SAMPLE QUESTION PAPER - 1

Economics (030)

Class XI (2024-25)

Time Allowed: 3 hours **Maximum Marks: 80**

General Instructions:

1. This question paper contains two sections:
   Section A – Micro Economics
   Section B – Statistics
2. This paper contains 20 Multiple Choice Questions type questions of 1 mark each.
3. This paper contains 4 Short Answer Questions type questions of 3 marks each to be answered in 60 to 80 words.
4. This paper contains 6 Short Answer Questions type questions of 4 marks each to be answered in 80 to 100 words.
5. This paper contains 4 Long Answer Questions type questions of 6 marks each to be answered in 100 to 150 words.

Section A

1. **Assertion (A):** Economists might not be interested in predicting the changes in one economic factor due to the changes in another factor. **[1]**
   Reason (R): Statistics helps to predict the future behavior of phenomena for the future is predicted on the basis of available statistics of past and present.

   a) Both A and R are true and R is the correct explanation of A.

   b) Both A and R are true but R is not the correct explanation of A.

   c) A is true but R is false.

   d) A is false but R is true.

2. Paasche's index number is expressed in terms of: **[1]**

   a) $\frac{\sum P_n q_n}{\sum P_o q_n}$

   b) $\frac{\sum P_o q_o}{\sum P_n q_o}$

   c) $\frac{\sum P_n q_o}{\sum P_o q_o} \times 100$

   d) $\frac{\sum P_{nqn}}{\sum P_o q_n}$

3. When the mean of series is a decimal number, then which method should be used for computing Karl Pearson's coefficient of correlation? **[1]**

a) Step Deviation Method
b) Short-cut Method
c) Indirect method
d) Direct Method

4. Construct price index number from the following data by applying(Fisher's ideal Method **[1]**

Commodity	Price (2000)	Quantity (2000)	Price (2001)	Quantity (2001)
A	2	8	4	5
B	5	12	6	10
C	4	15	5	12
D	2	18	4	20

a) 144.5
b) 147.3
c) 144.7
d) 147.5

5. In Laspeyre's index number, the weight pertains to **[1]**

a) None of the given
b) Both Base year and current year quantities
c) Current year quantities
d) Base year quantities

6. If the prices of all commodities in a place have decreased 35% over the base period prices, then the index number of prices of that place is now **[1]**

a) 35
b) 85
c) 135
d) 65

7. Read the data – It is stated that there are 300 students in art faculty, 400 in commerce faculty and 300 in science faculty .This data represents which characteristics of statistics **[1]**

a) Affected by multiplicity of causes
b) Aggregate of facts
c) Numerically expressed
d) Affected by extreme values

8. Histogram is prepared in case of: **[1]**

a) Discrete series b) Continuos series

c) Individual series d) Open end series

9. _____ reflects on the price change experienced by families of people. **[1]**

a) weighted average price b) none

c) consumer price index d) whole sale price index

10. Calculate the correlation coefficient of the marks obtained by 12 students in mathematics and statistics and interpret it **[1]**

Marks (in Maths)	50	54	56	59	60	62	61	65	67	71	71	74
Marks (in statistics)	22	25	34	28	26	30	32	30	28	34	36	40

a) 0.76 b) 0.78

c) 0.77 d) +0.75

11. Using the simple aggregative method, calculate the index number for the given data. **[3]**

	A	**B**	**C**	**D**
P_1	15	22	20	27
P_0	10	20	18	25

12. What is first quartile? Show it graphically. **[3]**

OR

Average daily wages of 50 workers of a factory was Rs.200. Each worker is given a raise of Rs.20. What is the new average daily wages? Which property of arithmetic mean does the above example point to?

13. Convert the following inclusive class interval into exclusive class interval. **[4]**

Inclusive Class Interval	**Frequency (f)**
0-99	2
100-199	4
200-299	5
300-399	6

400-499	3
500-599	5
Total	25

14. Draw the 'less-than' and 'more-than' ogive from the data given below **[4]**

Weekly Wages (in Rs.)	Number of Workers
0-20	10
20-40	20
40-60	40
60-80	20
80-100	10

OR

Direction of export is shown in the following table. Prepare a pie diagram to show the percentage distribution of export.

Country	Export (in %)
USA	25
Japan	15
UK	30
China	20
Others	10

15. Mr. X is conducting a survey in his locality to understand proportion of rich and poor persons in his locality. Due to lack of time, he did not cover a part of his locality and took certain assumptions for the data. Do you think he did the right thing? **[4]**

16. Calculate the correlation coefficient between the height of fathers in inches (X) and their sons (Y). **[6]**

X	65	66	57	67	68	69	70	72
Y	67	56	65	68	72	72	69	71

17. Calculate Q_1 and Q_3 from the following table. **[6]**

Wages (in Rs.)	Number of Workers
0-5	4
5-10	6
10-15	3
15-20	8
20-25	12
25-30	7

OR

Compute mode from the following data.

Score	Frequency
0-10	10
10-20	20
20-30	18
30-40	32
40-50	21

Section B

18. A straight line supply curve passing through the origin forming an angle of 60° indicates: **[1]**

a) $E_S = 0$ b) $E_S > 1$

c) $E_S = 1$ d) $E_S < 1$

19. Normative economics states **[1]**

a) What ought to be b) What was

c) What is d) Central problems of an economy

20. What should firm do when marginal revenue is greater than marginal cost? **[1]**

a) Firms should expand output b) All of above

c) Effect should be made to make them equal

d) Prices should be covered down

21. Can TR be a horizontal Straight line? **[1]**

a) May not be always

b) May be

c) Yes

d) No

22. A firm is operating with a Total Variable Cost of ₹ 500 when 5 units of the given output are produced and the Total Fixed Costs are ₹ 200 What will be the Average Total Cost of producing 5 units of output? **[1]**

a) ₹ 100

b) ₹ 300

c) ₹ 120

d) ₹ 140

23. **Assertion (A):** In a situation of increase in income less of the inferior good is purchased. **[1]**
Reason (R): The consumer prefers to shift on to superior substitutes because now he can afford them.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

24. If the demand curve of a firm is a horizontal straight line: **[1]**

a) all firms will sell equal amount of a commodity

b) firms can differentiate their product

c) a firm can sell only a specified amount at the existing price

d) a firm can sell any amount at the existing price

25. The demand curve is elastic when marginal revenue has a positive value, and inelastic when the marginal revenue has a negative value. **[1]**

a) False

b) Can't say

c) True

d) May be

26. With the increase in output, the difference between total cost and total variable cost: **[1]**

a) None of these
b) Decreases
c) Increases
d) Remains Constant

27. A Seller Cannot influence the market price under: **[1]**

a) Monopolistic Competition
b) All of these
c) Monopoly
d) Perfect Competition

28. State three reasons which give rise to an economic problem. **[3]**

OR

Giving reason, comment on the shape of the Production Possibilities Curve based on the following schedule.

Good X (units)	0	1	2	3	4
Good Y (units)	20	18	14	8	0

29. Explain the implication of 'freedom of entry and exit of the firms' under perfect competition. **[3]**

30. Explain the effects of change in income on demand for a good. **[4]**

31. Given the following schedule, state at which level of output, will the firm be at equilibrium and why. **[4]**

Quantity (in units)	**Price (in ₹)**	**Total Cost (in ₹)**
0	10	5
1	10	25
2	10	35
3	10	40
4	10	50
5	10	70
6	10	100

OR

Explain the conditions of producer's equilibrium.

32. Given the price of a good, how will a consumer decide as to how much quantity to buy of that good? Explain. **[4]**

33. Mr. Sohan Singh has a small scale unit producing chairs and other furniture. Read the following information and answer the given questions : **[6]**

1. Wages of daily workers = Rs. 5,000
2. Monthly rent of the building = Rs. 5,000
3. Cost of raw material = Rs. 10,000
4. Insurance cost = Rs. 2,000

In the month of July he sold 20 chairs at Rs. 1,000 each.

i. What is his fixed cost?

ii. What is his variable cost?

iii. Is he producing at breakeven point?

iv. Should he closed down his unit or not?

34. **Answer the following questions** **[6]**

(i) A consumer buys 18 units of a good at a price of Rs 9 per unit. The price elasticity of demand for the good is (-)1. How many units the consumer will buy at a price of Rs 10 per unit. Calculate. **[3]**

(ii) Price elasticity of demand of goods is (-) 4. When price of the goods falls, its demand rises by 24 percentage. Calculate percentage change in price. **[3]**

Solution

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Section A

1.

(d) A is false but R is true.

Explanation:

Economists might be interested in predicting the changes in one economic factor due to the changes in another factor. Statistics helps to predict the future behavior of phenomena for the future is predicted on the basis of available statistics of past and present.

2. **(a)** $\frac{\sum P_n q_n}{\sum P_o q_n}$

Explanation:

A weighted aggregative price index using current period quantities as weights is known as Paasche's price index. It is calculated as follow: $P_{01} = \frac{\sum P_n q_n}{\sum P_o q_n}$

3.

(b) Short-cut Method

Explanation:

To avoid difficult calculations due to mean being in fraction, deviations are taken from assumed means while calculating coefficient of correlation. The formula is also modified for standard deviations because deviations are taken from assumed means.

4.

(b) 147.3

Explanation:

Commodity	**Price (P0)**	**Quantity (q0)**	**Price (P1)**	**Quantity (q1)**	**P1q0**	**P0q0**	**P0q1**	**P1q1**
A	2	8	4	5	32	16	10	20
B	5	12	6	10	72	60	50	60
C	4	15	5	12	75	60	48	60
D	2	18	4	20	72	36	40	80
					251	172	148	220

$= \frac{\sqrt{251}}{172} \times \frac{220}{148} \times 100 = 147.3$

5.

(d) Base year quantities

Explanation:

A weighted aggregative price index using base period quantities as weights is known as Laspeyre's price index.

This method uses the base period quantities as weights.

6.

(d) 65

Explanation:

The price of Base year = 100

Decrease in Prices by 35% i.e $100 \times \frac{35}{100} = 35$

Index number of the prices of that place now = 100 - 35 = 65

7.

(b) Aggregate of facts

Explanation:

300 students, 200 students represent a sum, it's, therefore, an aggregate of facts.

8.

(b) Continuos series

Explanation:

Histograms are a special form of bar chart where the data represent continuous rather than discrete categories. This means that in a histogram there are no gaps between the columns representing the different categories. A histogram is used for data on ages because age is a continuous rather than a discrete category.

9.

(c) consumer price index

Explanation:

Consumer index number (CPI) or cost of living index numbers are helpful in studying the change in consumer expenditure .Here, family is basically a consumer unit.

10.

(b) 0.78

Explanation:

X	Y	dX	dY	dX^2	dY^2	$dXdY$
50	22	-12	-8	144	64	96
54	25	-8	-5	64	25	40
56	34	-6	4	36	16	-24
59	28	-3	-2	9	4	6
60	26	-2	-4	4	16	8

62 (A)	30 (A)	0	0	0	0	0
61	32	-1	2	1	4	-2
65	30	3	0	9	0	0
67	28	5	-2	25	4	-10
71	34	9	4	81	16	36
71	36	9	6	81	36	54
74	40	12	10	144	100	120
	$\sum$	6	5	598	285	324

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}\sqrt{N\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{12(324) - (6)(5)}{\sqrt{12(598) - (6)^2}\sqrt{12(285) - (5)^2}} = 0.78$$

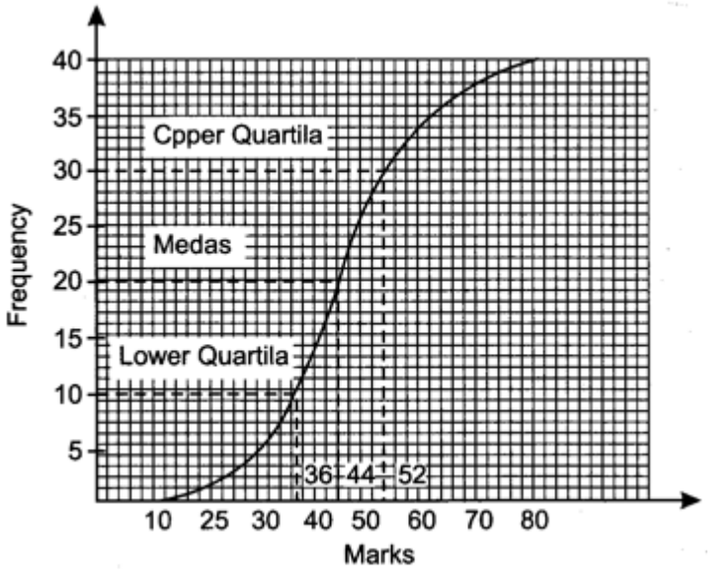
11. **Construction of Index Number**

Here, we aggregate the current and the base year prices respectively and take the ratio of the two.

Commodity	**p_0 (Base Year)**	**p_1 (Current Year)**
A	10	15
B	20	22
C	18	20
D	25	27
	$\Sigma p_0 = 73$	$\Sigma p_1 = 84$

$P_{01} = \frac{\Sigma p_1}{\Sigma p_0} \times 100 \Rightarrow P_{01} = \frac{84}{73} \times 100 = 115.07$

12. First quartile is a positional average which distributes data in such a way that 25% items of the series lie below first quartile and 75% items lie-above it.



OR

Increase in wages of each worker =Rs.20

Total increase in wages = 50 x 20 = Rs.1000

Total wages before increase in wages= 50 x 200 = Rs.10,000

Total wages after increase in wages=10,000+1000=Rs.11,000

New average wage= $\frac{\Sigma X}{n} = \frac{11,000}{50} = Rs.220$

Thus, the mean wage has increased by Rs.20.

The property of arithmetic mean which is reflected here is that if each observation of a series is increased or decreased by a constant, say k, then the arithmetic mean of the new series also gets increased or decreased by k. In this case, each item is increased by 20, so the mean also increases by 20.

13. To convert the inclusive series into exclusive series

Correction factor = 100-99 /2=0.5

This is added to the upper limit and subtracted from the lower limit of the class.

The exclusive class interval table of a given form is shown below

Inclusive Class Interval	**Frequency (f)**
0-99.5	2
99.5-199.5	4
199.5-299.5	5
299.5-399.5	6
399.5-499.5	3
499.5-599.5	5
Total	25

In this case, as the lower limit of first class is zero, hence 0.5 will not be subtracted from it.

14. For less-than and more-than ogives, we will have to prepare less-than and more-than frequency distributions.

In less than method, the frequencies of all the preceding class intervals are added to the frequency of a class.

In more than method, the frequencies of all the succeeding class intervals are added to the frequency of a class.

The computation for both less than and more than ogive is given in the following table.

Less-than Distribution		**More-than Distribution**	
Weekly Wages (in Rs.)	**Number of Workers**	**Weekly Wages (in Rs.)**	**Number of Workers**
Less than 20	10	More than 0	100
Less than 40	30	More than 20	90
Less than 60	70	More than 40	70
Less than 80	90	More than 60	30
Less than 100	100	More than 80	10

The less-than' and 'more-than ogives of the given data are shown below

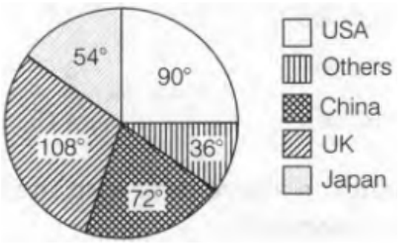
OR

For constructing a pie diagram, it is necessary to convert the percentage into corresponding degrees in the circle. Since one circle contains 360 degrees, therefore we calculate the degree of angles by multiplying the percentage value by 3.6 i.e. $\frac{360}{100}$ which is equal to 3.6. The conversion to degree of angles is shown in the following table.

Country	**Percentage of Export**	**Degree of Angles**
USA	25	$\frac{25}{100} \times 360^\circ = 90^\circ$

Japan	15	$\frac{15}{100} \times 360^\circ = 54^\circ$
UK	30	$\frac{30}{100} \times 360^\circ = 108^\circ$
China	20	$\frac{20}{100} \times 360^\circ = 72^\circ$
Others	10	$\frac{10}{100} \times 360^\circ = 36^\circ$
	100	360°

A pie diagram to show percentage distribution export is given below :



15. Mr. X did not follow the value of accuracy as his data cannot be complete without coverage of the whole of locality. He should not take assumptions as that will render his data collection exercise inaccurate.

16. **Calculation of Coefficient of Correlation**

X	x(X - $\overline{X}$), $\overline{X}$ = 66.75	x^2	Y	y(Y - $\overline{Y}$), $\overline{Y}$ = 67.5	y^2	xy
65	-1.75	3.0625	67	-0.5	0.25	0.875
66	-0.75	0.5625	56	-11.5	132.25	8.625
57	-9.75	95.0625	65	-2.5	6.25	24.375
67	0.25	0.0625	68	0.5	0.25	0.125
68	1.25	1.5625	72	4.5	20.25	5.625
69	2.25	5.0625	72	4.5	20.25	10.125
70	3.25	10.5625	69	1.5	2.25	4.875
72	5.25	27.5625	71	3.5	12.25	18.375
ΣX = 534		Σx^2 = 143.5	ΣY = 540		Σy^2 = 194	Σ xy = 73

Here, n = 8, ΣX = 534, Σx^2 = 143.5, ΣY = 540, Σy^2 = 194, Σ xy = 73

Now, $\overline{X} = \frac{\Sigma X}{n} = \frac{534}{8} = 66.75$, and $\overline{Y} = \frac{\Sigma Y}{n} = \frac{540}{8} = 67.5$

$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}} = \frac{73}{\sqrt{143.5 \times 194}} = \frac{73}{\sqrt{27839}} = \frac{73}{166.85} = 0.438$

It indicates that there is low degree of positive correlation between height of fathers and sons.

17.

Wages	Number of Workers	Cumulative Frequency (cf)
0-5	4	4
5-10	6	10
10-15	3	13
15-20	8	21
20-25	12	33
25-30	7	40
	$n = \Sigma f = 40$	

Calculation of Q_1 and Q_3

Q_1	Q_3
First Quartile number (q_1)= Size of $\left(\frac{n}{4}\right)$t h item	Third Quartile number (q_3)= Size of $\left(\frac{3n}{4}\right)$th item
$= \left(\frac{40}{4}\right)$th item=10th item 10th item will correspond to the class 5-10. So, l_1=5, cf=4, f=6 and c=5 Now, $Q_1 = l_1 + \frac{\frac{n}{4} - cf}{f} \times c = 5$ $+ \frac{10-4}{6} \times 5$ $5 + \frac{6 \times 5}{6} = 5 + \frac{30}{6} = 5 + 5$ $\Rightarrow Q_1 = 10$	$= \left(\frac{3 \times 40}{4}\right)$ th item =30th items 30th item will correspond to the class 20-25. So, l_1=20, cf=21, f=12 and c=5 Now, $Q_3 = l_1 + \frac{\frac{3n}{4} - cf}{f} \times c = 20$ $+ \frac{30-21}{12} \times 5$ $= 20 + \frac{45}{12} = 20 + 3.75 \Rightarrow Q_3$ $= 23.75$

OR

Steps to be followed to calculate the Mode are:

1. Create a table with two columns
2. In column 1 write your class intervals
3. In column 2 write the corresponding frequencies
4. Locate the maximum frequency denoted by f_m
5. Determine the class corresponding to f_m this will be your Modal class
6. Calculate the Mode using given formula:$M_o = l_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times c$

Calculation of mode

Score	Frequency
0-10	10

Score	Frequency
10-20	20
20-30	18
30-40	32
40-50	21

By observation method, it is clear that the modal value lies in the group of 30-40 because it has the highest frequency.

$\therefore l_1$=30, f_0=18, f_1=32, f_2=21 and c=10

Now, Mode $= l_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times c$

$= 30 + \frac{32-18}{2\times32-18-21} \times 10$

$= 30 + \frac{14}{25} \times 10$

=30+5.6=35.6

Hence, the modal value is 35.6 score.

Section B

18.

(c) $E_S = 1$

Explanation:

A straight line upward-sloping supply curve shooting from the origin always shows Es= 1. Percentage change in quantity supplied is equal to the percentage change in price.

19. **(a)** What ought to be

Explanation:

Normative economics is a part of economics that expresses value or normative judgements about economic fairness or what the outcome of the economy or goals of public policy ought to be.

20. **(a)** Firms should expand output

Explanation:

When MR is greater than MC , it means that the firm can earn more profit if they produce more because cost of production is less than the revenue. So they should produce more and move from abnormal profits towards equilibrium point where they can maximise their profit..

21.

(d) No

Explanation:

TR cannot be a horizontal straight line as TR = qty * price. TR can be calculated by adding up revenue realised from sale of every additional unit . With sale of every

additional unit TR increases. So it cannot be constant and thus cannot be a horizontal line.

22.

(d) ₹ 140

Explanation:

₹ 140

Total cost = Total fixed cost + Total variable cost

Total cost = 200 + 500 = 700

Average cost = $\frac{Total\ cost}{Quantity} = \frac{700}{5} = 140$

23.

(b) Both A and R are true but R is not the correct explanation of A.

Explanation:

In a situation of increase in income less of the inferior good is purchased. The consumer prefers to shift on to superior substitutes because now he can afford them.

24.

(d) a firm can sell any amount at the existing price

Explanation:

Firm's demand curve is a horizontal straight line under perfect competition. Demand curve of the firm is perfectly elastic. It means that the firm can sell any amount of the commodity at the prevailing price. The horizontal straight line shows that the firm is to accept the price as determined by the forces of market supply and market demand; it can sell whatever amount it wishes to sell at this price.

25.

(c) True

Explanation:

True

26.

(d) Remains Constant

Explanation:

With increase in output, the difference between total cost and total variable cost will remain constant,

27.

(d) Perfect Competition

Explanation:

because, in a perfectly competitive market, the buyers will treat the products of all the firms in the market as homogeneous. There is zero degrees of product differentiation and the firm cannot take any control of the price.

28. There are three reasons which give rise to an economic problem.:
    i. **Wants of people are unlimited -** It is due to unending circle of wants. After the satisfaction of one wants, another want arises.
    ii. **Resources are limited -** Problem of allocation of resources arises because resources are not enough to satisfy wants of every individual.
    iii. **Resources have alternative uses -** Scarce resources have alternative uses. When an individual chooses to use a given resources for something, he/she is unable to use that resources for anything else.

OR

Good-X (Units)	Good-Y (Units)	Marginal Opportunity Cost
0	20	-
1	18	$\frac{2}{1} = 2$
2	14	$\frac{4}{1} = 4$
3	8	$\frac{6}{1} = 6$
4	0	$\frac{8}{1} = 8$

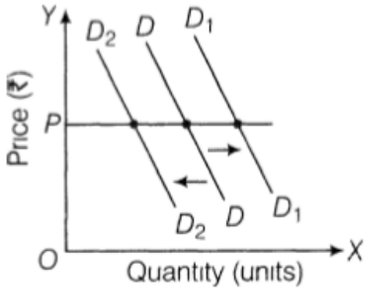
The schedule shows that the marginal opportunity cost of producing more of Good-X in place of Good-Y is rising. Accordingly, the production possibility curve is to be concave to the origin.

29. The firms enter the industry when they find that the existing firm earning super normal profits. Their entry raises supply of the product of the industry brings down the market price and thus reduce profits. Their entry continue till profits are reduced to normal (or zero).On the other hand the firms start leaving industry when they are facing losses. This reduces output of the industry raises market price and reduces losses. The exit continues till the losses are wiped out. Hence in the long run, firms earn only normal profit.
30. The quantity of a good that the consumer demands can increase or decrease with the rise or fall in his income depending on the nature of the good, as is discussed below:
    Normal goods These are the goods for which the demand is directly related to consumer's income.
    Other things remaining constant, quantity demanded of these goods increases in response to increasing consumer's income and decrease in income reduces the demand. For example, full cream milk, pulses, grams etc.
    The figure given below illustrates the income effect in the case of normal goods. When income increases, the demand curve D shifts to D_1 and when income decreases, the demand curve D shifts to D_2.
    Inferior goods These are the goods for which the demand is inversely related to

consumer's income. Other things remaining constant, quantity demanded these goods decreases in response to increase in income and a decrease in income leads to rise in demand. For example, coarse cereals, skimmed milk etc.

No commodity is inferior. If any commodity is purchased by a consumer just because of his low income level,then this commodity is termed as an inferior commodity for that person.

It is not the consumer but the income level of the consumer which determines whether a good is normal or inferior. So inferiority is a relative concept.



When income increases, the demand curve D shifts to D_2 and when income decreases, the demand curve D shifts to D_1.

In the case of normal goods, income effect is positive while in case of inferior goods, income effect is negative.

31.

Quantity in units	Price=AR	TR	TC	MR	MC
0	10	0	5	-	-
1	10	10	25	10 <	20
2	10	20	35	10 =	10
3	10	30	40	10 >	5
4	10	40	50	10 =	10
5	10	50	70	10 <	20
6	10	60	100	10 <	30

The firm will be in equilibrium at 4 units of output as at this level of output both the conditions of firm's equilibrium are satisfied, i.e.

i. MR is equal to MC (₹ 10)

ii. MC is increasing at the point of equilibrium

OR

The two conditions of producer's equilibrium are:

i. MC = MR

ii. MC becomes greater than MR, if more is produced after the point of equilibrium.

Explanation:

i. If MC is less than MR, it is profitable to produce more units till MC becomes equal to MR.

ii. When MC becomes greater than MR after the MR = MC condition, production of each new unit is sold at a loss, which leads to decline in profits.

32. Given the price of a good, a consumer decided how much quantity of that good to buy, on the basis of the following conditions

MUM = Price, i.e. $\frac{MU_X}{MU_M}$

A consumer is in a state of equilibrium when he maximizes his satisfaction by spending his given income on different goods and services. Any deviation or change in the allocation of income under the given circumstance will lead to a fall in total satisfaction.

For one-commodity case: Rupee worth of satisfaction actually received by the consumer is equal to the marginal utility of money as specified by the consumer himself.

Condition 1 : MU(of good X) = MU(of money) OR , PRICE(of good X) = MU(of money)

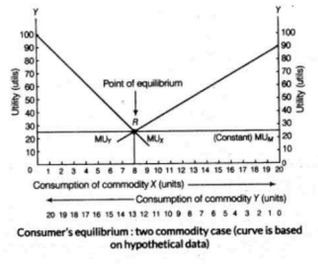
Reason: Price paid by the consumers should be exactly equal to the money value of MU that he derives. In case P(of X) is lesser than the MU(of money), he should be prompted to buy more of good X. Higher consumption will lead to a fall in MU. The consumption of good X would stop only when P(of good X) will be equal to MU(in terms of money). Likewise, if P(of X) is greater than MU(in terms of money), the consumer will be prompted to buy less of good X, leading to a fall in MU.

Condition 2: Marginal utility of money remains constant.

Condition 3: Law of marginal utility holds good.

For two-commodity case: Rupee worth of marginal utility of money should be the same across good X and good Y, and equal to the marginal utility of money.

Reason: In case rupee worth of satisfaction (MU of good X/ price of good X) is greater for good X than good Y, the consumer will be prompted to buy more of good X and less of good Y. This would lead to a fall in the marginal utility of good X and a rise in the marginal utility of good Y. This process would continue till MU(of good X)/ Price of good X = MU(OF GOOD Y)/ Price of good Y = MU(of money). In case rupee worth of satisfaction (MU of good Y/ price of good Y) is greater for good Y than good X, the consumer will be prompted to buy more of good Y and less of good X. This would lead to a fall in the marginal utility of good Y and a rise in the marginal utility of good X.



Consumer's equilibrium : two commodity case (curve is based on hypothetical data)

33. i. Fixed Cost (FC) = Monthly rent of the building + Insurance cost=Rs. 5000 + 2000 = Rs. 7000

ii. Variable Cost (FC) = Wages of daily workers + Cost of Raw material= Rs. 5000 + 10,000 = Rs. 15,000

iii. No, he is not producing at break-even point. Breakeven point refers to the point where;

TR = TC

TC = FC + VC= Rs. 7,000 + 15,000 = Rs. 22,000

TR = $Price \times Quantity$

= $Rs.\ 1000 \times 20$= Rs. 20,000

As, TC > TR so, he is operating below the break-even point.

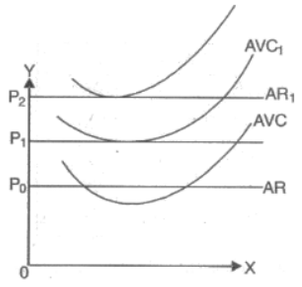
iv. To know whether he should close down or not we should know the shutdown point. Shut down point refers to a situation when a firm is able to cover its (VC) variable costs only. As he is recovering his VC so, he should not close down his business.

$AR = \frac{TR}{Q} = \frac{20,000}{20}$

$= Rs.\ 1,000$

$AVC = \frac{VC}{Q} = \frac{15,000}{20}$

$= Rs.\ 750$



34. Answer the following questions

(i) Given,

Elasticity of Demand (Ed) = (-) 1

Old Price (P) = Rs 9; New Price = 10

Change in Price (P) = X1 Old Quantity (QΔ) = 18 units, New Quantity = x

Change in Quantity (ΔQ) = X -18.

Now, we know, $E_d = \frac{P}{Q} \times \frac{\Delta Q}{\Delta P}$

$-1 = \frac{9}{18} \times \frac{x-18}{1}$

$-1 = \frac{x-18}{2}$, or $-2 = x - 18$

or x = 18 - 2 = 16 units

∴ Consumer will buy 16 units at the price of Rs 10 per unit.

(ii) Given, Ed = (-) 4, % Change in Demand = 24 %

To find % change in price.

$$E_d = \frac{\text{Percentage Change in Demand}}{\text{Percentage Change in Price}}$$

$$\text{or } (-)4 = \frac{24}{\text{Percentage Change in Price}}$$

$\therefore$ Percentage Change in Price $= -\frac{24}{4} = -6$

$\therefore$ Percentage Change in Price $= (-)6$

means price decreases by 6 percent.