Class 11

Economics

Set 4 with Solutions

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

General Instructions:

All questions are compulsory.

Marks for questions are indicated against each question.

Q. No. 1 to 10 and 18 to 27 are Objective Type Questions / Multiple Choice Questions carrying 1 mark each.

Q. No. 11 to 12 and 28 to 29 are Short Answer Type Questions I carrying 3 marks each.

Q. No. 13 to 15 and 30 to 32 are Short Answer Type Questions II carrying 4 marks each.

Q. No. 16 to 17 and 33 to 34 are Long Answer Type Questions carrying 6 marks each.

Section – A

Question 1.
An index which is based on the relative importance of commodity is called: [1]
(A) Weighted
(B) Simple aggregative
(C) Simple price relative
(D) All of the above
Answer:
Option (A) is correct

Question 2.
In less than cumulative frequency distribution, the omitted limit is: [1]
(A) Lower
(B) Upper
(C) Middle
(D) All of the above
Answer:
Option (A) is correct.

Explanation:
"Less than" cumulative frequency distribution: A downward cumulation results in a list presenting the number of frequency "less than" any given value as revealed by the lower limit of succeeding class-interval.

Question 3.
Identify the correct pair of terms with their common symbols from the following Columns I and II:

Column I	Column 11
A. Frequency of the given variables	1. A
B. Assumed Mean	2. f

C. Deviations from the assumed mean	3. d
D. Mean	4. d'

(A) A – 1
(B) B – 2
(C) C – 3
(D) D – 4
OR
Identify the correct pair of terms and definitions from the following Columns I and II: [1]

Column I	Column II
A. Median	1. Ogive
B. Mode	2. Ogive
C. Mean	3. Histogram
D. Mean	4. Bar graph

(A) A – 1
(B) B – 2
(C) C – 3
(D) D – 4
Answer:
Option (C) is correct

Explanation:
The symbol for frequency is t, Assumed mean is A and mean is X

OR

Option (A) is correct

Explanation:
Mode is calculated through Histogram. Mean is calculated through arithmetic calculations.

Question 4.
Read the following Assertion (A) and Reason (R) and choose the correct alternative: [1]
Assertion (A): While calculating Median of the series, the items need to be arranged in either ascending order or descending order.
Reason (R): In median, the central item is to be found which divides the series into two equal parts.
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.
Answer:
Option (A) is correct

Explanation:
Median is that value of the variable which divides the group into two equal parts, one part comprising all

values greater than the median value and the other part comprising all the values smaller than the median value.

Question 5.
Sushila wants to know the average of marks obtained in six different subjects. The tool that she will use is: [1]
(A) Arithmetic Mean
(B) Median
(C) Mode
(D) Geometric Mean
Answer:
Option (A) is correct

Explanation:
As she wants to calculate the average of marks, so the extreme value needs to affect the central tendency. In such a case the best average for her will be Arithmetic Mean.

Question 6.
While calculating median, an inclusive is always converted into series. [1]
(A) Discrete
(B) Exclusive
(C) Multiple
(D) None of the above.
Answer:
Option (B) is correct

Read the extract given below and answer questions 7 to 10 that follows:
India's book market, currently worth ₹ 261 billion making it the sixth largest in the world and the second largest of the English language ones, is expected to touch ₹ 739 billion by 2020, says a survey. A growing literacy rate, estimated to reach 90% in 2020, government spends on education, digital initiatives, and outsourcing of publishing services to India, are all identified as the strengths of the Indian publishing industry. While the market is highly fragmented, it is also experiencing consolidation, in part as a result of the involvement of foreign multinationals.
The study calculates that 55% of trade sales are of books in English. Books in Hindi account for 35% of the balance, i.e., the Indian language sales. Books in English account for a majority of professional book sales (90%) and two-thirds of educational sales; but more than half of the fiction sold in India is in other languages.
The educational book market in India is growing at a tremendous rate. According to the report, the K-12 market (school books) has grown from 63 billion rupees ($ 956 million) in 2007-08 to 186 billion ($2.8 billion) in 2013-14. Higher education book sales have grown in this period from 16 billion ($242 million) to 56 billion ($849 million).
The following graph shows the sales of books (in thousand number) from six branches of a publishing

company during two consecutive years 2000 and 2001.
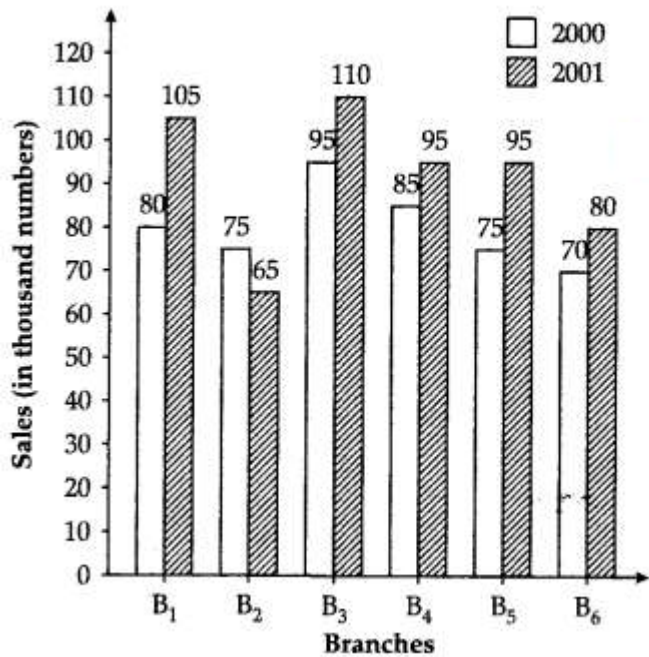
Question 7.
What other graph could be used to show the above data? [1]
(A) Pie Diagram
(B) Line Graph
(C) Both (A) and (B)
(D) Neither (A) nor (B)
Answer:
Option (B) is correct

Explanation:
As there are two bars, it is a type of multiple bar graph.

Question 8.
_____ (Hindi/English/Tamil) is the most sold books according to the case study.
Answer:
English.

Explanation:
As in the article "The study calculates that 55% of trade sales are of books in English. Books in Hindi account for 35% of the balance, i.e., the Indian language sales."

Question 9.
The _____ (educational/adventure/novels) book sale is growing in India.
Answer:
Educational

Explanation:
As per the article "The educational book market in India is growing at a tremendous rate."

Question 10.
What other graph could be used to show the above data? [1]
(A) Pie Diagram
(B) Line Graph
(C) Both (A) and (B)

(D) Neither (A) nor (B)
Answer:
Option (C) is correct

Question 11.
What methods are used for constructing Consumer Price Index Number? [3]
Answer:
There are two methods of constructing Consumer
Price Index number:
(i) Aggregative Method:
Consumer Price Index = $\frac{\Sigma p_1 q_0}{\Sigma p_0 q_0} \times 100$
This is infact the Laspeyre's method. This is the most popular method for constructing consumer price index number.

(ii) Family Budget Method:
Consumer Price Index = $\frac{\Sigma RW}{\Sigma W}$

Question 12.
The average marks of 100 students in a class are 48. But while calculating it, the marks of a student were written 73 instead of 53. Find out the corrected arithmetic mean [3]
OR
Following information pertains to the daily income of 150 families. Calculate the arithmetic mean:

Income (in ₹)	No. of families
More than 75	150
More than 85	140
More than 95	115
More than 105	95
More than 115	70
More than 125	60
More than 135	40
More than 145	25

Answer:
Incorrect $\Sigma X = N \times X$
= 100 × 48 = 4,800
Correct ΣX = 4,800 – 73 + 53 = 4,780
$\bar{X} = \frac{\Sigma X}{N}$
= $\frac{4780}{100}$
= 47.80
Hence, corrected arithmetic mean is 47.80
OR

Income	M.V. (M)	f	d = x − A	d' $\left(\frac{d}{10}\right)$	fd'	
75 – 85	80	10	−40	−4	−40	
85 – 95	90	25	−30	−3	−75	
95 – 105	100	20	−20	−2	−40	
105 – 115	110	25	−10	−1	−25	−180
115 – 125	120	10	0	0	0	
125 – 135	130	20	10	+1	20	
135 – 145	140	15	20	+2	30	
145 – 155	150	25	30	+3	75	+125
		$\sum f = 150$			$\sum fd' = -55$	

A.M = 120

$\bar{X}$ = A.M + $\sum$fd'N × C

= 120 + (−55)150 × 10

= 120 – 3.67 = 116.33

Question 13.

The marks obtained by 25 students in a class are as follows: [3]

22, 28, 30, 32, 35, 37, 40, 41,43,44, 45, 45, 48,49, 52, 53, 54, 56, 56, 58, 60, 62, 65, 68, 69

(i) Arrange the above data as frequency distribution taking class-interval:

20-29, 30-39, 40-49, 50-59, 60-69

(ii) Form the cumulative frequency distribution also. [4]

OR

Represent the following data by a pie diagram:

Items	Percent
Agriculture	40
Industry	21
Transport	19
Administration	13
Banking	07

Answer:

Here, we can convert given data into frequency distribution and cumulative frequency distribution by using tally bar and inclusive series:

(i) The frequency distribution of given data is shown below:

Class-interval	Tally bars	Frequency
20 – 29	||	2
30 – 39	||||	4
40 – 49	|||| |||	8
50 – 59	|||| |	6
60 – 69	||||	5
		N = 25

Class-interval	Exclusive Group	Frequency (f)
20-29	19.5 – 29.5	2
30-39	29.5-39.5	4
40-49	39.5-49.5	8
50-59	49.5 – 59.5	6
60-69	59.5 – 69.5	5
		N = 25

Class-interval	Cumulative Frequency (cf)
Less than 29.5	2
Less than 39.5	6
Less than 49.5	14
Less than 59.5	20
Less than 69.5	25

OR

Items	Percent %	Degrees
Agriculture	40	144°
Industry	21	75.6°
Transport	19	68.4°

Administration	13	46.8°
Banking	07	25.2°
		360.0

Pie Diagram:
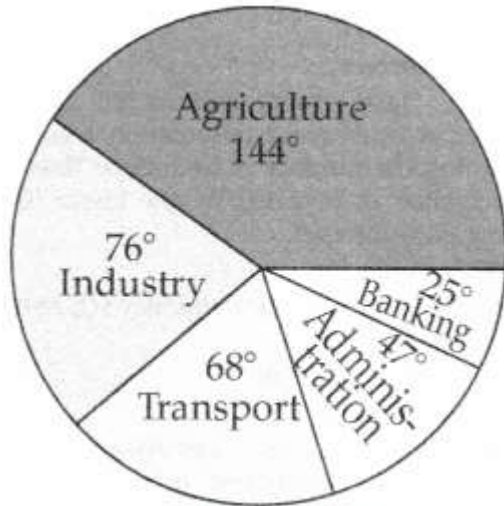
Question 14.
"From the following data, calculate Karl Pearson's coefficient of correlation: [4]

Height of Fathers (In inches)	66	68	69	72	65	59	62	67	61	71
Height of Sons (In inches)	65	64	67	69	64	60	59	68	60	**64**

Answer:

Height of Father (in inches) X	$x = X - \bar{X}$	x^2	Height of Son (in inches) Y	$y = Y - \bar{Y}$	y^2	xy
66	0	0	65	1	1	0
68	2	4	64	0	0	0
69	3	9	67	3	9	9
72	6	36	69	5	25	30
65	-1	1	64	0	0	0
59	-7	49	60	-4	16	28
62	-4	16	59	-5	25	20
67	1	1	68	4	16	4
61	-5	25	60	-4	16	20
71	5	25	64	0	0	0
$\Sigma X = 660$		$\Sigma x^2 = 166$	$\Sigma Y = 640$		$\Sigma y^2 = 108$	$\Sigma xy = 111$

$$n = 10, \ \bar{X} = \frac{\Sigma x}{n} = \frac{660}{10} = 66$$

$$\text{and } \bar{Y} = \frac{\Sigma Y}{n} = \frac{640}{10} = 64$$

We know that, $Y = \dfrac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$

$$\Rightarrow \gamma = \frac{111}{\sqrt{166 \times 108}} = \frac{111}{133.895} = 0.829$$

Question 15.
The following table gives production yield in kg per hectare of wheat of 150 farms in a village. Calculate the mean, median and mode values: [4]

Production yield (kg per hectare)	50 – 53	53 – 56	56 – 59	59 – 62	62 – 65	65 – 68	68 – 71	71 – 74	74 – 77
Number of farms	3	8	14	30	36	28	16	10	5

Answer:

Production yield (X)	f	M.V. (m)	d	d' $i = 3$	fd'	c.f.
50 – 53	3	51.5	– 12	– 4	– 12	3
53 – 56	8	54.5	– 9	– 3	– 24	11
56 – 59	14	57.5	– 6	– 2	– 28	25
59 – 62	30	60.5	– 3	– 1	– 30	55
62 – 65	36	63.5 A	0	0	0	91
65 – 68	28	66.5	+3	+1	+28	119
68 – 71	16	69.5	+6	+2	+32	135
71 – 74	10	72.5	+9	+3	+30	145
74 – 71	5	75.5	+12	+4	+20	150
	N = 150				$\sum fd' = +16$	

$X = A + \frac{\sum f'}{N} \times i = 63.5 + \frac{\sum f'}{N} \times 3 = 6382$

Median item = $\frac{N}{2} = \frac{150}{2} = 75''$ item which lies in 62 – 65 class interval

$M = l_1 + \frac{\frac{N}{2} - c.f.}{f} \times i = 62 + \frac{75 - 55}{36} \times 3$

$= 62 + \frac{20}{36} \times 3 = 63.67$

By inspection, model class is 62 – 65

$Z = l_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times i$

$= 62 + \frac{36 - 30}{2 \times 36 - 30 - 28} \times 3$

$= 62 + \frac{6 \times 3}{72 - 58}$
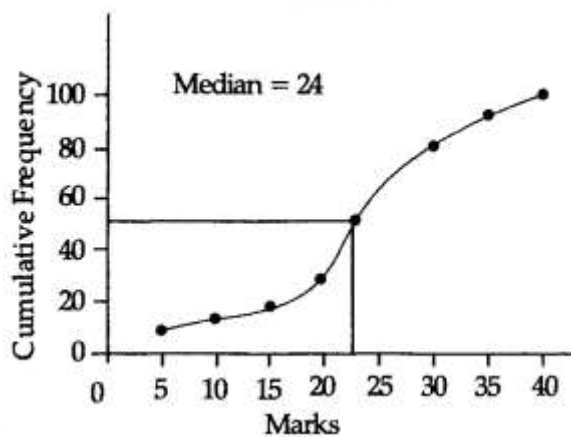
$= 62 + \frac{18}{14}$

$= 62 + 1.28$

$Z = 63.28$

Question 16.

Calculate the median value of the following series by 'less than' ogive curve: [6]

Marks	No. of students
0-5	4
5-10	6
10-15	10
15-20	10
20-25	25
25-30	22
30-35	18
35-40	5

Answer:

Marks	Cumulative frequency
Less than 5	4
Less than 10	10
Less than 15	20
Less than 20	30
Less than 25	55
Less than 30	77
Less than 35	95
Less than 40	100

Mark 55 on the Y-axis. Draw a perpendicular from 55 to the right to cut the cumulative frequency curve at point E. From point E, draw perpendicular on X-axis. The point at which it touches X will be median. Here, median is 24.

Question 17.
Calculate Spearman's rank correlation from the following data: [6]

X	20	11	72	65	43	29	50
Y	60	63	26	35	43	51	37

OR

Construct the index number by the Simple Average of Price Relative Method: [6]

Commodity	A	B	C	D	E	F
P_1	23.5	28.5	16.25	30.5	35	14
P_0	20.5	20.25	14.75	28	40	16

Answer:

X	Y	R_X	R_Y	d	d^2
20	60	2	6	-4	16
11	63	1	7	-6	36
72	26	7	1	6	36
65	35	6	2	4	16
43	43	4	4	0	0
29	51	3	5	-2	4
50	37	5	3	2	4
N = 7					112

N = pair of items = 7

$$r = 1 - \frac{6\left(\Sigma d^2\right)}{N^3 - N} = 1 - \frac{6 \times 112}{7^3 - 7} = 1 - \frac{672}{336} = 1 - 2 = -1$$

OR

Commodity	Base Year (P_0)	Current Year (P_1)	$\frac{P_1}{P_0} \times 100$
A	20.5	23.5	114.6
B	20.25	28.5	140.7
C	14.75	16.25	110.1
D	28	30.5	108.9
E	40	35	87.5
F	16	14	87.5
N = 6			$\Sigma \frac{P_1}{P_0} \times 100 = 649.3$

$$P_{01} = \frac{\Sigma\left(\frac{P_1}{P_0} \times 100\right)}{N} = \frac{649.3}{6} = 108.2$$

Section – B

Question 18.
Read the following Assertion (A) and Reason (R) and choose the correct alternative: [1]
Assertion (A): Rare commodities like antiques do not follow the law of diminishing marginal utility.
Reason (R): Law of marginal utility states that as more and more units of a commodity are consumed, marginal utility derived from additional unit must decline.
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.
OR
Read the following Assertion (A) and Reason (R) and choose the correct alternative:
Assertion (A): A goods is considered normal when with rise/fall in income of its consumer, its demand

rises/falls. Reason (R): Normal goods have negative income effect.

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.

Answer:

Option (B) is correct

Explanation:

Rare commodities like antiques do not follow the law of diminishing marginal utility as the utility derived from the consumption of more units of the commodity increases.

OR

Option (C) is correct

Explanation:

Normal goods have a positive income effect as when the income rises the demand of normal goods also rises.

Question 19.

Identify the correct pair of items from the following Columns I and II: [1]

Column I	Column II
A. Higher the indifference curve	1. Lower is the utility.
B. Budget line	2. Constraint on the purchasing power of the consumer.
C. Marginal Rate of Substitution	3. The rate at which the consumers buy the products to satisfy their wants.
D. Indifference Curve	4. Concave to the origin.

(A) A – 1

(B) B – 2

(C) C – 3

(D) D – 4

Answer:

Option (B) is correct

Question 20.

_____ is the power of capacity of a commodity to satisfy human wants. [1]

(A) Utility

(B) Demand

(C) Supply

(D) None of these

Answer:

Option (A) is correct

Explanation:

Utility is the want satisfying power of the commodity.

Question 21.
_____ expresses the inverse relationship between price and demand of a commodity, other things remaining constant. [1]
(A) Law of Variable Proportions
(B) Law of Demand
(C) Law of Supply
(D) Law of Diminishing Marginal Utility
Answer:
Option (B) is correct

Question 22.
Identify the correct pair of items from the following Columns I and II: [1]

Column 1	Column II
A. Budget Line	1. Normal goods
B. Bajra	2. Inferior goods
C. Consumer equilibrium	3. Luxurious goods
D. Elastic Demand	4. M = Pxx + P y-y

(A) A – 1
(B) B – 2
(C) C – 3
(D) D – 4
Answer:
Option (B) is correct

Question 23.
What happens to TR when MR is positive? [1]
(A) TR increases
(B) TR decreases
(C) TR is maximum
(D) TR remains same
Answer:
Option (A) is correct

Explanation:
When the MR is positive the TR increases. When MR is negative, TR is decreasing. When TR is maximum, MR is zero.

Read the following passage and answer questions 24 to 27 that follows:
The slope of a total revenue curve is particularly important. It equals the change in the vertical axis(total revenue) divided by the change in the horizontal axis (quantity) between any two points. The slope measures the rate at which total revenue increases as output increases. We can think of it as the increase in total revenue associated with a 1-unit increase in output. The increase in total revenue from a 1-unit increase in quantity is marginal revenue. Thus, marginal revenue (MR) equals the slope of the total revenue curve.
How much additional revenue does a radish producer gain from selling one more pound of radishes? The answer, of course, is the market price for 1 pound. Marginal revenue equals the market price. Because the market price is not affected by the output choice of a single firm, the marginal revenue the firm gains by

producing one more unit is always the market price. The marginal revenue curve shows the relationship between marginal revenue and the quantity a firm produces. For a perfectly competitive firm, the marginal revenue curve is a horizontal line at the market price. If the market price of a pound of radishes is $0.40, then the marginal revenue is $0.40. Marginal revenue curves for prices of $0.20, $0.40, and $0.60. In perfect competition, a firm's marginal revenue curve is a horizontal line at the market price. Price also equals average revenue, which is total revenue divided by quantity. To obtain average revenue (AR), we divide total revenue by quantity, Q. Because total revenue equals price (P) times quantity (Q), dividing by quantity leaves us with price.

Question 24.
The slope of the Total Revenue equals . [1]
(A) Average Revenue
(B) Marginal Revenue
(C) Average Cost
(D) Marginal Cost
Answer:
Option (B) is correct

Explanation:
As the change in Total Revenue is shown by Marginal Revenue, so the slope of Total Revenue is shown by Marginal Revenue.

Question 25.
Marginal revenue equals _____ (market/industry/consumer) price. [1]
Answer:
market

Question 26.
The marginal revenue curve shows the relationship between _____ and _____ . [1]
(A) Marginal revenue, quantity produced.
(B) Marginal revenue, quantity sold.
(C) Marginal cost, quantity produced.
(D) Marginal cost, quantity sold.
Answer:
Option (A) is correct

Question 27.
_____ (price/quantity/supply) also equals Average revenue. [1]
Answer:
price

Question 28.
What is meant by Price Floor? Discuss in brief, any one consequence of imposition of floor price above equilibrium price with help of a diagram. [3]
OR
How does it effect the market when there is a large number of buyers and sellers? Explain. [3]
Answer:
Floor price is the minimum price at which a commodity can be sold legally. Floor price is fixed above the equilibrium price, serves the purpose of welfare of the producers (say farmers). When price floor is fixed at P" quantity demanded will contract to OQ" but at this price, suppliers will be ready to supply OQ'. As a result, surplus of QQ" will emerge.
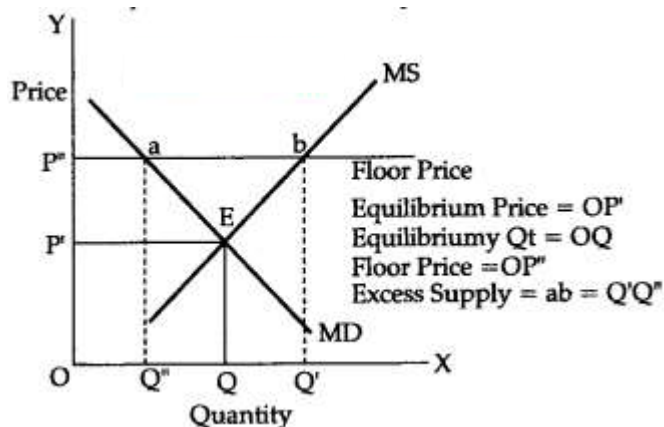
Imposition of floor prices above equilibrium price will have the following major implications:

(i) Surpluses: The quantity actually brought and supplied will shrink as a direct consequence of price flooring, as a result, a part of producer's stock will remain unsold. As shown in the figure the surplus of Q'Q" arises.

(ii) Buffer Stock: In order to maintain the support price, the government may design some programmes to enable producers to dispose of their surplus stocks. One such programme can take the form of buffer stock Government may purchase the surplus to store or sell it at subsidised prices. Subsidy is required to lower the price and make it competitive in the market. Government may also use it as aid and send it to other countries, (any one to be explained)

Question 29.
"In a hypothetical market of the brand vegetables there were a large number of buyers and sellers and there was no price competition between the sellers of any type"
Based on the above information, identify and define the form of market represented and discuss any two features of the market. [3]
Answer:
Perfect Competition: This type of market structure refers to the market that consists of a large number of buyers and also a large number of sellers. No individual seller is able to influence the price of an existing product in the market. All sellers in a perfect competition produce homogenous outputs, i.e., the outputs of all the sellers are similar to each other and the products are uniformly priced.

Features of Perfectly Competitive Market:
(i) Large number of buyers and sellers: There exist a large number of buyers and sellers in a perfectly competitive market. The number of sellers is so large that no individual firm owns the control over the market price of a commodity. Due to the large number of sellers in the market, there exists a perfect and free competition. A firm acts as a price taker while the price is determined by 'invisible hands of market', i.e., by 'demand for' and 'supply of goods'. Thus, we can conclude that, under perfectly competitive market, an individual firm is a price taker and not a price maker.

(ii) Homogenous products: All the firms in a perfectly competitive market produce homogeneous products. This implies that the output of each firm is perfect substitute to other outputs in terms of quantity, quality, colour, size, features, etc. This indicates drat the buyers are indifferent to the output of different firms. Due to the homogenous nature of products, existence of uniform price is guaranteed.

(iii) Free exit and entry of firms: In the long-run, there is free entry and exit of firms. However, in the short run some fixed factors obstruct the free entry and exit of firms. This ensures that all the firms in the long-run earn normal profit or zero economic profit that measures the opportunity cost of the firms either to continue production or to shut down. If there are abnormal profits, new firms will enter the market and if there are abnormal losses, a few existing firms will exit the market.

(iv) Perfect knowledge among buyers and sellers:
Both buyers and sellers are fully aware of the market conditions; such as price of a product at different places. The sellers are also aware of the prices at which the buyers are willing to buy the product. The implication of this feature is that if any individual firm is charging higher (or lower) price for a homogeneous product, the buyers will shift their purchase to other firms (or shift their purchase from the firm to other firms selling at lower price),

(v) No transport costs: This feature means that all the firms have equal access to the market. The goods are produced and sold locally. Therefore, there is no cost of transporting the product from one part of the market to other.

(vi) Perfect mobility of factors of production: There exists geographically and occupationally perfect mobility of factors of production. This implies that the factors of production can move from one place to other and can move from one job to another.

(vii) No promotional and selling costs: There are no advertisements and promotional costs incurred by the firms. The selling costs under perfectly competitive market are zero.

Commonly Made Error
Some students write monopolistic competition j instead of perfect competition.

Answering Tip
When the sellers have no selling cost, it is a case of perfect competition.

Question 30.
Price of a commodity falls from ₹ 20 to ₹ 15 per unit. Its demand rises from 600 units to 750 units. Calculate its price elasticity of demand. [4]
Answer:
P = ₹ 20, P, = ₹ 15,Q = 600, Q1 = 750 Ed=?
$\Delta P = 15 - 20 = (-) 5$
$\Delta Q = 750 - 600 = 150$
$Ed = \frac{P}{Q} \times \frac{\Delta Q}{\Delta P}$
$Ed = \frac{P}{Q} \times \frac{\Delta Q}{\Delta P}$
= 3,0003,000
Ed = (-1)

Question 31.
Calculate Marginal Cost at each level of output: [4]

Output (Units)	AVC (Average Variable Cost) (?)
1	24
2	22
3	20
4	18
5	18
6	20

Answer:

Output (Units)	AVC	TVC	MC = $\frac{\Delta TVC}{\Delta Q}$
1	24	24	24
2	22	44	20
3	20	60	16
4	18	72	12
5	18	90	18
6	20	120	30

Question 32.
Explain the problem of 'what to produce' with the help of an example. Does it arise in every economy? Explain. [4]
OR
Assuming that no resources are equally efficient in production of all good name the curve which shows production potential of an economy. Explain, giving reasons, its properties. [4]
Answer:
Every economy faces the problem of what to produce. Because resources are scarce, we cannot produce everything in whatever quantity we wish to, we are bound to face the problems of what to produce and how much.
Illustration: Let us assume that resources available are worth ?5 crore. Assuming technology to be constant, we can utilise resources entirely for the production of (say) guns and produce 500 guns, or utilise these resources entirely for the production of (say) bread and produce 500 tons of bread. We need guns for the defence and bread for the masses.

Accordingly, both the guns and bread are to be produced. How much of each is to be produced depends on the wisdom of the planners in a planned economy, also upon the market forces of demand and supply in a free economy.
OR
The curve is called Production Possibility Curve. Production Possibility Curve (PPC) is the locus of various combinations of two goods that an economy can produce when the resources are fully and efficiently employed at a given level of technology.

Combination	Guns (units)	Butter (units)
A	21	0
B	19	1
C	17	2
D	14	3
E	11	4
F	6	5
G	0	6
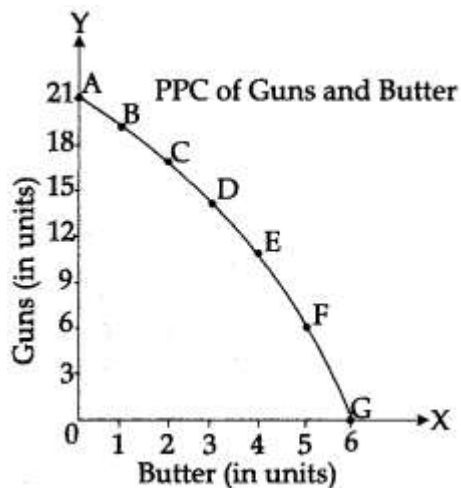
Properties of PPC:

(i) PPC is downward sloping, which means that if the country wants to produce more of one good it has to produce less of the other good since resources are limited.

(ii) PPC is a concave-shaped curve because of increasing MOC. This is explained below:
We know that resources are not equally efficient in the production of both the goods: guns and butter. If initially all the resources are being used for the production of guns, then we are at point A on the PPC. If the producer now wants to shift some resources from the production of guns to butter, he would shift the least efficient resources. Thus, the amount of butter sacrificed will be less. If the producer wants to shift some more resources from the production of guns to butter, more efficient resources will then be shifted. Thus, the amount sacrificed of guns will be more. This implies that MOC will increase.

Question 33.
Aarti sells 50 kg of mangoes when the price was ₹ 40 per kg. When the price decreased to ₹ 30 she sells 20 kgs less.
What is the price elasticity of supply? Also calculate how much will she supply when the price further decreases by ₹ 5. At what price will her supply increase by 20 kgs from the original 50 Kgs? [6]
OR
What happens when the supply of a commodity decreases while the demand for the commodity remains intact? Explain with the help of diagram.
Answer:
Given,
Q = ₹ 50
P = ₹ 40
Change in Quantity, ΔQ = 20
Change in Price, ΔP = ₹40 – ₹30 = ₹10

We Know that:
Elasticity of Supply, es = ΔQΔP×pQ
⇒ es = 2010×4050
∴ es = 1.6

She has a relatively elastic supply for mangoes as es > 1
Now,
ΔP = 5
ΔQ = ?
We know
Elasticity of Supply, es = ΔQΔP×pQ
⇒ 1.6 = ΔQ5×4050

⇒ 1.6×50×540 = ΔQ

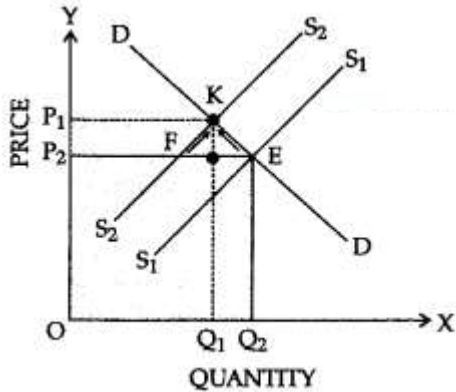∴ ΔQ = 10

Thus the prices rise by no.

Thus, the new price = ₹ 40 + ₹ 10 = ₹ 50

OR

Effect of a decrease in supply of a commodity on its equilibrium price and equilibrium quantity is discussed with reference to Fig. given below:

In Fig. S1S1 is the initial supply, curve, crossing demand curve DD at point E, which is the point of initial equilibrium. Now, owing to a decrease in supply, supply curve shifts to the left, from S1S1 to S2S2. As an immediate impact of decrease in supply, there is excess demand, equal to EF (at the existing price). Because of this excess demand (and sluggish supply), price of the commodity tends to be higher than the equilibrium price. Owing to rising price, quantity demanded tends to contract. Contraction of demand occurs from point E towards point K. But due to rising price, quantity supplied tends to extend. The extension of supply occurs from point F towards point K. The process of extension of supply and contraction of demand (triggered by the rising price) continues till the excess demand is fully tackled. K is the point of new equilibrium where the market clears itself once again. Corresponding to the new equilibrium, quantity demanded is equal to the quantity supplied, i.e., OQ2 and equilibrium price is OP2.

Thus, the net effect of decrease in supply is:

Equilibrium price increases from OP1 to OP2 and

Equilibrium quantity decreases from OQ1 to OQ2.

Question 34.

Show diagrammatically the conditions for consumer's equilibrium, in Hicksian analysis of demand. [6]

Answer:

In the Hicksian/Indifference Curve analysis, a consumer attains equilibrium when:

(i) Budget line is tangential to the Indifference Curve at a unique combination of two goods, i.e., Slope of Indifference Curve = Slope of Budget Line or MRSxy = (-) PxPy.

(ii) Indifference Curve is strictly convex to origin at the point of tangency, i.e., MRSxy must be diminishing.
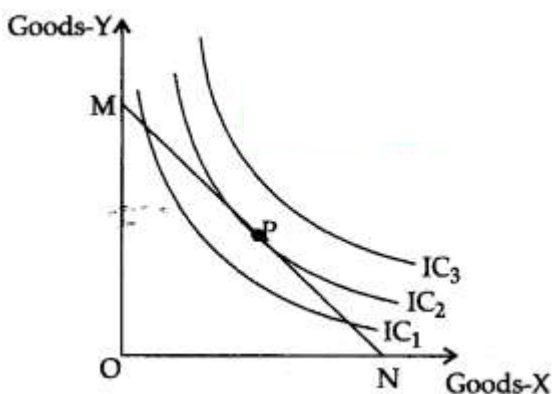
Explanation: In the diagram MN is the budget line, IC1, IC2 and IC3 are Indifference Curves. A consumer can't get any combination on IC3 as it is away from price line MN. The consumer will be in equilibrium at point 'P' because at this point budget line MN is tangent to the Indifference Curve. IC2 and at point 'P' slope of IC2 = Slope of budget line.

Commonly Made Error
Some students know this approach but are not aware that this was propounded by Hicks.