

Economics

Time allowed: 3 hours**Maximum Marks: 80****General Instructions:**

1. This question paper contains two parts:
Part A - Statistics (40 marks)
Part B - Micro Economic (40 marks)
2. Marks for questions are indicated against each question.
3. Question No. 1-7 and Question No. 16 – 22 are 1 mark questions and are to be answered in one word/sentence.
4. Question No. 8-10 and Question No. 23 – 25 are 3 marks questions and are to be answered in 60 - 80 words each.
5. Question No. 11-13 and Question No. 26 – 28 are 4 marks questions and are to be answered in 80-100 words each.
6. Question No. 14-15 and Question No. 29 – 30 are 6 marks questions and are to be answered in 100-150 words each.
7. Answers should be brief and to the point and the above word limit be adhered to as far as possible.

Solution

Q	PART - A (STATISTICS)	Marks
1	Absolute measures	1
2	Non-Economic	1
3	Title	1
4	Wholesale price index	1
5	c. (i) (c) (ii) (a) (iii) (b)	1
6	True	1
7	All of the above	1

8	<p>(a) Easy to understand: It should be easy to understand so that a layman can use it.</p> <p>(b) Based on all observations: Average should be calculated by taking into consideration each and every item of the series.</p> <p>(c) Not affected much by extreme values: The value of an average should not be affected much by extreme values. One or two very small or very large values, should not reduce or increase the value of the average.</p>	3																					
9	<p>Mode: Mode is that value which occurs most frequently in a distribution. It is the most common value found in a series. It is that value of the variable which has the highest frequency.</p> <p>Merits of mode:</p> <p>(a) No need of complete data: We can find mode even in case of open-ended frequency distribution. We basically need the point of maximum concentration of frequencies, it is not necessary to know all the values.</p> <p>(b) Useful for both quantitative & qualitative data: It can be used to describe quantitative as well as qualitative data. For example: In the surveys it is used to measure taste and preferences of people for a particular brand of the commodity.</p> <p>OR</p> <table border="1"> <thead> <tr> <th>Marks (X)</th><th>Number of Students (f)</th><th>fx</th></tr> </thead> <tbody> <tr> <td>10</td><td>10</td><td>100</td></tr> <tr> <td>20</td><td>30</td><td>600</td></tr> <tr> <td>30</td><td>40</td><td>1200</td></tr> <tr> <td>40</td><td>35</td><td>1400</td></tr> <tr> <td>50</td><td>25</td><td>1,250</td></tr> <tr> <td></td><td>$\sum f = N = 140$</td><td>$\sum fx = 4,550$</td></tr> </tbody> </table> $\bar{X} = \frac{\sum fx}{\sum f} = \frac{4,550}{140} = 32.5$ <p>Average mark of students is 32.5.</p>	Marks (X)	Number of Students (f)	fx	10	10	100	20	30	600	30	40	1200	40	35	1400	50	25	1,250		$\sum f = N = 140$	$\sum fx = 4,550$	3
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$$\begin{aligned}
 M_e &= \text{Size of } \left(\frac{N}{2} \right)^{\text{th}} \text{ item} \\
 &= \text{Size of } \left(\frac{760}{2} \right)^{\text{th}} \text{ item} \\
 &= 380^{\text{th}} \text{ item}
 \end{aligned}$$

Median lies in the group 200 - 300. Applying the formula, we get

$$M_e = l_1 + \frac{\frac{N}{2} - c.f.}{f} \times i$$

Where, $l_1 = 200$, $\frac{N}{2} = 380$, $c.f. = 258$, $f = 296$, $i = 100$

$$\begin{aligned}
 M_e &= 200 + \frac{380 - 258}{296} \times 100 \\
 &= 200 + \frac{122 \times 100}{296} \\
 &= 200 + \frac{12,200}{296} \\
 &= 241.216
 \end{aligned}$$

Median size of land holding = 241.216 acres.

12

The total of the percentages is 100. Hence the total angle 360° represents 100. To find the proportionate angles, multiply each percentage by $= 3.6^\circ$. These proportionate values are shown ahead:

4

Items of Expenditure	Percentage (%) Expenditure	Proportionate Angles
Food	60%	$60 \times 3.6 = 216$
Clothing	15%	$15 \times 3.6 = 54$
Housing	10%	$10 \times 3.6 = 36$
Fuel and Lighting	12%	$12 \times 3.6 = 43.2$
Miscellaneous	3%	$3 \times 3.6 = 10.8$
	100%	360°

The circle is divided into 5 parts according to the degrees of angles at the centre.

Pie Diagram showing Expenditure average working class family on Different

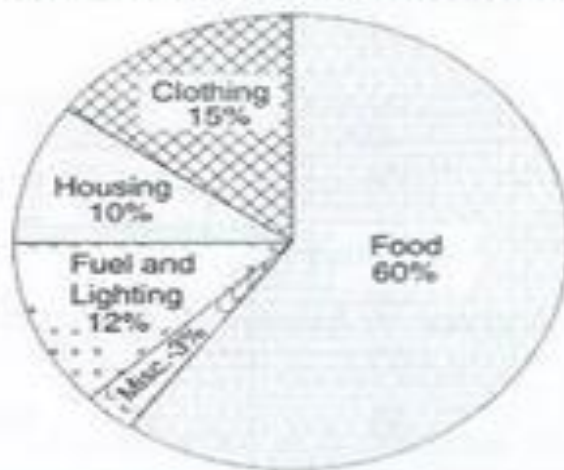


Fig. 13

OR

	<p>(a) Simple bar diagram: Simple Bar diagram comprises a group of rectangular bars of equal width for each class or category of data. It is the simplest form of bar diagram.</p> <p>In this type of diagram, one bar represents only one figure. There will be as many bars as the number of figures. The distance between the bars should be equal.</p> <p>(b) Multiple bar diagram: This diagram is used when we have to make a comparison between two or more variables like income and expenditure, import and export for different years, marks obtained in different subjects in different classes, etc.</p> <p>The method of preparation of multiple bar diagrams is the same as that of simple bar diagrams. It is also known as "Compound Bar Diagram".</p>	
13	<p>Solution:</p> <p>(i) <i>Coefficient of variation (CV)</i> $= \frac{\sigma}{\bar{X}} \times 100$</p> <p>$CV = 29.2$ and $\bar{X} = 202.4$</p> $29.2 = \frac{\sigma}{202.4} \times 100$ $\sigma = \frac{29.2 \times 202.4}{100}$ $\sigma = \frac{5910.08}{100} = 59.10$ <p>(ii)</p> $CV = \frac{\sigma}{\bar{X}} \times 100$ <p>$CV = 73.8$ and $\bar{X} = 202.5$</p> $73.8 = \frac{\sigma}{202.5} \times 100$ $\sigma = \frac{73.8 \times 202.5}{100} = 149.44$	4

14

6

$$\text{Covariance of } X \text{ and } Y = \frac{\sum xy}{N} = 24.6$$

$$\text{Variance of } X = (\sigma_x)^2 = 24.6$$

$$\text{SD of } X = \sqrt{24.6} = 4.96$$

$$\text{Variance of } Y = (\sigma_y)^2 = 32.8$$

$$\text{SD of } Y = \sqrt{32.8} = 5.73$$

$$\text{Applying formula, } r = \frac{\sum xy}{N \cdot \sigma_x \cdot \sigma_y} = \frac{\sum xy}{N} \times \frac{1}{\sigma_x} \times \frac{1}{\sigma_y}$$

$$\text{Now, we get } r = 24.6 \times \frac{1}{4.96} \times \frac{1}{5.73} = 24.6 \times 0.20 \times 0.17 = 0.84$$

Hence, there is high degree of positive correlation between X and Y.

OR

Let the missing frequency be f_1

Class Interval	Frequency (f)	Mid -values (m)	fm
0 - 10	10	5	50
10 - 20	f_1	15	$15f_1$
20 - 30	24	25	600
30 - 40	36	35	1,260
40 - 50	10	45	450
50 - 60	6	55	330
	$\sum f = 86 + f_1$		$\sum fm = 2,690 + 15f_1$

Applying formula,

$$\bar{x} = \frac{\sum fm}{\sum f}$$

	<p>Standard Deviation:</p> $\sigma = \sqrt{\frac{\sum fx^2}{N}}$ <p>Here, $\sum fx^2 = 320$, $N = 30$</p> $\sigma = \sqrt{\frac{320}{30}} = \sqrt{10.666} = 3.266$ <p>Standard deviation = 3.266 marks</p>	
	Microeconomics	
16	All of the above	1
17	Perfect competition	1
18	Law of diminishing marginal utility OR Indifference map	1
19	False, Budget set refers to a set of attainable combinations of two goods, given market price of goods and income of the consumer. It includes all the combinations on the budget line as well as inside the budget line.	1
20	Oligopoly	1
21	Price and MR curves are the same for a competitive firm, as price remains same at all the levels of output.	1
22	Demand Curve is negatively sloped showing the inverse relationship between price and quantity demanded of the commodity.	1

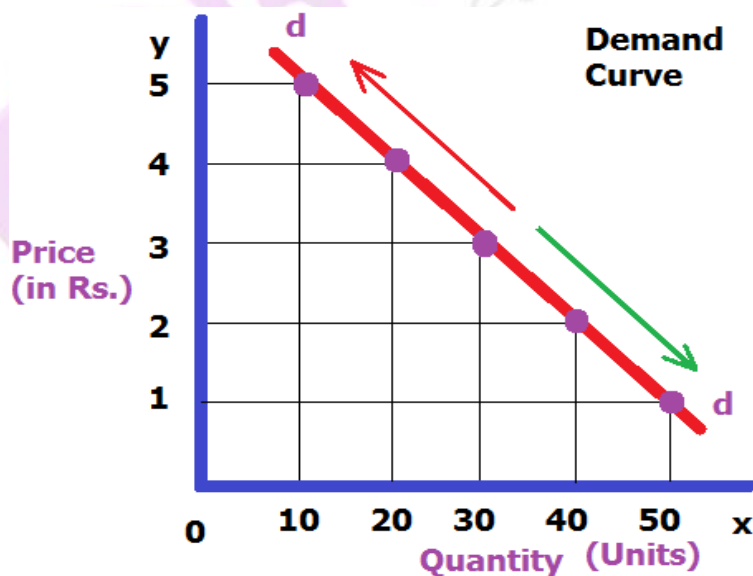
23	<table border="1" data-bbox="240 247 1344 1100"> <thead> <tr> <th>Basis</th><th>Microeconomics</th><th>Macroeconomics</th></tr> </thead> <tbody> <tr> <td>(a) Meaning</td><td>It is the branch of economics that studies the behavior of individual units of an economy like an individual household, a firm or an industry.</td><td>It is the branch of economics that studies the behavior of macro aggregates of the economy as a whole or in totality.</td></tr> <tr> <td>(a) Deals with</td><td>Microeconomics deals with various issues like demand, supply, factor pricing, product pricing, economic welfare, production, consumption, etc.</td><td>Macroeconomics deals with various issues like national income, distribution, employment, general price level, money, etc.</td></tr> <tr> <td>(c) Significance</td><td>Useful in regulating the prices of a product alongside the prices of factors of production</td><td>Perpetuates firmness in the broad price level and solves the major issues of the economy like deflation, inflation, rising prices</td></tr> <tr> <td>(d) Examples</td><td>Demand for commodity, price of a commodity, film industry, car industry, supply of Capital Goods, Consumer's equilibrium etc.</td><td>National Income, Aggregate output, Aggregate Demand, Unemployment, Inflation etc.</td></tr> </tbody> </table> <p>OR</p> <p>Meaning: Marginal Rate of Transformation (MRT) is the rate at which quantity of a commodity is sacrificed to produce one more unit of the other good.</p> <p>Formula:</p> $\text{MRT} = \frac{\text{Units of commodity 1 sacrificed (Loss)}}{\text{Additional units of commodity 2 obtained (Gain)}}$ <p>Example:</p> <p>Suppose, an economy produces two goods P and Q.</p> <p>If we apply all the resources fully and efficiently, we can produce 1P+12Q.</p> <p>If we want to produce 2P then we have to cut down production of Q by 2 units. Here 2 units of Q are the opportunity cost of producing 1 unit of P.</p> <p>Thus 2Q:1P is the MRT.</p>	Basis	Microeconomics	Macroeconomics	(a) Meaning	It is the branch of economics that studies the behavior of individual units of an economy like an individual household, a firm or an industry.	It is the branch of economics that studies the behavior of macro aggregates of the economy as a whole or in totality.	(a) Deals with	Microeconomics deals with various issues like demand, supply, factor pricing, product pricing, economic welfare, production, consumption, etc.	Macroeconomics deals with various issues like national income, distribution, employment, general price level, money, etc.	(c) Significance	Useful in regulating the prices of a product alongside the prices of factors of production	Perpetuates firmness in the broad price level and solves the major issues of the economy like deflation, inflation, rising prices	(d) Examples	Demand for commodity, price of a commodity, film industry, car industry, supply of Capital Goods, Consumer's equilibrium etc.	National Income, Aggregate output, Aggregate Demand, Unemployment, Inflation etc.	3
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24	<p>Following are the properties of indifference curve</p> <p>(a) Indifference curve always slopes downwards from left to right:</p> <p>An indifference curve has a negative slope, i.e. it slopes downward from left to right. If a consumer decides to have one more unit of a commodity (say apples), the quantity of another good (say oranges) must fall so that the total satisfaction (utility) remains the same.</p>	3															

	<p>(b) Indifference curve is always convex to the origin: IC is strictly Convex to origin i.e. MRS_{xy} is always diminishing Due to the law of diminishing marginal utility a consumer is always willing to sacrifice lesser units of a commodity for every additional unit of another good.</p> <p>(c) Higher indifference curve represents higher level of satisfaction: Higher indifference curve represents larger bundles of goods i.e. bundles which contain more of both or more of at least one. It is assumed that consumer's preferences are monotonic i.e. he always prefers larger bundles as it gives him higher satisfaction.</p> <p>(d) Indifference curves can never intersect each other: As two indifference curve cannot give the same level of satisfaction, they cannot intersect each other. It means only one indifference curve will pass through a given point on an indifference curve.</p>									
25	<table><tr><td>Original Quantity (Q) = 200 units</td><td>Original Price = ₹8</td></tr><tr><td>New Quantity (Q1) = 150 units</td><td>New Price = ?</td></tr><tr><td>Change in quantity (ΔQ) = -50 units</td><td>Change in Price (ΔP) = ΔP</td></tr><tr><td colspan="2">Elasticity of Demand (E_d) = (-) 1</td></tr></table> <p>$\text{Price elasticity of demand (} E_d \text{)} = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$</p> <p>$-1 = \frac{-50}{\Delta P} \times \frac{8}{200}$</p> <p>$\Delta P = ₹2$</p> <p>As the quantity demanded is decreasing, price will increase. It means, New price = Original price (P) + Change in price (ΔP) = 8 + 2 = ₹10 New price = ₹10</p>	Original Quantity (Q) = 200 units	Original Price = ₹8	New Quantity (Q1) = 150 units	New Price = ?	Change in quantity (ΔQ) = -50 units	Change in Price (ΔP) = ΔP	Elasticity of Demand (E_d) = (-) 1		3
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26	<p>Solution: Law of demand: This law states that, other things being constant, quantity demanded of a commodity rises/expands with fall in price and falls/contracts with rise in price i.e. there is an inverse relation between price and quantity demanded.</p>	4								

Hypothetical demand schedule and curve:

Demand Schedule

Price (in Rs.)	Quantity Demanded (in units)
5	10
4	20
3	30
2	40
1	50



In the above schedule and diagram, we can observe that at a price of Rs.2 quantity demanded is 40 units. When prices rise to Rs.3 quantity demanded falls to 30 units and when it falls to Re.1, quantity demanded rises to 50 units. Thus, it establishes the inverse relation between price and quantity demanded.

27	<table><tr><td>(a) Increase in the income of the household (in case of normal goods)</td><td><ul style="list-style-type: none">• If the income of the household increases, it will enable him to buy more.• Price of the goods is the same and income has increased, so demand by a household will also increase.</td></tr><tr><td>(b) Increase in the price of substitute goods</td><td>If the price of substitute good rises, demand for the given commodity will also rise, as the given commodity will become relatively cheaper and consumers will substitute the costly good with the cheaper one.</td></tr><tr><td>(c) Decrease in the price of complementary goods</td><td>If the price of complementary good falls then demand for that commodity as well as the main commodity will rise because both the things are used together.</td></tr><tr><td>(d) Favorable change in taste and preferences of the household for the given commodity</td><td>If there is a favorable change in the taste and preferences of a household for a particular commodity or service, then demand for it will rise. <i>E.g. Due to more health consciousness demand for GYM membership has increased.</i></td></tr></table>	(a) Increase in the income of the household (in case of normal goods)	<ul style="list-style-type: none">• If the income of the household increases, it will enable him to buy more.• Price of the goods is the same and income has increased, so demand by a household will also increase.	(b) Increase in the price of substitute goods	If the price of substitute good rises, demand for the given commodity will also rise, as the given commodity will become relatively cheaper and consumers will substitute the costly good with the cheaper one.	(c) Decrease in the price of complementary goods	If the price of complementary good falls then demand for that commodity as well as the main commodity will rise because both the things are used together.	(d) Favorable change in taste and preferences of the household for the given commodity	If there is a favorable change in the taste and preferences of a household for a particular commodity or service, then demand for it will rise. <i>E.g. Due to more health consciousness demand for GYM membership has increased.</i>	4																
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29	<div>(a) Schedule</div> <table><tr><th>Output (in Units)</th><th>TC (in Rs.)</th><th>AC (in Rs.)</th><th>MC (in Rs.)</th><th></th></tr><tr><td>1</td><td>12</td><td>-</td><td>-</td><td rowspan="3">AC fall (Because, $MC < AC$)</td></tr><tr><td>2</td><td>18</td><td>18</td><td>6</td></tr><tr><td>3</td><td>22</td><td>11</td><td>4</td></tr><tr><td>4</td><td>27</td><td>9</td><td>5</td><td>AC is minimum and constant (Because, $MC = AC$)</td></tr><tr><td>5</td><td>36</td><td>9</td><td>9</td><td>AC rises (Because, $MC > AC$)</td></tr></table> <div>(b) Explanation</div> <div><ul style="list-style-type: none">Both AC and MC are derived from Total cost (TC) as shown in the above schedule.Both MC and AC initially decline but after reaching their minimum point they rise due to the Law of variable proportions.Up to 3rd level of output, AC falls because $MC < AC$; At 4th level of output AC is minimum and constant because $MC = AC$; After 4th level of output AC rises because $MC > AC$.AC refers to per unit cost of output and MC refers to net addition to TC when one more unit of output is produced</div>	Output (in Units)	TC (in Rs.)	AC (in Rs.)	MC (in Rs.)		1	12	-	-	AC fall (Because, $MC < AC$)	2	18	18	6	3	22	11	4	4	27	9	5	AC is minimum and constant (Because, $MC = AC$)	5	36	9	9	AC rises (Because, $MC > AC$)	6
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30	<div>(a) Total revenue is the total amount received by selling a given level of output. It can be computed by multiplying the total quantity sold by the selling price. Formula: Total Revenue = Price x Units sold Example: Suppose, a firm sold 100 mobile phones at a price of Rs.5,000 then Total Revenue will be Rs.5,00,000. TR = Price x Units sold or 5,000 x 100 = Rs.5,00,000</div> <div>(b) Explicit cost is the actual money expenditure on inputs or payment made to outsiders for hiring their factor services. E.g., Wages paid to employees.</div> <div>Implicit Cost is the cost of self-supplied factors. It is the estimated value of the inputs supplied by the owners including normal profit. E.g., Interest of own capital, rent of own land, etc.</div>	6																												

	<p>(c) (i) Poor coordination between variable factor and fixed factor</p> <ul style="list-style-type: none">• Increase in units of variable factor beyond a certain limit leads to insufficiency of fixed factors.• It causes poor coordination between variable factor and fixed factor and thus leads to mismanagement. <p>(ii) Decrease in efficiency of variable factor</p> <ul style="list-style-type: none">• Due to overcrowding even workers get disturbed. As a result, total output falls.• Instead of rising, marginal products become negative.	
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