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53240

Q.P. Code - 53240, SYBA (Choice Base), Semester-III, Economics: Paper - II, Answer Key  
Note: The synoptic answers given below are the guidance to maintain uniformity and consistency in the assessment. Due credit should be given to candidates who provide neat diagrams and explanations. Working of numerical and formulae are expected wherever applicable.

Q.1.

A) Law of Equi-Marginal Utility.

• Introduction, Definition of Utility,

Dr. Marshall – “If a Person has a thing which he can put to several uses, he will distribute it among these uses in such a way that it has the same Marginal Utility in all.”

“A consumer obtains maximum total utility with his limited income when he spends his expenditure on different commodities in such a way that the ratios of Marginal Utility to price of different commodities that he purchases become equal.”

• Assumptions, Schedule of Equi-Marginal Utility, Criticism.

B) Price or Budget Line.

Introduction, Definition, i) The Position & Shape of the Price Line ii) Slope of the Price Line iii) Change in the Position & Slope of the Price Line with diagram.

C) Consumer's Equilibrium - Indifference curve.

• Introduction, Definition - An Indifference curve is the locus of points indicating particular combination of two goods from which the consumer derives the same satisfaction and, as a result, he is indifferent as to the particular combination he consumes.

• Assumptions, Consumer's equilibrium with the help of consumer's indifference map and the budget line. Two conditions to be fulfilled- The necessary & The sufficient, diagram and explanation.

Q.2.

A) Cobb Douglas production function.

• Introduction, Briefly discuss the concept of Cobb Douglas production function.

• Equation & important characteristics.

• Draw the diagram & explanation.

B) Define & Properties of Isoquants.

• Introduction, Definition- An isoquant is the locus of all the combination of two factors of production that yield the same level of output.

• Properties of Isoquants : -i) Isoquants are negatively sloped ii) A higher isoquant represents a larger output iii) No two isoquants intersect or touch each other iv) Isoquants are convex to the origin. v) Isoquants need not be parallel vi) No isoquants can touch either axis.

C) Total Product Schedule of Labour.

• Total Product (TP) :- Total Product Refers to aggregate output obtainable from a specified amount of a fixed input & different quantities of variable inputs.

• Average Product (AP):- The Average Product (or average physical product) of an input can be defined as the total output (or total product) divided by the amount of input used to produce that output.

$$AP = \frac{TP}{TVF} \text{ or } AP_L = \frac{Q}{L}$$

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• Marginal product(MP) :- The marginal product (or marginal physical product) of an input is defined as the change in total output due to a unit change in the amount of an input while quantities of other inputs are held constant.

$$MP = \frac{\Delta TP}{\Delta TVP} \quad \text{OR} \quad MP = TP_x - TP_{x-1}$$

• Schedule of Total Product, Average Product & Marginal Product

Units Labour	Total Production	Average Production	Marginal Production
1	43	43	43
2	160	80	117
3	351	117	191
4	600	150	249
5	875	175	275
6	1152	192	277
7	1372	196	220
8	1536	192	164
9	1656	184	120
10	1750	175	94
11	1815	165	65
12	1860	155	45

• diagram & explanation the relationship between TP, AP & MP

Q. 3.

A) The Relationship between AC & MC

Introduction,

• Average Fixed Cost (AFC):- The Average Fixed cost is the fixed cost per unit of output. The fixed cost is the costs which do not change with output. The average fixed cost is found by dividing TFC or total fixed cost by the level of output.

$$AFC = \frac{TFC}{Q}$$

• Average Variable Cost (AVC):- The Average Variable Cost is obtained by dividing the total variable cost by corresponding level of output.

$$AVC = \frac{TVC}{Q}$$

• Average total cost or Average Cost (ATC OR AC):- The average cost or average total cost is the sum of average variable cost & average fixed cost. It can be obtained by dividing the total cost by total output.

$$AC = AVC + AFC \quad \text{AC or ATC} = \frac{TC}{Q} = \frac{TFC}{Q} + \frac{TVC}{Q}$$

or 
$$AC = \frac{TC}{Q}$$

or 
$$ATC = \frac{TC}{Q}$$

or 
$$ATC = \frac{TFC+TVC}{Q} = AFC + AVC$$

The average cost can be measured by adding up the average fixed cost & average variable cost.

• Marginal Cost (MC):- Marginal Cost is the addition to the total cost due to additional output.

Marginal Cost is the increase in the total cost consequent upon a small increase in output.

$$MC = \frac{\Delta TC}{\Delta Q} \quad \text{OR} \quad \frac{\Delta TVC}{\Delta Q} \quad \text{or} \quad MC_n = TC_n - TC_{n-1}$$

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**B) Calculate - TC, AFC, AVC, ATC, & MC**

- Total fixed cost (TFC):- TFC is the total Expenditure by the firm for fixed Inputs.
- Total Variable Cost (TVC):- Total Variable cost is the firms total Expenditure on variable inputs used to carry out production.  $TVC = TC - TFC$
- Total Cost (TC):- Total cost is the sum of total fixed cost & total variable cost.
- Average Fixed Cost (AFC):- The Average Fixed cost is the fixed cost per unit of output. The fixed cost is the costs which do not change with output. The average fixed cost is found by dividing TFC or total fixed cost by the level of output.

$$AFC = \frac{TFC}{Q}$$

- Average Variable Cost (AVC):- The Average Variable Cost is obtained by dividing the total variable cost by corresponding level of output.

$$AVC = \frac{TVC}{Q}$$

- Average total cost or Average Cost (ATC OR AC):- The average cost or average total cost is the sum of average variable cost & average fixed cost. It can be obtained by dividing the total cost by total output.

$$AC = AVC + AFC \quad AC \text{ or } ATC = \frac{TC}{Q} = \frac{TFC}{Q} + \frac{TVC}{Q}$$

$$\text{or } C = \frac{TC}{Q} \text{ or } ATC = \frac{TC}{Q} \text{ or } ATC = \frac{TFC+TVC}{Q} = AFC + AVC$$

The average cost can be measured by adding up the average fixed cost & average variable cost.

- Marginal Cost (MC):- Marginal Cost is the addition to the total cost due to additional output. Marginal Cost is the increase in the total cost consequent upon a small increase in output.

$$MC = \Delta TC / \Delta Q \text{ OR } \Delta TVC / \Delta Q \text{ or } MC_n = TC_n - TC_{n-1}$$

Units of Output	TFC	TVC	TC=TFC+TVC	MC	AFC= $\frac{TFC}{q}$	AVC= $\frac{TVC}{q}$	ATC(AC) = $\frac{TC}{q}$ or ATC = AFC+ AVC
1	2	3	4	5	6	7	8
0	250	0	250	-	-	-	-
1	250	20	270	20	250	20	270
2	250	40	290	20	125	20	145
3	250	60	310	20	83.33	20	103.33
4	250	80	330	20	62.50	20	82.50
5	250	100	350	20	50	20	70

- Diagram & explanation

**C) Relationship between TR, AR, & MR under Monopoly**

- Total Revenue: - Total Revenue is the sale proceeds or the aggregate receipts obtained by the firm for selling its product.  $TR = P \times Q$

- Average Revenue: - Average Revenue is the revenue derived by the firm per unit of its output

sold.  $AR = \frac{\text{Total Revenue}}{\text{Output sold}}$  or  $AR = TR/Q$  Now  $TR = P \times Q \therefore AR = P$

- Marginal Revenue: - Marginal Revenue is the revenue earned by the firm by selling an additional unit of its product.  $MR = \Delta TR / \Delta Q$  or  $MR_n = TR_n - TR_{n-1}$

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- Schedule & Graphically Presentation under Monopoly

**Q. 4 .**

**A) Meaning & Features of Perfect Competition.**

• Joan Robinson :-“ Perfect competition prevails when the demand for the output of each producer is perfectly elastic. this entails, first that the number of sellers is large so that the output of any one seller is a negligible small proportion of the total output of the commodity, and second , that buyers are alike in respect of their choice of rival sellers, so that the market is perfect.”

• Features of Perfect Competition - i) Homogenous goods ii) No barriers to entry iii) No collusion among sellers iv) Complete market information v) Price equals marginal cost vi)No Transport cost.etc

**B) Long run Equilibrium of a Firm under Perfect Competition.**

• Introduction, Conditions-

- i)  $SMC=LMC=MR=AR=P=SAC=LAC$  at its minimum point &
- ii)  $LMC$  curve must cut  $MR$  curve from below.

•Diagrams and explanation

**C) Economic Efficiency in Competitive Market.**

• Introduction, Maximize benefit- Consumer & Producers surplus, Diagram & Explanation

**Q. 5 .**

**A) Properties of Indifference Curves**

• Introduction, Definition, Properties of Indifference Curves - i) Indifference curves slope downwards from left to right ii) Indifference curves are convex to origin iii) Indifference curves do not intersect one another iv) Distances of Indifference curves from the point of origin determine their preferential order v) Indifference curves need not be parallel to one another. vi) Higher Indifference curve represents a higher level of satisfaction than a lower Indifference curve.

**B) Types of Production Function -**

Introduction, Concept of Production, Long run & Short run Production Function

**C) Concepts of Cost-**

• Introduction, Money Cost – Explicit money cost & Implicit Cost, Real Cost, Social & Private Cost, Historical & Replacement Cost, Sunk & Incremental cost, Accounting & Economic Cost, Fixed, Variable & Total Cost, Total Average & Marginal Cost.

**D) Consumer's surplus.**

• Dr. Marshall- the excess of the price which he would be willing to pay rather than go without the thing ,over that which he actually does pay, is the economic measure of this surplus satisfaction . it may be called consumer's surplus.

• Consumer's surplus is simple the difference between the price that one is willing to pay and the price one actually pays for a particular product.

• Consumer's surplus = what a consumer is willing to pay minus what he actually pays.

• =  $\Sigma$  Marginal Utility – (Price x Number of units of a commodity purchased)

• Consumer Surplus = Maximum Price willing to pay by the buyer –Actual Price paid

• Draw the diagram to show the area of surplus