Which of the following is/are true about the line graphs?
   (a) Line graphs can be drawn in either horizontal or vertical form
   (b) Line graphs may be drawn with different scales
   (c) Both (a) and (b)
   (d) Neither (a) nor (b)

11. When the means of different series are computed jointly, it is known as
   (a) Corrected mean (b) Combined mean
   (c) Correlated mean (d) None of these

Assertion-Reasoning MCQs

Direction (Q.Nos. 12 to 13) *There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

12. **Assertion** (A) In a line graph, the lines connecting the data points state the statistical representation of data.

   Reason (R) In diagrammatic presentation of data, the scale of measurement plays a major role to present the given statistical information.

13. **Assertion** (A) All measures of central tendencies can be computed only when the data is presented using an exclusive frequency distribution method.

   Reason (R) Inclusive frequency distribution does not represent the data between the class limits of the different classes.

Case Based MCQs

Direction *Read the following case study and answer questions 14 to 18.*

Observation allows researchers to experience a specific aspect of social life and get a first-hand look at a trend, institution, or behaviour. Participant observation involves the researcher joining a sample of individuals without interfering with that group's normal activities in order to document their routine behaviour or observe them in a natural context.

Observational research is a type of descriptive research that differs from most other forms of data gathering as in that the researcher's goal is not to manipulate the variables being observed.

While participants may or may not be aware of the researchers' presence, the researchers do not try to control variables (as in an experiment), or ask participants to respond to direct questions (as in an interview or survey based study).

Instead, the participants are simply observed in a natural setting, defined as a place in which behaviour ordinarily occurs, rather than a place that has been arranged specifically for the purpose of observing the behaviour.

Unlike correlational and experimental research which use quantitative data, observational studies tend to use qualitative data.

Source-*https://courses.lumenlearning.com/boundless-psychology/chapter/methods-of-collecting-data/*

14. As mentioned in the above paragraph, observational research is a part of which of the following methods of collecting data?
(a) Personal investigation
(b) Information from correspondents
(c) Questionnaire filled by the enumerators
(d) None of the above

15. Which of the following are the advantages of observational research technique?
(a) Verification of data
(b) Flexibility
(c) Unbiased
(d) All of the above

16. **Assertion** (A) Observational research techniques cannot be applied where the area of statistical enquire is infinite.
Reason (R) Observational method is capable of dealing with both quantitative and qualitative information.
Alternatives
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

17. Correlational and experimental research can only use quantitative statistical information. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

18. Which of the given below is/are true about observational research method?
(a) It is a type of descriptive in nature
(b) It is non-judgemental
(c) Rely upon the body language of the respondents
(d) All of the above

Direction *Given below are two tabular presentations of data. Analyse them and answer questions 19 to 23.*

Marks distribution of students in a given examination (out of 80)

Marks of Students	No. of Students
5-15	10
15-25	5
25-35	3
35-45	8
45-55	2
55-65	2
65-75	10

Number of Cars owned by families in a particular society

No. of Cars	Families
0	5
1	25
2	8
More than 2	3

19. As per table-1, the mode value will lie in which of the following intervals (by observation method)?
(a) 5-15 (b) 35-45
(c) 65-75 (d) Both (a) and (c)

20. What will be the value of median in table-2?
(a) 0 (b) 1
(c) 2 (d) More than 2

21. Calculate the value of unweighted mean in table-1.
(a) 35 (b) 37.5
(c) 38.5 (d) Can't be determined

22. The mean value of table-2 will be ..... .
(a) 1 (b) 2
(c) 3 (d) Can't be determined

23. The arithmetic mean value for table-2 is indeterminate as it is ..... series.
(a) discrete (b) open-ended
(c) continuous (d) unequal

Section-B
Introductory Microeconomics

Multiple Choice Questions

Direction (Q.Nos. 24 to 32) *All the questions have four options out of which only one is correct. Choose the correct option as your answer.*

24. Elastic demand varies from ..... to ..... .
(a) zero, one
(b) more than zero, infinity
(c) more than one, infinity
(d) None of the above

25. Correct the incorrect pair from given below.

Column I	Column II
A. India is relatively poor than the USA	(i) Normative science
B. Problem of underemployment in agriculture	(ii) Microeconomics
C. Scarcity of resources	(iii) Unlimited supply

Codes
(a) A - (i)
(b) B - (ii)
(c) C - (iii)
(d) All of the above

26. Viaan likes to consume coffee over tea. For him, two different brands for coffee will be an example of ..... .
(a) substitute goods
(b) complementary goods
(c) luxury goods
(d) None of the above

27. Choose the correct pair from given below.

Column I	Column II
A. Goods with higher utility	(i) Higher price
B. Luxury goods	(ii) Inelastic demand
C. Downward sloping demand curve	(iii) Giffen goods
D. Increase in price of complementary goods	(iii) Rightward shift in demand curve

Codes
(a) A - (i) (b) B - (ii)
(c) C - (iii) (d) D - (iv)

28. The problem of choice arises due to which of the following reasons?
(a) Limited resources
(b) Unlimited wants of mankind
(c) Multiple use of resources
(d) All of the above

29. Labour intensive technique of production does not require any use of capital. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

30. The graphical presentation of law of demand is known as
(a) Demand schedule
(b) Demand curve
(c) Both (a) and (b)
(d) None of the above

31. On a straight line downward sloping demand curve, price elasticity of demand varies from 0 to 1. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

32. Which of the following is the sufficient condition of equilibrium under ordinal approach?
(a) Equality of MRS and MRE
(b) Downward slope of budget line
(c) Convexity of indifference curve
(d) Tangency of budget line and indifference curve

Assertion-Reasoning MCQs

Direction (Q.Nos. 33 to 35) *There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below*
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

33. **Assertion** (A) A demand function represents the relation between price of the commodity and quantity at all times.
Reason (R) Demand for given commodity is affected by multiple factors categorised as price and other factors.

34. **Assertion** (A) Inter–temporal distribution of income is the main component of third central problem of an economy.
Reason (R) Income distribution generated in the production process among various groups of the society ensures equality among people.

35. **Assertion** (A) Once a consumer reaches the point of equilibrium, he will never change his preferences under any situation.
Reason (R) Income of the consumer is the constraint which restricts him from reaching the highest possible combination of goods.

Case Based MCQs

Direction *Read the following case study and answer questions 36 to 40.*

A shoe shop decided to offer a sale. It sells more shoes but take in less money per pair sold. The gain or loss from the sale depends majorly upon the price elasticity of demand. The future of any business depend upon the market opportunity and profitability.

Elasticity of demand is the key in such case, it is a measure of responsiveness, a point to which a demand or supply curve reacts to a change in price.

Understanding elasticity concept is useful and essential in comprehending an extremely wide range of applications in economics such as the incidence of taxation, welfare distribution or especially, the response of supply and demand in a market. The common elasticities used include price elasticity of demand, price elasticity of supply and income elasticity of demand.

36. The firm will gain more from the sale only, when the price elasticity of demand is ..... .
(a) less than one
(b) more than one
(c) equal to one
(d) All of the above

37. **Assertion** (A) Elasticity of demand helps in identifying the presence of a group of consumers in market.

Reason (R) The responsiveness of demand against the changing determinants decides the movement of market in long-run.

Alternatives

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

38. Suppose the shoe seller has a competitors available in the market. What type of price elasticity of demand will this shoe seller will face?

(a) Perfectly elastic demand
(b) Perfectly inelastic demand
(c) Elastic demand
(d) Inelastic demand

39. Which of the following is/are the common form(s) of elasticity used in the market by various business firms to determine the level of demand?

(a) Price elasticity of demand
(b) Price elasticity of supply
(c) Income elasticity of demand
(d) Both (a) and (c)

40. Considering the market demand for shoes, which of the statement will be correct?

(a) Market demand will be more elastic as compared to individual demand
(b) Market demand will be less elastic as compared to individual demand
(c) Market demand will have equal elasticity as individual demand
(d) None of the above

PRACTICE PAPER – 6

Section-A
Statistics for Economics

Multiple Choice Questions

Direction (Q. Nos. 1 to 12) *All the questions have four options out of which only one is correct. Choose the correct option as your answer.*

1. Statistics is defined as collection of quantitative facts as per which of the following definition?
(a) Singular definition
(b) Plural definition
(c) Both (a) and (b)
(d) None of the above

2. Statistics cannot be substituted for ..... .
(a) general knowledge
(b) common sense
(c) attributes
(d) variables

3. Arithmetic mean of a given series is 20. If a number 3 is multiplied with each number of the series, new arithmetic mean will be ..... .
(a) 20
(b) 40
(c) 60
(d) Can't be determined

4. The statistical errors that arise in the process of collection of data includes
(a) sampling errors
(b) non-sampling errors
(c) Both (a) and (b)
(d) None of the above

5. No statistical information is cent per cent accurate at any point of time. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

6. Statistical information is required in which of the following areas?
(a) Economic laws
(b) Economic policies
(c) Government administration
(d) All of the above

7. Arithmetic mean is a number which is always present in the given series. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

8. Which of the following source of information has a wide scope of information?
(a) Internal sources of data
(b) External sources of data
(c) Secondary information
(d) All of the above

9. Choose the incorrect pair from given below.

Column I	Column II
A. Collecting information for a vast universe	(i) Enumerator method
B. Regular source of information	(ii) Local correspondents
C. Selecting sample based upon the judgement	(iii) Random sampling
D. No visual feedback available	(iii) Telephonic interview

Codes
(a) A – (i)
(b) B – (ii)
(c) C – (iii)
(d) D – (iv)

10. Every method of collecting primary data is biased in nature due to human involvement. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

11. If mean of a distribution is 20 and number of items in the distribution is ₹ 10, what will be the sum of all the items in the given series?
(a) 200
(b) 400
(c) 500
(d) Can't be determined

12. Mode of a given series is given as 15 while median is equal to 20. The value of arithmetic mean will be
(a) 15.25 (b) 22.50
(c) 25
(d) Can't be determined

Assertion-Reasoning MCQ

13. **Assertion** (A) The second quartile represents the average number of the given series.

Reason (R) Median and quartiles are partition values of measures of central tendency.

Alternatives
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

Case Based MCQs

Direction *Read the following case study and answer questions 14 to 18.*

Statistics is all about data. Presenting data effectively and efficiently is an art. The collected data in the first instance might have many complexities. This is where the importance of presentation of data comes in. Presentation is a way to simplify the data to enhance human understanding. With time, new and complex research started happening, people realised the importance of the presentation of data to make sense of the findings. Broadly, the raw data can be classified using three modes namely textual, tabular and diagrammatic. Each method is used for different purposes with its own merits and demerits.

14. The data which is gathered and presented in various paragraph forms is known as ..... .
(a) Textual presentation
(b) Tabular presentation
(c) Diagrammatic presentation
(d) None of the above

15. Which of the following is/are the components of textual presentation?
(a) Texts (b) Figures
(c) Both (a) and (b) (d) None of these

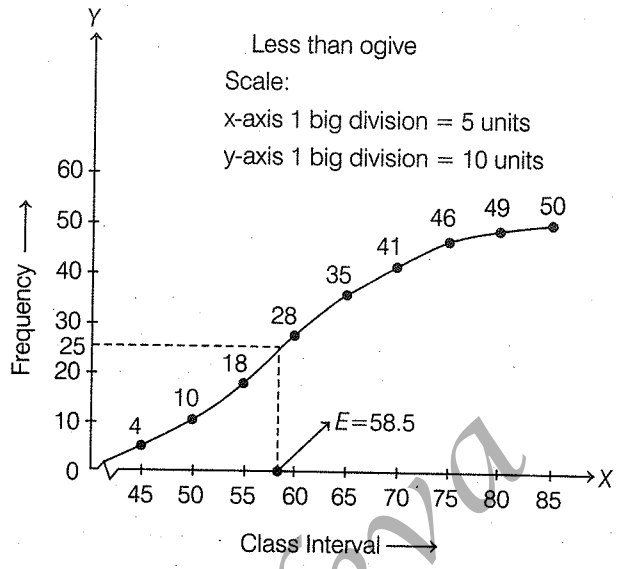
16. Systematic arrangement of data using various rows and columns is known as
(a) Textual presentation
(b) Tabular presentation
(c) Diagrammatic presentation
(d) None of the above

17. ..... uses small identical figures or objects for comparison of various data.
(a) Pictographs (b) Diagrams
(c) Graphs (d) All of these

18. Visual presentation of data includes which of the following methods of data?
(a) Diagrammatic presentation
(b) Graphical presentation
(c) Both (a) and (b)
(d) None of the above

Direction *Read the following case study and answer questions 19 to 23.*

Arithmetic mean has become the most widely used measure of central tendency of data. Arithmetic mean, which has maximum merits and least demerits, is the most meritorious measure of central tendency of data among all other existing measures for the same. One demerit of arithmetic mean is that it is affected by the extreme value (of observed data). After mean, the most used method is median and the least used method is mode due to the complexity in its calculation. Observe the figure given below and answer the questions.



19. In the above figure, median value is given as
(a) 55 (b) 58.5
(c) 60
(d) Can't be determined

20. Which of the following is used to calculate median in the diagram?
(a) (N/2)th term (b) {(N+1)/2}th term
(c) (N/4)th term (d) {(N+1)/4}th term

21. Mean is the most used method of central tendency in spite of the fact that it is affected by sampling fluctuations. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

22. Which of the following formulae can be used to calculate lower quartile in the above graph?
(a) (N/4)th term
(b) {(N+1)/4}th term
(c) 3(N/4)th term
(d) {3(N+1)/4}th term

23. ..... th item will be the upper quartile in the above data.
(a) 12.5 (b) 25
(c) 37.5 (d) 50

Section-B
Introductory Microeconomics

Multiple Choice Questions

Direction (Q.Nos. 24 to 31) *All the questions have four options out of which only one is correct. Choose the correct option as your answer.*

24. Choose the correct pair from given below.

Column I	Column II
A. Quantity of each good to be produced	(i) What to produce?
B. Technique of production	(ii) How to produce?
C. Distribution of income	(iii) For whom to produce?

Codes
(a) A - (i) (b) B - (ii)
(c) C - (iii) (d) All of the above

25. Total utility is maximum when marginal utility becomes negative. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

26. "What it ought to be" is a common phrase used for positive statements. Choose from the options below.
(a) True
(b) False
(c) Partially true
(d) Incomplete statement

27. If consumer has an income of ₹ 1,000 and price of good X is ₹ 10 while the price of good Y is ₹ 5, the intercept of budget line on Y-axis will be equal to .....
(a) 100 (b) 200
(c) 500 (d) Can't be determined

28. A consumer is in equilibrium consuming two goods X and Y. What will be the effect on demand for good Y, if price of good X falls?
(a) Demand for good Y will remain unchanged
(b) Demand for good Y will fall
(c) Demand for good Y will rise
(d) Depends upon the magnitude of change in price of good X

29. Which of the following is/are not true about law of diminishing marginal utility?
(a) Law operates only when the consumption is continuous
(b) Knowledge is an exception of the law
(c) The quality of goods consumed should be same for the applicability of the law
(d) All of the above are true statements

30. Development of infrastructure planned in the government budget comes under the scope of study of which of the following branch of economics?
(a) Microeconomics
(b) Macroeconomics
(c) Descriptive economics
(d) Applied economics

31. In the calculation of price elasticity of demand, actual price is measured in
(a) numerator
(b) denominator
(c) Not included in the formula
(d) Either (a) or (b) depending upon nature of the good

Assertion-Reasoning MCQs

Direction (Q.Nos. 32 to 35) *There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

32. **Assertion** (A) All giffen goods need not necessarily be inferior depending upon the level of income.

Reason (R) Any luxury good that has positive relation with the price is a giffen good.

33. **Assertion** (A) Demand curve for an inferior good will shift to the left with rise in the income of the consumer.

Reason (R) When income levels increase, consumers demand for superior quality goods increases overtime.

34. **Assertion** (A) Any good that can be put to multiple use have highly elastic demand.

Reason (R) When the price of a good falls, many new consumer enters the market and one good is used in many ways.

35. **Assertion** (A) Scarcity is the root cause of problem of choice that every economy has to face at points of time.

Reason (R) There is no way by which the central problems of an economy can be solved once for all.

Case Based MCQs

Direction *Read the following case study and answer questions 36 to 40.*

A study of demand and supply of quality of televisions in 13 European countries utilise data on exports and imports of various types of television sets. Large-screen TVs have a higher unit value, on average, but there is a large dispersion of unit values across source countries and destinations. Richer countries tend to export large-screen TVs at a lower price relative to small-screen TVs, potentially because they have a comparative advantage in producing in quality. It was found that there is a downward sloping demand for quality, with countries facing a larger quality premium buying fewer large-screen TVs.

This suggests that there is no simple quality-quantity trade-off (unlike in many recent trade models), and the demand for quality should be modelled separately.

36. The large screen TVs have a higher unit due to which of the following reasons?
(a) High income of the consumers
(b) Preferences of the consumer
(c) Both (a) and (b)
(d) Neither (a) nor (b)

37. The price elasticity of demand of large-screen televisions will be highly elastic. Choose from the options below.
(a) True (b) False
(c) Partially true
(d) Incomplete statement

38. **Assertion** (A) The demand curve for televisions is downward sloping and steeper.

Reason (R) When the demand is less responsive to change in price, its elasticity becomes inelastic.

Alternatives
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is false, but Reason (R) is true
(d) Both are false

39. Export price of large television screen is low due to ..... .
(a) competitiveness (b) efficiency
(c) productive (d) low demand

40. When people are ignorant about the price changes of a good, its demand is said to be
(a) price elastic (b) price inelastic
(c) price unit elastic (d) None of these

ANSWERS

Practice Paper 1

1. (b)	2. (d)	3. (a)	4. (a)	5. (d)	6. (d)	7. (b)	8. (b)	9. (a)	10. (c)
11. (b)	12. (c)	13. (a)	14. (a)	15. (a)	16. (b)	17. (c)	18. (c)	19. (d)	20. (b)
21. (d)	22. (a)	23. (a)	24. (a)	25. (b)	26. (c)	27. (b)	28. (a)	29. (a)	30. (b)
31. (c)	32. (d)	33. (c)	34. (a)	35. (b)	36. (b)	37. (a)	38. (d)	39. (b)	40. (a)

Practice Paper 2

1. (b)	2. (d)	3. (a)	4. (d)	5. (c)	6. (b)	7. (c)	8. (c)	9. (b)	10. (c)
11. (b)	12. (b)	13. (c)	14. (a)	15. (d)	16. (b)	17. (a)	18. (d)	19. (d)	20. (b)
21. (c)	22. (d)	23. (b)	24. (b)	25. (d)	26. (a)	27. (a)	28. (d)	29. (b)	30. (b)
31. (b)	32. (c)	33. (c)	34. (c)	35. (c)	36. (a)	37. (b)	38. (c)	39. (d)	40. (a)

Practice Paper 3

1. (b)	2. (b)	3. (c)	4. (c)	5. (a)	6. (d)	7. (b)	8. (b)	9. (c)	10. (a)
11. (a)	12. (b)	13. (d)	14. (a)	15. (c)	16. (b)	17. (a)	18. (c)	19. (b)	20. (a)
21. (b)	22. (a)	23. (c)	24. (d)	25. (b)	26. (b)	27. (b)	28. (b)	29. (d)	30. (b)
31. (a)	32. (d)	33. (a)	34. (a)	35. (b)	36. (c)	37. (b)	38. (a)	39. (b)	40. (b)