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शक्तिउत्थानआश्रमलखीसरायबिहार

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H.W(Revised)

Question 1:

Explain the concept of a production function.

ANSWER:

The production function of a firm depicts the relationship between the inputs used in the production process and the final output. It specifies how many units of different inputs are needed in order to produce the maximum possible output. Production function is written as:

$$Q_x = f(L, K)$$

Where

Q_x represents units of output x produced.

L represents units of labour employed.

K represents units of capital employed.

The above equation explains that Q_x units of output x are produced by employing L and K units of labour and capital respectively and by a given technology. As the given level of technology appreciates, the output will increase with the same level of capital and labour units.

Question 2:

What is the total product of an input?

ANSWER:

Total product is defined as the sum total of output produced by a firm by employing a particular input. It is also known as the Total Physical Product and is represented as $TP = \sum Q_x$

Where, \sum represents summation of all outputs and Q_x represents units of output x produced by an input.

Question 3:

What is the average product of an input?

ANSWER:

Average product is defined as the output produced by per unit of variable factor (labour) employed. Algebraically, it is defined as the ratio of the total product by units of labour employed to produce the

output, i.e. $AP = \frac{TP}{L}$

Where,

TP = Total product

L = units of labour employed

Question 4:

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.

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

$$\text{or, } MP_L = TP_n - TP_{n-1}$$

Where,

TP_n = Total product produced by employing n units of labour

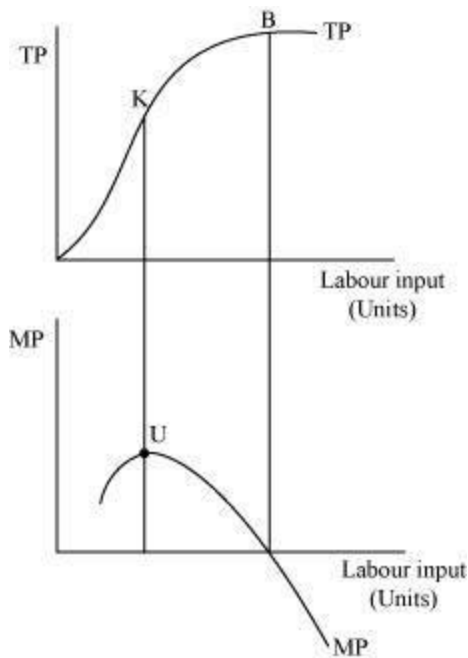
TP_{n-1} = Total product produced by employing $(n - 1)$ units of labour

Question 5:

Explain the relationship between the marginal products and the total product of an input.

ANSWER:

Relationship between marginal products (MP) and the total product (TP) can be represented graphically as



- 1) TP increases at an increasing rate till point K, when more and more units of labour are employed. The point K is known as the point of inflexion. At this point MP (second part of the figure) attains its maximum value at point U.
- 2) After point K, TP increases but at a decreasing rate. Simultaneously, MP starts falling after reaching its maximum level at point U.
- 3) When TP curve reaches its maximum and becomes constant at point B, MP becomes zero.
- 4) When TP starts falling after B, MP becomes negative.
- 5) MP is derived from TP by

$$MP = \frac{\Delta TP}{\Delta L}$$

$$\text{Or, } MP = TP_n - TP_{n-1}$$
