

PRODUCTION FUNCTION

Q1. What is production? What are its types explain each of them?

Ans. Production function is the functional relationship between physical inputs and output. In production function, only physical values of output are taken into consideration and the market prices are not included in it.

$$Q_x = f(A, B, C, D)$$

Production function is of two types:

i) short-run production function or Returns to a factor: It is related to short-run, when only one factor of production is variable and others are fixed, since one of variable factors are increased continuously, so factor ratio changes in this production function.

ii) long-run production function or Returns to scale: It is related to long-run and all the factors are changed in same ratio in this case. In this case, proportional relation between production and factor of production in the long-run is called return to scale.

Q2. Give the assumption and characteristics of production function.

Ans. Production function is based on following assumptions:

- 1) Production function is related to a definite time period.
- 2) In short run, few factors production are fixed and other are variables.
- 3) In long run, all inputs of production function become variables.
- 4) There is no change in technical level in short run.

Characteristics of Production function

- 1) Production function is an engineering concept. It explains physical quantitative relationships between factors of production and output.
- 2) Prices of input and output are not included in production function. In this way, it is independent of the prices of input and output.

3) Production function is related to definite time period. It differs or changes with different time periods.

4) Production function is based on constant technical conditions. On change in technical conditions, production function also changes and a new production function is obtained by firm.

2 5) When a firm keeps some of its factors of production ^{function} fixed and some variable, then it is called law of variable proportion or short-run production function.

6) When a firm changes all its inputs in the long-run, then such a production function is called long-run production function or Returns to Scale.

7) Production function presents technical summary of production.

Q. Explain the law of return to Scale with the help of a suitable diagram.

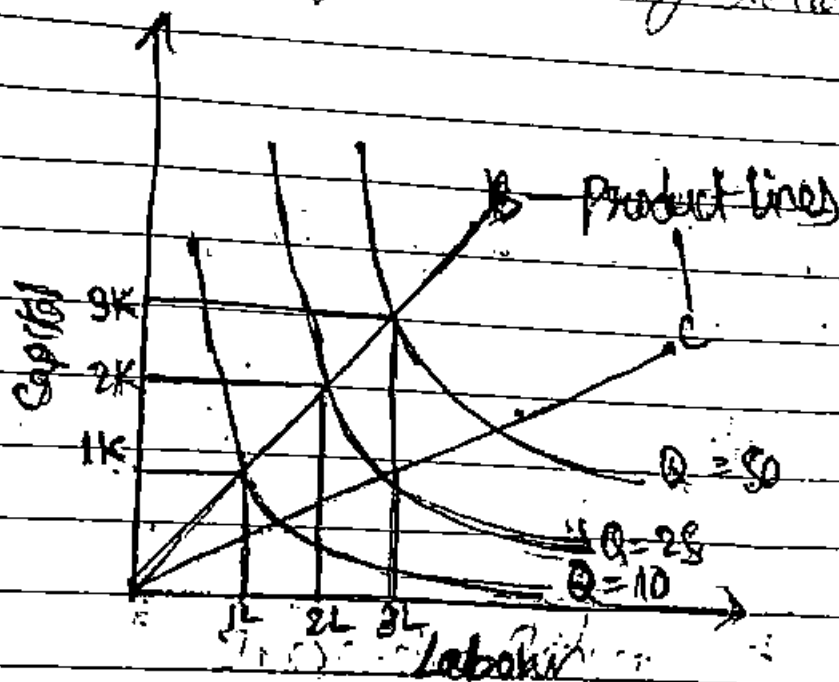
⇒ The law of returns to Scale explains the proportional change in output with respect to proportional change in inputs.

The degree of change in output varies with change in amount of inputs. For example, an output may change by a large proportion, same proportion, or small proportion with respect to change in input.

3

Law of returns can be classified into three Categories:

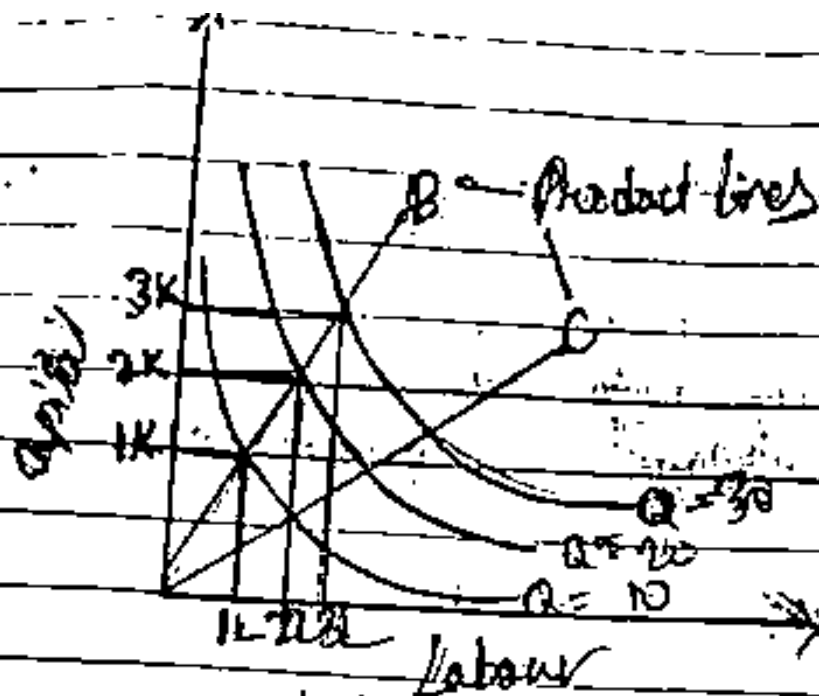
1. **Increasing Returns to Scale:-** In the production change in the output of an organization is greater than the proportional change in inputs. the production is said to reflect increasing returns to scale.



Increasing Returns to scale

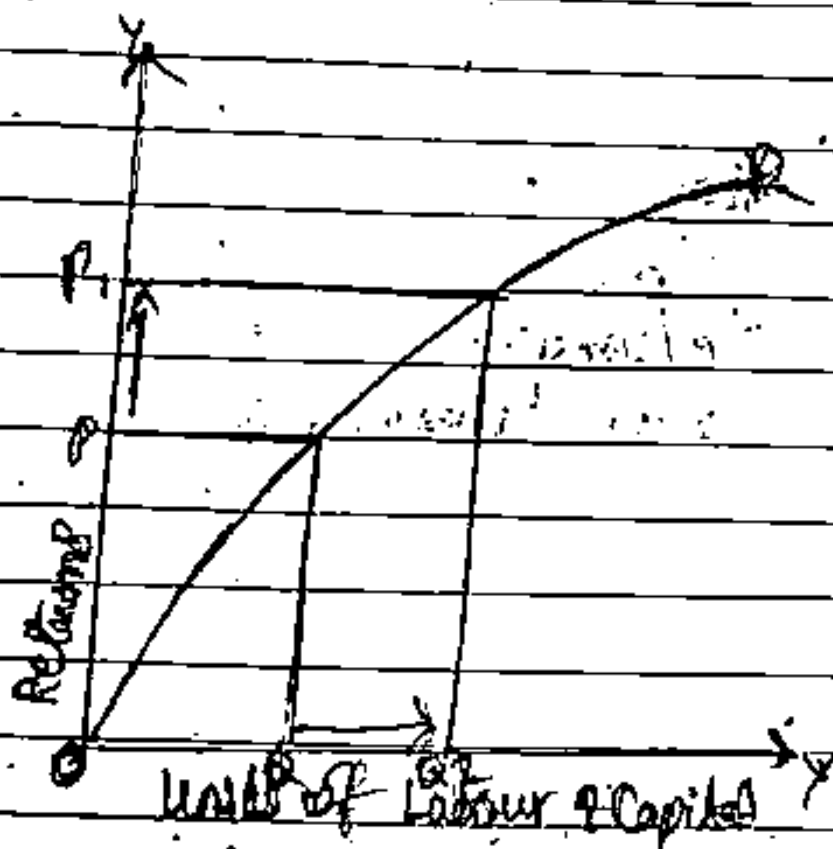
2. **Constant Returns to Scale:-** The production is said to generate constant returns to scale when the proportionate change in inputs is equal to the proportionate change in output.

4



Constant returns to scale

3. Diminishing Returns to Scale: Diminishing returns to scale refer to a situation when the proportionate change in output is less than the proportionate change in input.



Diminishing Returns to Scale