

Production and Costs

Multiple Choice Type Questions

1. Which of the following explains the short-run production function ?
(a) Law of Demand
(b) Law of Variable Proportion
(c) Returns to Scale
(d) Elasticity of Demand
2. Long-run production function is related to:
(a) Law of Demand
(b) Law of Increasing Returns
(c) Laws of Returns to Scale
(d) Elasticity of Demand
3. In which stage of production a rational producer likes to operate in short-run production ?
(a) First Stage
(b) Second Stage
(c) Third Stage
(d) None of these
4. Law of variable proportion explains three stages of production. In the first stage of production:
(a) Both MP and AP rise
(b) MP rises
(c) AP Falls
(d) MP is zero
5. At which time all the factors of production may be changed ?
(a) Short run
(b) Long run
(c) Very Long run
(d) All the three

ANSWER

1. (B) 2. (C) 3. (B) 4. (A) 5. (B)

SHORT ANSWER QUESTIONS

1. What are Returns to a Factor? What do you mean by the Law of Diminishing Returns?

Answer: Returns to a Component is used to explain the behavior of physical output by allowing only one factor to vary while keeping all other factors constant. This is a short-term idea. According to the rule of diminishing returns to a factor, as the variable factor is allowed to vary (grow) while all other factors remain constant, the Marginal Product initially climbs, reaches its maximum, then drops and even becomes negative.

2. What is the change in quantity demanded?

Answer: It is often referred to as movement along a demand curve. The quantity of a commodity fluctuates due to a change in its own price due to the shift in the supply curve. There are two types of changes in demand quantity:

(a) expansion in demand

(b) contraction in demand.

3. What is the change in demand?

Answer: Demand Variation: - It is also known as a change in the demand curve. When the quantity of a commodity changes as a result of a change in a factor other than price. It comes in two varieties.

a) Increase in demand

b) Decrease in demand

4. Define cost concept. What are the different types of cost?

Answer: The spending experienced on different inputs is known as the cost.

The different types of cost are as follows:

Money Cost- Total money spent by a company for manufacturing goods.

Explicit Cost & Implicit Cost- Payment made to an outsider are explicit and cost of self-supplied inputs are implicit cost.

Real Cost- All hard work, discomforts, sacrifices involved in manufacturing a product is called real cost.

Opportunity Cost- This is the cost for the next best alternative foregone.

Short Run Cost- Fixed cost- Fixed factors cost

Variable Cost- Variable factor cost

5. What is the marginal product of an input?

Answer: Marginal product refers to the additional output produced, when one more unit of variable factor is employed. Calculated as

$MP = \text{Change in output} / \text{change in input} = \Delta q / \Delta X_1$

LONG ANSWER QUESTION

1. Explain the determinants of supply?

Answer: The quantity of a good available for sale at a given price at a given time is referred to as supply. A desired flow is supply. It assesses how much a corporation is willing to sell rather than how much it actually sells. Supply may outnumber or fall short of demand. In a given year, supply equals total output plus or minus inventories of the commodity.

The supply function can be written as:

$S_x = f(P_x, P_a, \dots, P_c, P_L, \dots, P_O, T, Cr, St, O, G)$

Here, P_x is the price of the good x , $P_a...$ P_c is equal to the prices of related items, $P_L...$ P_O is the prices of inputs, T is time, S_t is the state of technology, O is the firm aims, and G is the taxes, subsidies, and regulation.

The determinants of the supply are shown below:

- i. Price of product
- ii. Price of related goods
- iii. Consumer's income
- iv. Consumers tastes and preferences
- v. Advertisement expenditure
- vi. Consumer's expectations
- vii. Demonstration effect
- viii Population of the country
- ix. Distribution of national income

Some of the determinants are discussed below:

i. Production costs - Because the purpose of most private companies is profit maximization. Higher production costs reduce profit, limiting supply. Factors influencing manufacturing costs include input prices, wage rates, government regulations and taxes, and so on.

ii. Technology - Technological advancements assist cut production costs and enhance profit, resulting in increased supply.

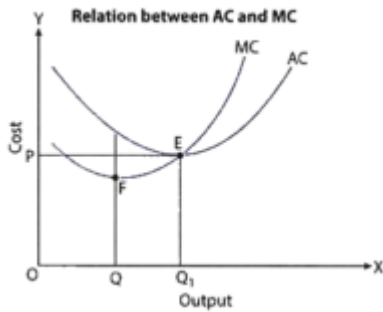
iii. Number of sellers - The presence of more sellers in the market increases market supply.

iv. Future price expectations - If producers anticipate that future prices will be higher, they will want to hang onto their stocks and offer the items to consumers in the future, allowing them to collect the higher price.

2. Explain the relation between Average Cost and Marginal Cost.

Answer The relation between Average Cost and Marginal Cost

1. When Average Cost decreases, Marginal Cost declines faster than the Average Cost. So, that Marginal Cost curve remains lower than the Average Cost curve. This means Average Cost > Marginal Cost.
2. When Average Cost increases, Marginal Cost rises faster than the Average Cost. So, that MC curve is above the Average Cost curve.
3. Marginal Cost curve intersects Average Cost curve from its lowest point. When the average curve is minimum then Marginal Cost=Average Cost.



3. What are the total fixed cost, total variable cost and total cost of a firm? How are they related?

Answer

Total Fixed Cost (TFC)

This refers to the costs incurred by a firm in order to acquire the fixed factors for production like cost of machinery, buildings, depreciation, etc. In short run, fixed factors cannot vary and accordingly the fixed cost remains the same through all output levels. These are also called overhead costs.

Total Variable Cost (TVC)

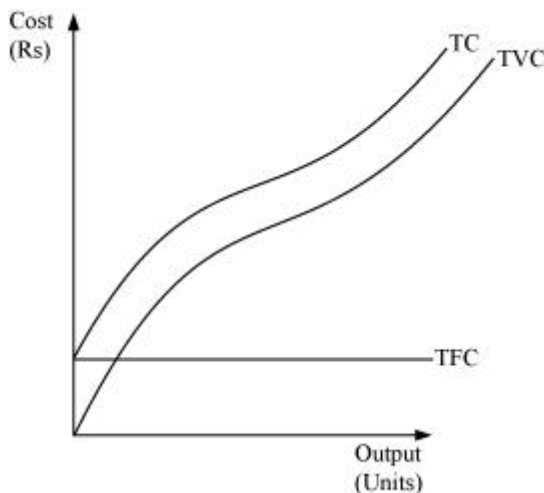
This refers to the costs incurred by a firm on variable inputs for production. As we increase quantities of variable inputs, accordingly the variable cost also goes up. It is also called 'Prime cost' or 'Direct cost' and includes expenses like – wages of labour, fuel expenses, etc.

Total Cost (TC)

The sum of total fixed cost and total variable cost is called the total cost.

Total cost = Total fixed cost + Total variable cost

$$TC = TFC + TVC$$



Relationship between TC, TFC, and TVC

- 1) TFC curve remains constant throughout all the levels of output as fixed factor is constant in short run.

- 2) TVC rises as the output is increased by employing more and more of labour units. Till point Z, TVC rises at a decreasing rate, and so the TC curve also follows the same pattern.
- 3) The difference between TC and TVC is equivalent to TFC.
- 4) After point Z, TVC rises at an increasing rate and therefore TC also rises at an increasing rate.
- 5) Both TVC and TFC is derived from TC i.e. $TC = TVC + TFC$
4. What are the average fixed cost, average variable cost and average cost of a firm? How are they related?

Answer : Average Fixed Cost:

It is defined as the fixed cost per unit of output.

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

Where,

TFC = Total fixed cost

Q = Quantity of output produced

Average Variable Cost:

It is defined as the variable cost per unit of output.

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

Where,

TVC = Total variable cost

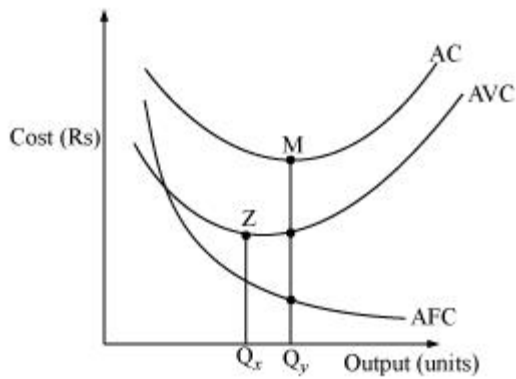
Q = Quantity of output produced

Average Cost: It is defined as the total cost per unit of output. Average cost is derived by dividing total cost by quantity of output.

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

AC is also defined as the sum total of average fixed cost and average variable cost.

$$AC = AFC + AVC$$



Relationship between AC, AFC, AVC:

- 1) AVC and AFC are derived from AC as $AC = AFC + AVC$.
 - 2) The plot for AFC is a rectangular hyperbola and falls continuously as the quantity of output increases.
 - 3) The minimum point of AVC will always exist to the left of the minimum point of AC; i.e., point 'Z' will always lie left to point 'M'.
 - 4) AFC being a rectangular hyperbola falls throughout; this causes the difference between AC and AVC to keep decreasing at higher output levels. However, it should be noted that AVC and AC can never intersect each other. If they intersect at any point, it would imply that AC and AVC are equal at that point. However, this is not possible as AFC will never be zero because it is a rectangular hyperbola that never touches x-axis.
 - 5) AC inherits shape from AVC's shape and it is because of law of variable proportions that both the curves are U-shaped.
5. What is the marginal product of an input?

Answer Marginal Product is defined as the additional output produced because of the employment of an additional unit of labour. In other words, it is the change in the total output brought by employing one additional unit of labour. Algebraically, it is expressed as the ratio of the change in the total product to the change in the units of labour employed, i.e.

$$MP_L = \frac{\Delta TP}{\Delta L} = \frac{\text{Change in Total Product}}{\text{Change in labour units}}$$

Where,

TP_n = Total product produced by employing n units of labour

TP_{n-1} = Total product produced by employing $(n - 1)$ units of labour