

SAMPLE QUESTION PAPER - 3

**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):** The statistics of consumption are useful and helpful in providing the [1] taxable liability of individuals and their standard of living.

Reason (R): Individuals discover how different groups spend their incomes from statistics relating to consumption.

- | | |
|---|---|
| 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. Consumer Price Index number for the year 1957 was 313 with 1940 as the base [1] year, the average monthly wages in 1957 of the workers in a factory was Rs.160. Their real wage is

- | | |
|----------|----------|
| a) 48.40 | b) 40.30 |
| c) 51.12 | d) 46.20 |

3. Study of price and demand eliminating supply side [1]

a) Total correlation

b) Both Partial correlation
and Total correlation

c) correlation

d) Partial correlation

4. From the data given below, find Paasche's price index: [1]

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	4	2	6	3
B	3	5	2	1
C	8	2	4	6

a) 68.42

b) 69.82

c) 69.84

d) 68.85

5. From the following which is not a kind of index number [1]

a) value

b) quantity

c) price

d) Quality

6. Price-relative is expressed in terms of: [1]

a) $\frac{P_n}{P_o} \times 100$

b) $P = \frac{P_o}{P}$

c) $P = \frac{P_n}{P_o} \times 100$

d) $P = \frac{P_n}{P_o}$

7. Which of the following statement can be called Statistics? [1]

a) Technology of Japan is very
advanced.

b) In our school there are 5000
students.

c) India has per capita income of
Rs. 20,000 p.a.

d) USA is the richest country in
the world.

8. Data represented through a histogram can help in finding graphically the [1]

a) Mean

b) All of these

c) Mode

d) Median

17. What are the merits and limitations of arithmetic mean? [6]

OR

Find out the missing value of the variate for the following distribution whose mean is 31.87.

Value (X)	12	20	27	33	?	54
Frequency (f)	8	16	48	90	30	8

Section B

18. The supply curve of a firm shows [1]

- a) Graphical representation of quantity supplied at keeping prices constant
- b) Graphical representation of quantity supplied at various profit levels
- c) Graphical representation of quantity supplied at a particular price only
- d) Graphical representation of quantity supplied at various prices

19. opportunity cost is the [1]

- a) Next best alternative produced
- b) Next best alternative available
- c) Next best alternative chosen
- d) Next best alternative sacrificed

20. The market supply curve of perishable goods is a vertical straight line parallel to Y-axis. It happens in which of the following periods? [1]

- a) Long period
- b) All of these
- c) Very short period
- d) Short period

21. The AR curve and industry demand curve are same in case of? [1]

- a) Monopoly
- b) Perfect competition
- c) None of above
- d) Oligopoly

22. TVC can be calculated as: [1]

- a) $TC - TFC$
- b) $TC - TFC$ and ΣMC

c) $\frac{AVC}{Q}$

d) ΣMC

23. **Assertion (A):** An individual is influenced by emerging trends and fashions. [1]
Reason (R): An individual simply wants to be trendy accordingly, one prefers to buy more of a commodity.
- 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. In perfect competition, which of the following curves generally lies below the demand curve and slopes downward? [1]
- a) Marginal revenue b) Marginal cost
c) Average cost d) Average revenue
25. AR is same as MR in perfect competition as [1]
- a) Price remains fixed b) Price can rise
c) Price does not remain fixed d) Price may fall
26. Which of the following is the variable cost for a firm? [1]
- a) Interest on loan b) Wages to employees
c) Monthly rent d) Insurance premium
27. Main feature of perfectly competitive market is: [1]
- a) All of these b) Uniform price
c) Homogeneous product d) Large number of buyers and sellers
28. Show the following situation with PPF (PPC). [3]
- a. Fuller utilisation of resources
b. Growth of resources
c. Under utilisation of resources.

OR

Calculate MRT from following table. What will be the shape of PPF and why?

Combinations	Green Chilly (Units)	Sugar Units
A	100	1
B	95	1
C	85	2
D	70	3
E	50	4
F	25	5

29. How is the optimal amount of labour determined in a perfectly competitive market? [3]
30. Explain the effects of the following on demand for a good [4]
- i. rise in income
 - ii. rise in prices of related goods
31. From the following schedule, find out the level of output at which the producer is in [4] equilibrium. Give reasons for your answer.

Output (Units)	1	2	3	4	5	6	7
Price (Rs.)	24	24	24	24	24	24	24
Total Cost	26	50	72	92	115	139	165

OR

What is meant by producer's equilibrium? When will a producer be in equilibrium in case of losses?

32. Discuss briefly, using a hypothetical schedule, the relation between marginal utility [4] and total utility.
33. What is meant by **diminishing returns to a factor**? Discuss any two reasons for [6] the operation of diminishing returns to a factor.
34. **Answer the following questions** [6]
- (i) If a product price increases, a family's spending on the product has to increase. [3] Defend or refute.

- (ii) The demand for a good double due to 25% fall in its price. Calculate its price elasticity of demand. [3]

Solution
SAMPLE QUESTION PAPER - 3
Economics (030)
Class XI (2024-25)
Section A

1.
(b) Both A and R are true but R is not the correct explanation of A.
Explanation:
 The statistics of consumption are useful and helpful in providing the taxable liability of individuals and their standard of living. Individuals discover how different groups spend their incomes from statistics relating to consumption.
2.
(c) 51.12
Explanation:
 Calculation of Real Wages:
 Price index number = 313
 Average wage = Rs. 160
 \therefore Price index = $\frac{p_1}{p_0} \times 100$
 $\Rightarrow 313 = \frac{160}{p_0} \times 100 \Rightarrow p_0 = \frac{160 \times 100}{313} = 51.12$
3.
(d) Partial correlation
Explanation:
 Partial correlation measures the degree of association between two random variables while controlling or eliminating the effect of one or more other variables.

4.
(c) 69.84

Explanation:

Commodity	Base Year		Current Year		P1q1	P0q1
	Price (P0)	Quantity (q0)	Price (P1)	Quantity (q1)		
A	4	2	6	3	18	12
B	3	5	2	1	2	3
C	8	2	4	6	24	48
Total					44	63

Paasche's price index = $\frac{44}{63} \times 100 = 69.84$

(Paasche's price index = $\frac{p^1 q^1}{p^0 q^1} \times 100$)

5.

(d) Quality

Explanation:

Index number is measured for quantitative data not qualitative data .

6.

$$(c) P = \frac{P_n}{P_o} \times 100$$

Explanation:

$$P = \frac{P_n}{P_o} \times 100$$

Where P_n = Current year Value

P_0 = Base year Value

7.

(c) India has per capita income of Rs. 20,000 p.a.

Explanation:

We can infer much about national income , income distribution and economic growth, given per capita income. In case of other three options nothing can be interpreted.

8.

(c) Mode

Explanation:

Histogram is only used to plot the frequency of score occurrences in a continuous data set that has been divided into classes, called bins. .The height of the rectangles in the **histogram** is marked by the frequencies of the class interval. So, the highest rectangle represents the modal class and then mode is computed accordingly.

9.

$$(b) \frac{\sum P_1 q_0}{\sum P_0 q_0} \times 100$$

Explanation:

$$\text{Consumer Price Index (CPI)} = \frac{\sum P_1 q_0}{\sum P_0 q_0} \times 100$$

Where P_1 = Price of the Commodities in the Current Year

Where P_0 = Price of the Commodities in the base Year

q_0 = Quantity consumed in base year

10.

(c) 0.363

Explanation:

X (1 st)	Y (2 nd)	dX	dY	dX^2	dY^2	$dXdY$
88	84	18	-4	324	16	-72
95	90	25	2	625	4	50

70 (A)	88 (A)	0	0	0	0	0
96	55	26	-33	676	1089	-858
50	48	-20	-40	400	1600	800
80	85	10	-3	100	9	-30
75	82	5	-6	25	36	-30
85	72	15	-16	225	256	-240
		79	-100	2375	3010	-380

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

$$= \frac{8(-380) - (79)(-100)}{\sqrt{8(2375) - (79)^2} \sqrt{8(3010) - (-100)^2}} = 0.363$$

11. 1. Errors may occur in the construction because of inaccurate specification of groups for whom the index is meant.
2. Faulty selection of representative commodities resulting out of unscientific family budget enquiries.
3. Inadequate and unrepresentative nature of price quotations and use of inaccurate weights.
4. Frequent changes in demand and prices of the commodity. The average family might not be always a representative one.
12. For calculating the weighted mean, we have to multiply each item of the series by its weights, i.e. X has to be multiplied by W and then we have to find the total of XW i.e. $\sum XW$.

Calculation of Weighted Mean

X	W	XW
12	6	72
29	4	116
14	5	70
41	2	82
	$\sum W = 17$	$\sum XW = 340$

$$\text{Weighted mean} = \bar{X}_W = \frac{\sum XW}{\sum W} = \frac{340}{17} = 20$$

Thus, $\bar{X}_W = 20$

OR

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
	$\Sigma f = 29$	

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

=Size of 15th item

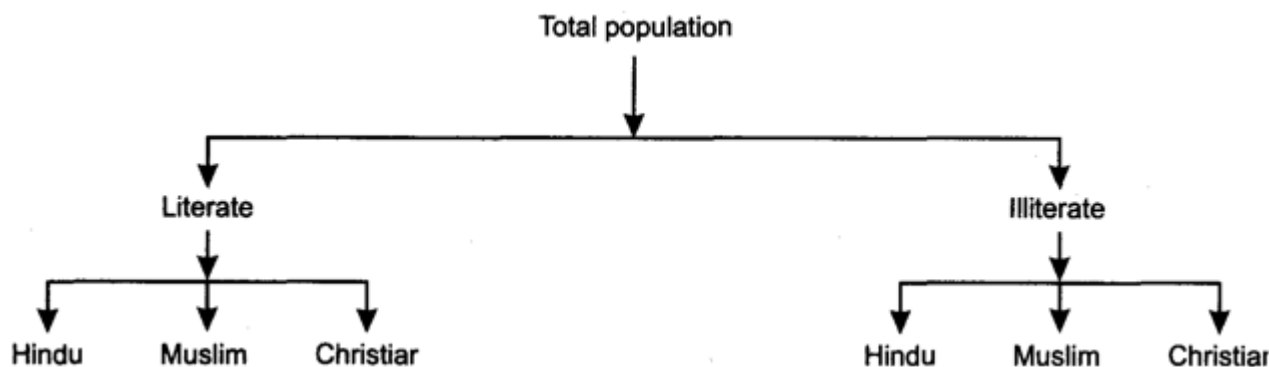
Since 15 is greater than 14 and less than 21, so, the 15th item lies in cf 21, and the value corresponding to this cumulative frequency is 156.

Hence Median =156

13. i. **Quantitative classification:** In quantitative classification the data are classified according to some characteristics that can be measured numerically such as height, weight, production, income, marks secured by the students etc. Example: Students of a college may be classified according to there weights as given in the table

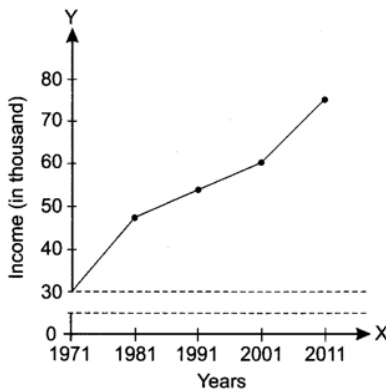
Weight (in Kg)	No of students
30-40	20
40-50	25
50-60	40
60-70	45

- ii. **Qualitative classification:** In qualitative classification, the data are classified on the basis of attributes or quality such as sex, colour of hair, literacy, religion etc.



14. Usually, when we draw any graph, the scale on which the graph is measured starts from zero on the y-axis. However, under the situations when the data to be plotted on graph starts from a value which is far above zero, results in the problem of shortage of space on

graph. To overcome this problem of shortage of space, a false baseline is plotted. False base line is a line which is drawn to grasp the attention of the reader on the fluctuations which usually remains unnoticed. Graphical Presentation



OR

General rules to construct a time Series graph

- Since time can never be in negative values, II and III quadrant are not used in making of time series graphs.
- Time period (week, Month, Year) is taken on X- Axis. And Variable under study is taken on Y-Axis.
- We start Y axis with Zero and decide the scales for both the axis.
- Different values are plotted on the graph.
- By joining these points, we get a time series graph.

Time series graph can be of three types:

- One Variable Graph.
- Two or more than two variable Graph.
- When False Base Line is used.
- Graphs of Different Units.

15.

Basis	Telephonic Interview Method	Mailed questionnaire Method
1. Meaning	In this method, investigator collects information from respondents over telephone. He collects telephonic data of his respondents and calls them for getting information.	In this method, questionnaires are sent respondents through post or e-mail and he is requested to fill it and revert back. In this it and revert back. In this method, investigator does not go to respondents personally but sends questionnaire via post or e-mail. A covering letter is also sent which explains the purpose of collecting information and surety that information will be kept confidential.
2. Pitch and para	In this ,we can judge certain things from pitch	In this ,we cannot judge anything from pitch and para language.

	language		and para language.				
	3.Respondent		It can be used for literate as well as illiterate respondents.				It can be used only for literate respondent.
16.	X	dx(X - A), A = 32	dx ²	Y	dy(Y - A), A = 25	dy ²	dxdy
	24	-8	64	18	-7	49	56
	27	-5	25	20	-5	25	25
	28	-4	16	22	-3	9	12
	28	-4	16	25	0	0	0
	28	-4	16	22	-3	9	12
	29	-3	9	22	-3	9	9
	30	-2	4	28	3	9	-6
	32	0	0	28	3	9	0
	33	1	1	30	5	25	5
	35	3	9	27	2	4	6
	40	8	64	22	-3	9	-24
		$\Sigma dx = -18$	$\Sigma dx^2 = 224$		$\Sigma dy = -11$	$\Sigma dy^2 = 157$	$\Sigma dxdy = 95$

$$r = \frac{n\Sigma dxdy - (\Sigma dx)(\Sigma dy)}{\sqrt{\Sigma dx^2 \cdot n - (\Sigma dx)^2} \times \sqrt{\Sigma dy^2 \cdot n - (\Sigma dy)^2}}$$

$$= \frac{11 \times 95 - (-18)(-11)}{\sqrt{224 \times 11 - (-18)^2} \times \sqrt{157 \times 11 - (-11)^2}}$$

$$= \frac{1045 - 198}{\sqrt{2464 - 324} \times \sqrt{1727 - 121}} = \frac{847}{\sqrt{2140} \times \sqrt{1606}} = \frac{847}{46.26 \times 40.07} = \frac{847}{1853.64} = 0.456 \text{ (approx)}$$

- **Therefore, Karl Pearson's coefficient of correlation between X and Y is 0.456**
- **Interpretation: It shows medium degree of positive correlation between X and Y series.**

17. The merits of arithmetic mean are:

1. Arithmetic mean is based on all the items in a series.
2. Being stable and certain, arithmetic mean can be easily used for comparison.
3. Arithmetic mean can be tested for its accuracy as a representative value of the series.
4. Arithmetic mean is capable of further algebraic treatment. Therefore, it is extensively used in statistical analysis.
5. Of all the averages, arithmetic mean is least affected by sampling fluctuation.

Limitations of Arithmetic mean are as follows:

1. Since Arithmetic average is calculated from all the items of a series, it is unduly affected by extreme values, i.e. very small or very large items.
2. In case of open ended classes, the arithmetic mean cannot be calculated unless assumptions are made regarding the magnitude of class intervals of the open end classes.
3. Arithmetic mean sometimes gives such results which appear almost absurd.
4. Arithmetic mean cannot be computed for qualitative data; like data on intelligence, honesty, smoking habit etc.
5. The arithmetic mean gives more importance to higher items of a series as compared to smaller items.

OR

The missing value of the variate is taken as Y.

Value (X)	Frequency (f)	fX
12	8	96
20	16	320
27	48	1296
33	90	2970
Y	30	30Y
54	8	432
	$\Sigma f = 200$	$\Sigma fX = 5114 + 30Y$

Here,

$$\bar{X} = 31.87(\text{Given})$$

$$\Sigma f = 200$$

$$\Sigma fX = 5114 + 30Y$$

Now,

$$\bar{X} = \frac{\Sigma fX}{\Sigma f}$$

Now substituting the values in above formula, we get

$$\Rightarrow 31.87 = \frac{5114+30Y}{200}$$

$$\Rightarrow 31.87 \times 200 = 5114 + 30Y$$

$$\Rightarrow 6374 = 5114 + 30Y$$

$$\Rightarrow 1260 = 30Y$$

$$\Rightarrow Y = \frac{1260}{30} = 42$$

Hence, the missing value of the variate for the given distribution is 42.

Section B

18.

(d) Graphical representation of quantity supplied at various prices

Explanation:

It is the locus of all the points showing various quantities of a commodity that a producer is willing to sell at various levels of price.

19.

(d) Next best alternative sacrificed

Explanation:

For eg. if you are working in a restaurant at a salary of Rs. 50,000. and you receive an offer to work for a news channel which will pay you Rs. 30,000 and another offer to work in an administrative office which will offer you 40,000 Rs.

In this case the opportunity cost of working in the restaurant is the cost of the next best alternative foregone, which is the offer of Rs. 40,000 for working in an office.

20.

(c) Very short period

Explanation:

The market supply curve of perishable goods is a vertical straight line parallel to Y-axis. It happens in a very short period.

21. **(a)** Monopoly

Explanation:

In monopoly, price is determined by the industry, i.e. the firm is a price maker. A monopolist can sell as many units of a product by lowering the price. So, the AR curve of the firm is the same as the demand curve.

22.

(b) TC - TFC and ΣMC

Explanation:

Total cost is the sum total of total fixed cost and total variable cost.

$$TVC = TC - TFC$$

Marginal cost is an additional cost and additional cost cannot be fixed cost, it can be a variable cost. Accordingly, the sum total of marginal costs corresponding to different units of output becomes TVC.

23.

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

Explanation:

An individual is influenced by emerging trends and fashions. An individual simply wants to be trendy accordingly, one prefers to buy more of a commodity.

24. (a) Marginal revenue

Explanation:

In perfect competition, marginal revenue curves generally lies below the demand curve and slopes downward.

25. (a) Price remains fixed

Explanation:

In the perfectly competitive market, each firm is a price taker. As a result uniform price prevails in the market. It means that the revenue from every additional unit , i.e. MR is equalto the price (AR) of the product. So $AR=MR$ in perfect competition.

26.

(b) Wages to employees

Explanation:

Variable costs include payments such as **wages of labour employed**, prices of the raw materials, fuel and power used, the expenses incurred on transporting, etc. However, wages paid to workers for their regular hours are a fixed cost. Any extra time they spend on the job is a variable cost.

27. (a) All of these

Explanation:

All the options are features of a perfectly competitive market.

28. 1. Fuller utilisation of resources refers to a situation where the resources are used in a best possible manner. Generally any point on the production possibility curve will be fuller utilisation of resources. So, points on PPF the economy operates means resources are fully and efficiently used.
2. Firstly, and most commonly, growth is defined as an increase in the output that an economy produces over a period of time, the minimum being two consecutive quarters. An increase in an economy's productive potential can be shown by an outward shift in the economy's production possibility frontier (PPF).
3. Under utilisation of resources means a situation were the resources are inefficiently used in the production process. A point, lying below the production possibility curve shows under utilisation of resources or inefficient utilisation of resources. In this situation, actual output is less than the potential output

OR

$$MRT = \Delta Y / \Delta X$$

A- -

B- -

C- 10

D- 15

E-20

F- 25

29. A profit maximising firm will employ labour up to the point where the extra cost incurred by employing the last unit of labour (wage) equals the additional benefit it earns by employing that unit of labour. In other words, The perfectly competitive firm's profit-maximizing labour-demand decision is to hire workers up to the point where the marginal revenue product of the last worker hired is just equal to the market wage rate, which is the marginal cost of this last worker.

That is, the Marginal cost of labour = Marginal benefit by labour

Or, Wage rate = Marginal Revenue Product

Or, $w = MQP_L$

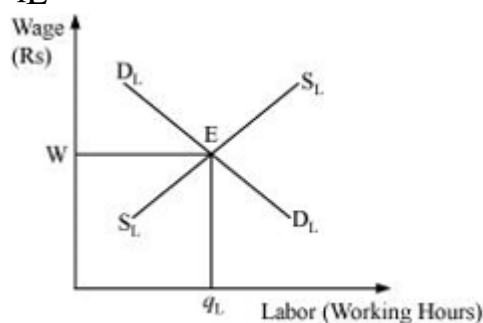
Or, $w = MR \times MP_L$ (as $MRPL = MR \times MP_L$)

Or, $w = P \times MP_L$ (in Perfect Competition Price = MR)

Or, $w = VMP_L$ (because $VMP_L = P \times MP_L$)

The demand for labour is derived from VMP_L and the supply of labour is positively sloped. The equilibrium exists at E, where the demand for labour and the supply of labour intersect each other. The equilibrium wage rate is w and the optimal amount of labour is

q_L .



30. i. Change in the income of the consumer also influences his demand for different goods. The demand for normal goods tends to increase with increase in income and vice versa. On the other hand, the demand for inferior goods like coarse grain tends to decrease with increase in income, and vice versa.
- ii. Demand for a commodity is also influenced by change in price of related goods. These are of two types-substitute goods and complementary goods. In case of substitute goods, increase in the price of one causes increase in demand for the other and decrease in the price of one causes decrease in the demand for the other. In the case of complementary goods, a fall in the price of one causes increase in the demand for the other and a rise in the price of one causes decrease in the demand for the other.

Output (Q)	Price(P)	TC (Rs.)	TR (Rs.) TR = Q × P	Profit (Rs.) = TR - TC
1	24	26	24	-2

2	24	50	48	-2
3	24	72	72	0
4	24	92	96	4
5	24	115	120	5
6	24	139	144	5
7	24	165	168	3

Equilibrium refers to a state of rest when no change is required. A firm (producer) is said to be in equilibrium when it has no inclination to expand or to contract its output. The producer achieves equilibrium at 6 units of output. It is because this level of output satisfies both the conditions of producer's equilibrium:

- i. The difference between TR and TC is positively maximised.
- ii. Total profits fall after that level of output.

OR

Producer's Equilibrium: Equilibrium represents a state of no change. A firm is said to be in equilibrium when it does not incline to expand or to contract its output. Producer's Equilibrium refers to the state where a producer is earning the maximum possible profit by producing a particular level of output. A producer would be in the state of equilibrium if he is earning a maximum profit, i.e. has profit maximisation. It is referred to as 'equilibrium' because a producer has no incentive to move away from this point, as such deviation will reduce his/her profit.

If a firm may suffer losses, and yet continue to stay in the market, it does not suspend its production activity. This happens in a short period. Because in the short period, a firm is confronted with 2 sets of costs – (i) fixed cost, and (ii) variable cost. Fixed cost is incurred even when output is zero. A firm has to bear the loss of fixed costs even when production is stopped. Accordingly, a firm may decide to continue production so long as variable costs are covered. Thus, production may continue as long as $TR \geq TVC$.

In this case, the producer will reach its **equilibrium** at the point where the price is equal to or greater than the minimum of the short-run average variable cost curve (SAVC). This is because if a producer is incurring losses then he must be selling his product at a price lower than the minimum of SAVC. Thus, in order to reach equilibrium, he will have to sell the output at a price that is equal to or greater than the minimum of SAVC.

In case of the long run, when all costs are variable costs, a firm will undertake production only when all costs are covered. Otherwise, it will quit the industry.

32.

Quantity (in units)	MU (Utils)	TU (Utils)
1	8	8

2	5	13
3	3	16
4	1	17
5	0	17
6	-1	16

Relationship between total utility and Marginal Utility

- Marginal utility falls but remains positive as long as total utility increases from 1st unit to 4th unit of consumption.
- When marginal utility is Zero, total utility is maximum i.e. at 5th unit of consumption.
- When marginal utility becomes negative, total utility starts falling but remains positive i.e. at 6th unit of consumption and beyond.

33. Diminishing returns to a variable input referred to a stage in production when with the employment of more and more units of variable factor with the given fixed factor, marginal product (MP) decreases and total product (TP) increases at diminishing rate.

Reasons for the decreasing returns to a variable factor are:

i. Over-utilisation of the fixed factor

As we keep on increasing the variable factor along with the fixed factor eventually a position comes when the fixed factor has its limits and starts yielding diminishing returns.

ii. Improper coordination between Fixed and Variable factors

After a certain level of employment, the production process becomes too crowded with the variable input and factor proportion tends to become less and less suitable for the production.

34. Answer the following questions

(i) When a product price increases, expenditure on the commodity will not increase in the situation when $E_d > 1$ (elasticity of demand is greater than unity). It will increase only in situation when $E_d < 1$. In a situation when $E_d = 1$, expenditure will remain constant, even when prices rise.

(ii) Percent Change in price = 25 Percent

Let the demand be x

Demand after fall in price $2x$

$$\text{Percent Change in Demand} = \frac{\text{Change in Demanded}}{\text{Old Demand}} \times 100$$

$$= \frac{2x - x}{x} \times 100 = \frac{x}{x} \times 100 = 100\%$$

Elasticity of Demand:

$$(E_d) = (-) \frac{\text{Percentage Change in quantity demanded}}{\text{Percentage Change in price}}$$

$$= (-) \frac{100}{25} = (-)4$$

$$\text{So, } E_d = (-) 4$$