Class XI Session 2025-26
Subject - Economics
Sample Question Paper - 3

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. A composite price index based on the prices of a group of items is known as the **[1]**

   a) Aggregate price index
   b) Laspeyres Index
   c) Paasche Index
   d) CPI

2. Movement of points from left to right, in an upward direction indicates **[1]**

   a) no correlation
   b) negative correlation
   c) positive correlation
   d) Less correlation

3. **Assertion (A):** Public utility bodies like railways, warehouses, etc contribute to commerce in a significant way also make use of statistical data for their efficient functioning. **[1]**
   Reason (R): Modern organizations can survive and efficiently function without analysis of the complex factors that influence commerce, and for systematic business analysis statistical tools are absolutely essential.

   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.

4. Taking 1999 as base year calculate index number of the year 2004 **[1]**

Year	1999	2000	2001	2002	2003	2004
Price (Rs)	10	14	16	20	22	24

   a) 240
   b) 230
   c) 220
   d) 210

5. Fisher's index number is based on **[1]**

a) The Median of Laspeyre's and Paasche's index numbers.

b) The Geometric Mean Laspeyre's and Paasche's index numbers.

c) The Arithmetic mean of Laspeyre's and Paasche's index numbers.

d) None of these.

6. The price relative is a price index that is determined by **[1]**

a) (base period price/price in period t)(100)

b) (price in period t + base period price)(100)

c) none of the above

d) price in period t/base period price)(100)

7. The statistical study begins with collection of data and ends with **[1]**

a) Collection of data

b) Interpretation of data

c) organisation of data

d) analysis of data

8. Ogive curve can be drawn for: **[1]**

a) None of (More than type distribution) and (less than type distribution)

b) less than type distribution

c) More than type distribution

d) Both (More than type distribution) and (less than type distribution)

9. 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

10. Calculate the correlation coefficient between x and y and comment on their relationship **[1]**

X	1	3	4	5	7	8
Y	2	6	8	10	14	16

a) 0.75

b) -0.25

c) -1

d) 1.0

11. Explain NIFTY, SENSEX, HDI and Producer Price Index. **[3]**

12. Find out the median of the data given below by arranging them in ascending order **[3]**

X	160	150	152	161	156
Frequency	5	8	6	3	7

OR

Compute the median from the following data.

Marks	40	41	42	43	44	45	46	47
Number of Students	2	3	7	8	10	12	14	16

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

Show the annual profit figures of a firm with the help of a time series graph.

Year	Profit (in Rs. '000)
2006	60
2007	72
2008	75
2009	65
2010	80
2011	95

15. How is indirect oral investigation different from direct oral investigation? **[4]**

16. Compute Karl Pearson's coefficient of correlation from the following data by direct method. **[6]**

X	10	12	11	13	12	14	9	12	14	13
Y	7	9	12	9	13	8	10	12	7	13

17. Determine the missing frequencies when mode = 36 and total frequency is 30. **[6]**

Class Interval	10-20	20-30	30-40	40-50	50-60
Frequency (f)	-	5	12	-	2

OR

Calculate the value of mode graphically from the following data.

Marks	0-5	5-10	10-15	15-20	20-25	25-30
Number of Students	6	10	20	12	8	4

Section B

18. According to the law of supply: **[1]**

A. there is a positive relationship between supply and price

B. there is a negative relation between supply and price

C. there is a constant relation between supply and price

D. there is no relation between supply and price

a) there is constant relation between supply and price

b) there is positive relation between supply and price

c) there is no relation between supply and price

d) there is negative relation between supply and price

19. In a market economy, the central problems are solved by **[1]**

a) Market mechanism

b) Demand for goods

c) Supply of goods

d) Planning authority

20. What will be the effect on equilibrium price and equilibrium quantity when income increases in the case of normal goods? **[1]**

a) Equilibrium price falls and quantity rises

b) Equilibrium price rises and quantity falls

c) Both equilibrium price and quantity fall

d) Both equilibrium price and quantity rise

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

a) Can't say

b) No

c) May be

d) Yes

22. Diagrammatically AC has a U shape. The statement is **[1]**

a) True

b) FALSE

c) May be

d) May not be

23. **Assertion (A):** The consumer buys less tea even when the price of tea is constant. **[1]**
Reason (R): The demand curve for tea shifts to the left when the price of the substitute commodity means coffee decreases.

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. Under perfect competition, the firm earns normal profit in the long run because of: **[1]**

a) absence of selling cost

b) large number of buyers and sellers

c) fee entry and exit

d) homogeneous commodity

25. What is the shape of the average revenue curve under perfect competition? **[1]**

a) Horizontal straight line

b) Downward to the right

c) Rectangular hyperbola

d) Vertical straight line

26. When MC curve cuts AC curve: **[1]**

a) AC = MC

b) AC < MC

c) both AC and MC are falling

d) AC > MC

27. _____ is an ideal market? **[1]**

a) Monopolistic competition

b) Perfect competition

c) Oligopoly

d) Monopoly

28. What is PP Frontier? Write its assumptions. **[3]**

OR

What are the three central problems of an economy?

29. Can there be a positive level of output that a profit-maximizing firm produces in a competitive market at which market price is not equal to the marginal cost? Give an explanation. **[3]**

30. How does change in price of a substitute good affect the demand of the given good? Explain with the help of an example. **[4]**

31. Explain a firm's equilibrium under perfect competition, using a hypothetical schedule. **[4]**

OR

Show that a perfectly competitive firm maximises its profit only when price = MC.

32. A consumer consumes only two goods. Explain consumer's equilibrium with the help of utility analysis. **[4]**

33. State giving reasons whether the following statements are true or false. **[6]**

i. Total Product always increases whether there is increasing returns or diminishing returns to a factor.

ii. When there are diminishing returns to a factor, Total Product always decreases.

iii. Total Product will increase only when Marginal Product increases.

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

(a) Quantity demanded of a commodity rises by 6 units when its price falls by Rs 1 per unit. Its Price Elasticity of Demand is (-) 1. If the price before the change was Rs 20 per unit, calculate quantity demanded at this price. **[3]**

(b) The Price Elasticity of a Commodity is (-) 1.5. When its price falls by Rsa 1 per unit, its quantity demanded rises by 3 units. If the quantity demanded before the price change was 30 units, what was the price at this demand? Calculate. **[3]**

Solution

Section A

1. **(a)** Aggregate price index

   Explanation:

   A composite index number is a number that measures an average relative changes in a group of relative variables with respect to base whereas a simple index number is a number that measures a realive change in a single variable with respect to base.So, composite index number is based on an aggregate of items.

2. **(c)** positive correlation

   Explanation:

   The type of diagram in this case is also known as Scatter Diagram with Positive Slant. In positive slant, the correlation will be positive, i.e. as the value of x increases, the value of y will also increase. We see that the slope of straight line drawn along the data points will go up. The pattern will resemble the straight line.

3. **(c)** A is true but R is false.

   Explanation:

   Public utility bodies contribute to commerce in a significant way also make use of statistical data for their efficient functioning. No modern organization can survive and efficiently function without analysis of the complex factors that influence commerce, and for systematic business analysis, statistical tools are absolutely essential.

4. **(a)** 240

   Explanation:

   Here we calculate simple Index No. = $\frac{\text{P1}}{\text{P0}} \times 100$

   = $\frac{24}{10} \times 100 = 240$

5. **(b)** The Geometric Mean Laspeyre's and Paasche's index numbers.

   Explanation:

   Fisher has combined the techniques of Laspeyres and Paasche's Method. He used both base year as well as Current Year quantities (q0, q1) as weight. Prof. Irving Fisher has given a number of formulae for constructing index numbers and of these, he calls one as the ‘ideal’ index. Fisher’s Ideal Index is the geometric mean of the Laspeyres and Paasche indices.

6. **(d)** price in period t/base period price)(100)

   Explanation:

   By definition, we have, price relative =$\frac{p_1}{p_0}$.It implies that we are comparing current year with base year which we require. Instead, if we write

   price relative =$\frac{p_0}{p_1}$, it implies that we are comparing base year with current year which is quite absurd both logically and practically.TO express the comparison in percents we multiply it by 100.

7. **(b)** Interpretation of data

   Explanation:

   Statistics starts with the collection of data. Then the data is organised in a proper form and then it is presented in some suitable manner. After the presentation of data, analysis of the data is done. Finally, it is interpreted and a final conclusion is drawn from the analysed data.

8.

(d) Both (More than type distribution) and (less than type distribution)

Explanation:

Less than ogive shows frequencies less than upper limits of all class which come out in ascending order. So, less than ogive curve has increasing slope. Likewise, more than ogive shows frequencies greater the lower limits of all classes coming out in descending order. So, more than ogive has decreasing slope.

9.

(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

10.

(d) 1.0

Explanation:

X	Y	dX	dY	dX^2	dY^2	$dXdY$
1	2	-4	-8	16	64	32
3	6	-2	-4	4	16	8
4	8	-1	-2	1	4	2
5 (A)	10 (A)	0	0	0	0	0
7	14	2	4	4	16	8
8	16	3	6	9	36	18
	$\sum$	-2	-4	34	136	68

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

$= \frac{6(68) - (-2)(-4)}{\sqrt{6(34) - (-2)^2}\sqrt{6(136) - (-4)^2}} = 1$

11. **Sensex:** It is Index of Bombay stock exchange It has total 30 shares. Its recent index above 20000 however, it keeps fluctuating day to day.

    Nifty: It is Index of National stock exchange. It has total 50 shares. Present index above 5000

    Human Development Index: It is prepared by UNDP for measuring development status of different countries. It is based on

    (a) Standard of living

    (b) Life expectancy

    (c) Educational Attainments

    Producer Price Index: This index number measures price changes from the producers' perspective. It uses only basic prices including taxes, trade margins and transport costs. A Working Group on Revision of Wholesale Price

12. The given series is a discrete series. So after arranging the data in ascending order, we have to find the cumulative frequency i.e. c multiplied by f.

    Calculation of Median

X	Frequency (f)	Cumulative Frequency (cf)
150	8	8
152	6	14
156	7	21
160	5	26

161	3	29
	$\Sigma f = 29$	

$\therefore M =$ Size of $\left(\frac{n+1}{2}\right)$ th item $=$ Size of $\left(\frac{29+1}{2}\right) th\ item$

=Size of 15th item

Since 15 is greater than 14 and less than 21, so, the 15th item lies in cf 21, and the value corresponding to this cumulative frequency is 156.

Hence Median =156

OR

The given series is a discrete series. So we have the first find the cumulative frequency of the series.

Calculation of Median

Marks (X)	**Number of Students (f)**	**Cumulative Frequency (cf)**
40	2	2
41	3	5
42	7	12
43	8	20
44	10	30
45	12	42
46	14	56
47	16	72
	$n = \Sigma f = 72$	

Here, n=Sum of frequency=72

$Position\ of Median = \left(\frac{n+1}{2}\right)$ th item $= \left(\frac{72+1}{2}\right) th\ items$

=36.5th item

The 36.5th item falls in the cumulative frequency 42. We can see that the marks corresponding to this cumulative frequency are 45. Therefore, the required median is 45.

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.

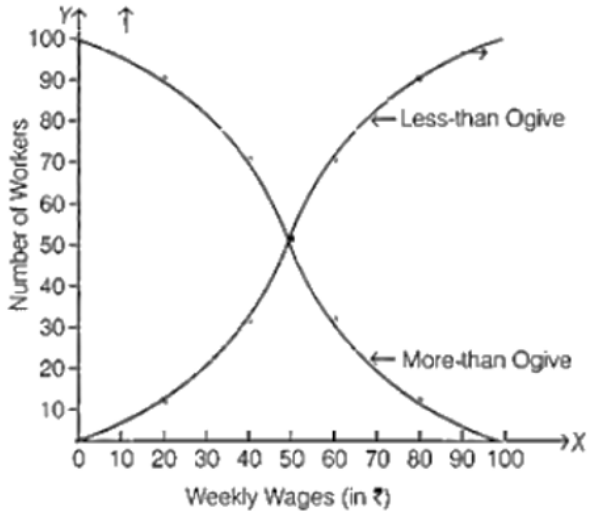
In more than method, the frequencies of all the succeeding class intervals are added to the frequency of a class.

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

Less-than Distribution		**More-than Distribution**	

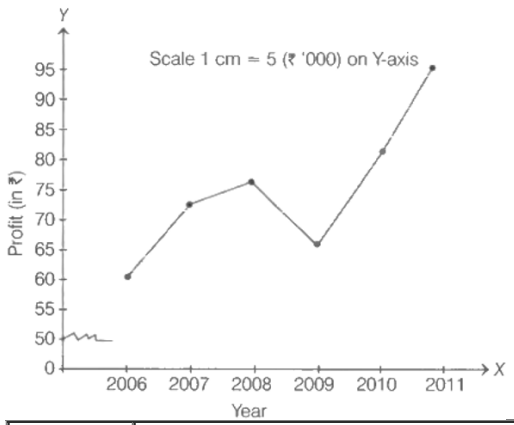
Weekly Wages (in Rs.)	Number of Workers	Weekly Wages (in Rs.)	Number of Workers
Less than 20	10	More than 0	100
Less than 40	30	More than 20	90
Less than 60	70	More than 40	70
Less than 80	90	More than 60	30
Less than 100	100	More than 80	10

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



OR

As per the question, year 2006 to 2011 and their respective profits are given Here, we take profit on the Y- axis and year on the X-axis. Before plotting the graph, we take a false baseline because the profit starts from 60 and there are very small fluctuations in the remaining values of profit, so we take a false base of 50 and then we take the scale as 1 cm = 5 (in thousands). The time series graph of given annual profit figures is shown below:



15.

Basis	Direct Personal Investigation	Indirect Oral Investigation
Originality	These data are original in their nature.	These data lack originality as data are collected from the witnesses.
Coverage	It can cover a lim-ited area.	It can cover relatively a larger area.
Reliability and Accuracy	It is more reliable and accurate in non-personal matters and less reliable in personal matters. For example, if we are conducting a survey on domestic violence, it is less reliable and if we are conducting survey on preference for a consumer good, it is more reliable.	It is less reliable and accurate in non-personal matters and more reliable in personal matters. For example, if we are conducting a survey on domestic violence, it is more reliable and if we are conducting survey on preference for a consumer good, it is less reliable.
Uniformity	There is greater uniformity in this method.	Uniformity is lacking in this in this method.

16. For calculation purpose: Let, Square of Deviation corresponding to X be (x^2) and Square of Deviation corresponding to Y be(y^2)

X	x(X - $\overline{X}$) ,$\overline{X}$ = 12	x^2	Y	y(Y - $\overline{Y}$), $\overline{Y}$ = 10	y^2	xy

10	-2	4	7	-3	9	6
12	0	0	9	-1	1	0
11	-1	1	12	2	4	-2
13	1	1	9	-1	1	-1
12	0	0	13	3	9	0
14	2	4	8	-2	4	-4
9	-3	9	10	0	0	0
12	0	0	12	2	4	0
14	2	4	7	-3	9	-6
13	1	1	13	3	9	3
$\Sigma X = 120$	$\Sigma x = 0$	$\Sigma x^2 = 24$	$\Sigma Y = 100$	$\Sigma y = 0$	$\Sigma y^2 = 50$	$\Sigma xy = -4$

Here, n = 10

Mean of X series = $(\overline{X}) = \frac{\Sigma X}{n} = \frac{120}{10} = 12$; Mean of Y - series $(\overline{Y}) = \frac{\Sigma Y}{n} = \frac{100}{10} = 10$

Standard deviation of X series $(\sigma_x) = \sqrt{\frac{\Sigma x^2}{n}} = \sqrt{\frac{24}{10}} = \sqrt{2.4}$ = 1.55

Standard deviation of Y series $= \sqrt{\frac{\Sigma y^2}{n}} = \sqrt{\frac{50}{10}} = \sqrt{5}$ = 2.24

$\because r = \frac{\Sigma xy}{n \cdot \sigma_x \cdot \sigma_y} \therefore r = \frac{-4}{10 \times 1.55 \times 2.24} = \frac{-4}{34.72}$ = -0.115

- ***Therefore, Karl Pearson's coefficient of correlation between X and Y is -0.115***
- ***Interpretation:*** There is a low degree of negative correlation between X and Y.

17. Let the missing frequencies be x and y.

Class Interval	**Frequency (f)**
10-20	x
20-30	5
30-40	12
40-50	y
50-60	2
	n=30

Calculation of Missing Frequencies

Mode = 36 (given)	Sum of frequencies=$n = \Sigma f = 30$ (given)
As the value of mode is 36, so the modal class is 30-40. $\therefore$ Mode , $(M_0) = l_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times c$ $\Rightarrow \quad 36 = 30 + \frac{12-5}{24-5-y} \times 10$ $\Rightarrow \quad 6 = \frac{7}{19-y} \times 10$ $\Rightarrow$6(19-y)=70 $\Rightarrow$114-6y=70 $\Rightarrow$6y=44 $\Rightarrow y = \frac{44}{6} = 7.33 = 7$ [as the frequencies cannot be in fractions]	x+5+12+y+2=30 $\therefore \Rightarrow$x+5+12+7+2=30 [$\because$y=7] $\because$ x=4

Thus, the two missing frequencies are 4 and 7.

OR

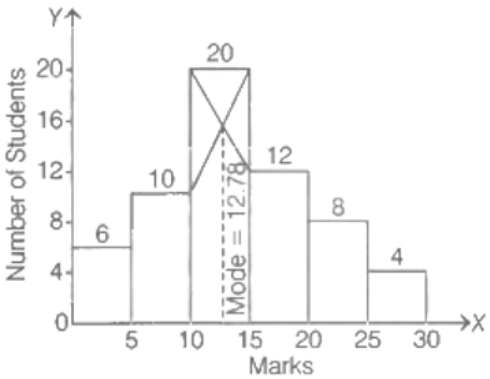
Calculation of Mode

Marks	0-5	5-10	10-15	15-20	20-25	25-30
Number of Students	6	10	20	12	8	4

The following steps must be followed to find the mode graphically:

1. Represent the given data in the form of a Histogram. The height of the rectangles in the histogram is marked by the frequencies of the class interval as shown in the graph. Identify the highest rectangle. This corresponds to the modal class of the series.
2. Join the top corners of the modal rectangle with the immediately next corners of the adjacent rectangles. The two lines must be cutting each other. This might be difficult to visualise so look at the graph given below.
3. Let the point where the joining lines cut each other be 'A'. Draw a perpendicular line from point A onto the x-axis. The point where the perpendicular will meet the x-axis will give the mode.

The histogram of given data is drawn. Maximum of height of rectangle is 20 which represents group 10-15. So, 10-15 is the modal class.



From the graph it is clear that required mode of given data is 12.78

Section B

18.

(b) there is positive relation between supply and price

Explanation:

The law of supply states that other things remaining constant, quantity supplied increases with increase in own price of a commodity and vice versa.

19. **(a)** Market mechanism

Explanation:

To solve the problems through market or price mechanism ie., what goods are to be produced and what quantities, which methods for production are to be employed for the production of goods and how the output is to be distributed, should be decided by the free play of the forces of demand and supply.

20.

(d) Both equilibrium price and quantity rise

Explanation:

Normal goods are those whose demand increases as people's incomes and purchasing power rise. When real consumer income rises, consumers will demand a greater quantity of goods for purchase. This will lead to a rise in both equilibrium price and equilibrium quantity.

21.

(b) No

Explanation:

It cannot be horizontal straight line because TR cannot be the same . TR will increase when more units of commodity are sold.

22. **(a)** True

Explanation:

The AC curve is U shaped as it initially falls with increase in output. Once the output rises till optimum level, AC starts rising.

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

Explanation:

The consumer buys less tea even when the price of tea is constant because the demand curve for tea shifts to the left when the price of the substitute commodity means coffee decreases.

24.

(c) fee entry and exit

Explanation:

Entry into the market as well as exit from the market is free for firms under perfect competition. It ensures their normal profit in the long run.

25. **(a)** Horizontal straight line

Explanation:

AR curve is Horizontal straight line. It is because, under perfect competition, the firm is a price taker and cannot influence the market price. AR is constant for a firm.

26. **(a)** AC = MC

Explanation:

MC cuts AC at its lowest point. When average cost is minimum, then MC= AC.

27.

(b) Perfect competition

Explanation:

As under this form, no seller has the tendency to influence the price of the good and there is uniform price in the market.. All the goods are homogeneous and there is free entry and exit. All these features ensures normal profit to the producers..

28. The production possibility frontier (PPF) is a curve depicting all maximum output possibilities for two goods, given a set of inputs consisting of resources and other factors. The PPF assumes that all inputs are used efficiently.

The four key assumptions underlying production possibilities analysis are:

1. resources are used to produce one or both of only two goods,
2. the quantities of the resources do not change,
3. technology and production techniques do not change, and
4. resources are used in a technically efficient way.

OR

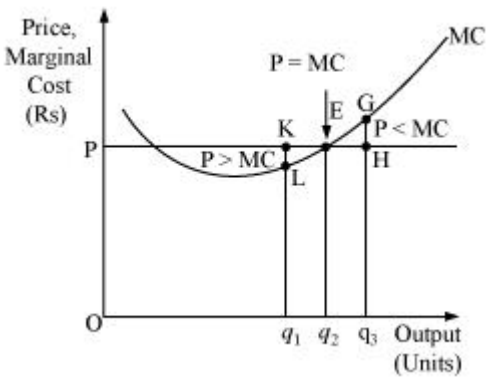
The central problems of a production deal with the production of necessary commodities using scarce means of resources. It includes problems that deal with the production of goods in an economy where it is decided that:

What to produce? Consumer goods or capital goods?

How to produce? Using labour intensive technique or capital intensive technique

For whom to produce? Rich people or poor people?

29. There cannot be any positive level of output that the firm produce at which price is not equal to MC. As long as the cost of producing another unit remains less than the revenue received from the sale of an additional unit, a producer won't wander away from his path of earning profits. MR is the addition to TR from the sale of one more unit. MC is the addition to TC when an additional unit is produced. Thus when MR=MC, TR-TC becomes maximum for maximum profit. Let us evaluate the following two cases where the price is not equal to MC.



Case A: If P > MC

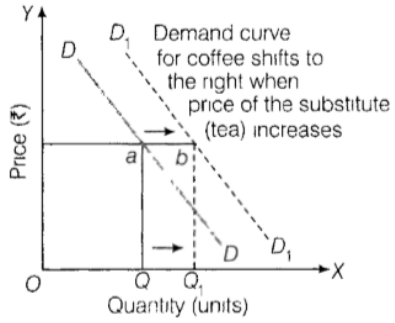
At output Oq_1, Price is Kq_1, while the MC is Lq_1. So, Oq_1 is not the profit-maximizing output. This is due to the fact that the firm can increase its profit level by expanding its output to Oq_2.

Case B: If P < MC

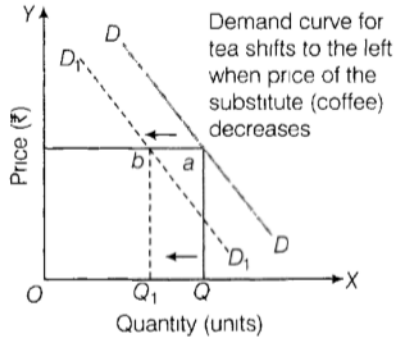
At output Oq_3, the price is Hq_3 and MC is Gq_3. So, Oq_3 is not the profit-maximizing output. This is because the firm can increase its profit by reducing its output level to Oq_2.

Thus, at the profit-maximizing point, the price must be equal to MC and it cannot be greater or lesser than MC.

30. i. **Increase in price :** An increase in the price of substitute good causes the demand of the concerned good to rise as now the good had become relatively cheaper. For example, when price of tea rises, people will demand more of coffee as now the coffee has become relatively cheaper.



ii. **Decrease in price** In case of substitute goods, a decrease in the price of one good results in decrease in the demand of its substitute goods e.g. tea and coffee substitute goods. When the price of coffee decreases, then consumer start consuming more coffee in place of tea, as a result, demand for tea decreases.



31. A firm's equilibrium under perfect competition is obtained when both the following two conditions are satisfied:

i. Marginal Revenue = Marginal Cost

ii. After point of equalisation Marginal Cost should be rising

Schedule:

Output (in units)	Marginal Revenue (in ₹)		Marginal Cost (in ₹)
1	10	<	12
2	10	=	10
3	10	>	8
4	10	>	9
5	**10**	**=**	**10**
6	10	<	12

As per the schedule, producer is in equilibrium at 5^{th} unit of output where both the conditions are fulfilled.

OR

A firm is in a state of equilibrium when it is not inclined to expand or contract its output. This state can either be "profit maximisation" or "minimising losses". In the market conditions of perfect competition, a price is fixed by the industry which has to be accepted by all firms. Any quantity of the commodity can be sold at this price. Hence the price remains constant. A **perfectly competitive firm** has only one major decision to make i.e., what quantity to produce. When the perfectly competitive firm chooses what quantity to produce, then this quantity, along with the prices prevailing in the market for output and inputs, will determine the firm's total revenue, total costs, and ultimately, level of profits.

A perfectly competitive firm maximizes its profit only when price = AR = MC. if the output level is beyond the equilibrium level profits tend to shrink. In this case, an addition to the total variable cost incurred for producing one more unit beyond equilibrium is greater than the additional total revenue. So (TR-TVC) tends to shrink. If the output level is below the equilibrium level profits

tend to shrink. In this case reduction in total variable cost incurred for producing one less unit below the equilibrium is lesser than the reduction in total revenue. So (TR-TVC) tends to shrink.

32. **Conditions of consumer's equilibrium (using Marginal Utility Analysis) :** A consumer is said to be in equilibrium when he is getting maximum satisfaction with the given market prices and the given his or her income.
when a consumer is consuming two goods, equilibrium is achieved when
$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_m$
Where,
MU_X and MU_y = Marginal utilities of good X and good y respectively
P_x and P_y = Price of good X and good Y respectively
MU_m = Marginal utility of money. If MU_m =1,
then the condition of equilibrium is reduced to
$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$
Or $\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$
The above condition says that the consumer will be in equilibrium at that point where the ratio of the marginal utilities of two goods is equal to ratio of the prices of the two goods.
The above conditions are based on the assumption that the Law of Diminishing Marginal Utility holds true. If MU does not fall as consumption increases, then consumer will never reach the equilibrium situation.

33. i. True, in a situation of increasing returns to a factor, Marginal Product tends to rise Accordingly, Total Product should be increasing at an increasing rate. Under diminishing returns to a factor, Marginal Product tends to fall which implies that Total Product should be increasing at a diminishing rate. When Total product increase at increase rate , it is a situation of increasing return to a factor. When Total product increase at decreasing rate it is a situation of diminishing return to a factor.
ii. False, in a situation of diminishing returns to a factor, Marginal Product tends to fall which implies that Total Product should be increasing at a diminishing rate.
iii. False, Total Product will also increase when Marginal Product decreases In that case, Total Product increases at a diminishing rate , it is a situation of decreasing return to a factor.

34. Answer the following questions
(i) Given,

Quantity	Price
Q = ?	P = Rs 20
$\Delta Q = 6\, units$	$\Delta P = (-)Rs1$

Calculation of Quantity (Q) :
Given, E_d = (-) 1
Now,
Price Elasticity of Demand = $\frac{P}{Q} \times \frac{\Delta Q}{\Delta P}$
$(-1) = \frac{20}{Q} \times \frac{6}{-1} \Rightarrow (-1) = \frac{120}{-Q}$
Q = 120
$\therefore$ Quantity demanded before change in price = 120 unit.
(ii) Given, ΔP =Rs 1 per unit;
ΔQ = 3 units
$E_d = (-)1.5, Q = 30$ units
$E_d = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$ or $(-)1.5 = \frac{3}{1} \times \frac{P}{30}$
$P = \frac{30 \times 1.5}{3} = Rs15$.