# PRODUCTION

1. The short run is a time period in which:

A) all resources are fixed.

B) the level of output is fixed.

C) the size of the production plant is variable.

D) some resources are fixed and others are variable.

2. The law of diminishing returns states that:

A) as a firm uses more of a variable resource, given the quantity of fixed resources, the average product of the firm will increase.

B) as a firm uses more of a variable resource, given the quantity of fixed resources, marginal product of the firm will eventually decrease.

C) in the short run, the average total costs of the firm will eventually diminish.

D) in the long run, the average total costs of the firm will eventually diminish.

3. The law of diminishing returns only applies in cases where:

A) there is increasing scarcity of factors of production.

B) the price of extra units of a factor is increasing.

C) there is at least one fixed factor of production.

D) capital is a variable input.

4. The marginal product of labor curve shows the change in total product resulting from a:

A) one-unit increase in the quantity of a particular resource used, letting other resources vary.

B) one-unit increase in the quantity of a particular resource used, holding constant other resources.

C) change in the cost of a variable resource.

D) change in the cost of a fixed resource

5. When the total product curve is falling, the:

A) marginal product of labor is zero.

B) marginal product of labor is negative.

C) average product of labor is increasing.

D) average product of labor must be negative.

6. When marginal product reaches its maximum, what can be said of total product?

A) total product must be at its maximum

B) total product starts to decline even if marginal product is positive

C) total product is increasing if marginal product is still positive

D) total product levels off

7. Variable costs are:

A) sunk costs.

B) multiplied by fixed costs.

C) costs that change with the level of production.

D) defined as the change in total cost resulting from the production of an additional unit of output.

8. A firm encountering economies of scale over some range of output will have a:

A) rising long-run average cost curve.

B) falling long-run average cost curve.

C) constant long-run average cost curve.

D) rising, then falling, then rising long-run average cost curve.

9. When a firm doubles its inputs and finds that its output has more than doubled, this is known as:

A) economies of scale.

B) constant returns to scale.

C) diseconomies of scale.

D) a violation of the law of diminishing returns.

10. If all resources used in the production of a product are increased by 20 percent and output increases by 20 percent, then there must be:

A) economies of scale.

B) constant returns to scale.

C) diseconomies of scale.

D) increasing average total costs.

11. Economies and diseconomies of scale explain why the:

A) short-run average fixed cost curve declines so long as output increases.

B) marginal cost curve must intersect the minimum point of the firm's average total cost curve.

C) long-run average total cost curve is typically U-shaped.

D) short-run average variable cost curve is U-shaped.

**12.The process by which inputs are transformed into 'output'.**
(A) Production
(B) productivity
(C) Manufacturing
(D) None of the above

**13-Which of the following is not an input?**
(A) steel
(B) aluminium
(C) rubber
(D) car

**14-The difference between revenue and cost is called**
(A) wage
(B) profit
(C) output
(D) none of the above

**15-It is the technological knowledge that determines the maximum levels of output that can be produced using different combinations of inputs.**
(A) productivity
(B) production function
(C) manufacturing
(D) none of the above

**16-The inputs that a firm uses in the production process are called**
(A) factors of production
(B) organs of production

(C) production inputs
(D) none of the above

**17. Following is (are) factor(s) of production.**
(A) labor
(B) capital
(C) both (A) and (B)
(D) none of the above

**18-Which of the following is true?**
(A) In the short run, at least one of the factor – labour or capital – cannot be varied
(B) In the long run, all factors of production can be varied
(C) both (A) and (B)
(D) None of the above

**19-The relationship between the variable input and output, keeping all other inputs constant, is often referred to as ___ of the variable input.**
(A) Total Product (TP)
(B) Average Product
(C) Marginal Product
(D) None of the above

**20.___ of an input is defined as the change in output per unit of change in the input when all other inputs are held constant**.
(A) Total Product (TP)
(B) Average Product
(C) Marginal Product
(D) None of the above

**21-___ is defined as the output per unit of variable input.**
(A) Total Product (TP)
(B) Average Product
(C) Marginal Product
(D) None of the above

**22-Marginal Product =**
(A) Output / Input
(B) Input / Output
(C) Change in output / Change in input
(D) Change in input / Change in output

**23-Marginal product is undefined at ___ level of input employment.**
(A) zero
(B) one
(C) two

(D) three

**24-Law of variable proportions or the law of diminishing marginal product is the tendency of the Marginal Product to**
(A) first increase and then fall
(B) first fall and then increase
(C) fall constantly
(D) increase constantly

**25-An increase in the amount of one of the inputs keeping all other inputs constant results in**
(A) decrease in output
(B) an increase in output
(C) consistency in output
(D) none of the above

**26-When a proportional increase in all inputs results in an increase in output by the same proportion, the production function is said to display**
(A) Decreasing Returns to Scale (DRS)
(B) Increasing Returns to Scale (IRS)
(C) Constant returns to scale (CRS)
(D) None of the above

## SHORT-ANSWER TYPE QUESTIONS

**Q.1. Define Average Product (AP) and Marginal Product (MP).**
**Ans.** AP is the total product per unit of a variable input. MP is the change in total product consequent upon a change in variable input.

**Q.2. What is meant by 'Short Run' and 'Long Run' in the analysis of a firm.**
**Or**
**Distinguish between 'short-run' and 'long run' in the context of production.**
**Ans.** Short run is that time period when a firm cannot change all its inputs; some are held fixed. Output can, therefore, be increased by changing only variable inputs. Long period is that time period when the firm can change all its inputs including fixed inputs. In the long run, all inputs are, therefore, variable.

**Q.3. How do total product, average product and marginal product change due to a change in the use of one input, keeping other inputs constant?**
**Ans.** For simplicity, we are assuming that labour is the only variable input while other inputs are constant. Now, if number of labourers is increased with fixed inputs, initially total

product (TP), average product (AP) and marginal product (MP) will increase as TP increases at an increasing rate.
Further employment of labour will cause TP to increase at a diminishing rate. Consequently, AP and MP will decline. When TP becomes maximum, MP becomes zero. Now, more employment of labour will lead to a fall in TP and MP will be negative.

**Q.4. What is meant by production function?**

**Ans.** A production function is a technological or an engineering relationship between inputs and output.
**A production function is usually written as:**
Q = f(a, b, c, d…)

where Q is the amount of output; and a, b, c, d, etc., are inputs.

Though production function refers to a technological relationship, the concept is useful in economic theory as it is related to the costs of production of a unit.

**Q.5. What is the difference between returns to an input and returns to scale?**
**Ans.** By returns to an input we mean the laws of change in output following a change in one or two inputs, keeping other inputs constant. Thus, this law remains valid in the short run. If all inputs are changed and output changes then we obtain laws of returns to scale which is a long-run phenomenon.

**Q.6. What is meant by scale of production?**
**Ans.** In the long run there are no fixed inputs; all inputs are variable. A firm can install a new machine or build up a new factory shade or switch over from one technique of production to another in the long run. This means that a firm can change its scale of operations or scale of output by changing all its inputs. This is called a change in scale of production.

**Q.7. Define increasing returns to scale (IRS), constant returns to scale (CRS) and diminishing returns to scale (DRS).**
**Ans. IRS:**
IRS is characterised by a situation where doubling or trebling of all inputs causes output to increase more than proportionately then we say that the returns to scale are increasing.

**CRS:**
If a given percentage increase in inputs causes output to increase by the same percentage, then CRS is said to have occurred. If output is doubled following the doubling of inputs then output growth is subject to CRS.

**DRS:**

Output growth is subject to DRS if a given percentage increase in inputs leads to a smaller percentage increase in output. This means that doubling of inputs causes output to increase less than double.

**Q.8. What is an isoquant?**

**Ans.** An isoquant shows different combinations of two inputs that produces a specified amount of output. On an isoquant, same level of output is obtained by using different combinations of two inputs. That is why an isoquant is called production indifference curve.

**What is the internal economy of a firm?**

**Ans.** Internal economies of production arise when the benefits or advantages of a firm's expansion are enjoyed by the firm itself. Thus, internal economies accrue only to the individual firm by its own organisational ability and effort. These are called internal because the scale economies are within the control of the firm.

External economies arise when an increase in a firm's expansion produces favourable effects on other firms. In other words, benefits of increased production spread to other firms in the industry or in the region. Thus, external economies are available to all firms in the industry, irrespective of their sizes. These are called external because the scale economies are outside the control of the firm.

**Q.15. What are diseconomies of scale?**

**Ans.** Economies of scale can never be unlimited. As a result, expansion beyond a certain stage will not cause costs to decline. Instead, it will rise as the firm expands. In other words, when the size of a firm becomes large, possibilities for economies get exhausted and diseconomies set in.