Production

Production

- **Production:** The word Production in economics means creation or addition of utility or values. The act of production involves the transformation of inputs into outputs. It not only includes physical transformation in the matter, it also covers the rendering of services such as transporting, financing, wholesaling and retailing.

Production

- **Production function** The relation between inputs and outputs of a firm has been called as production function. The theory of production is the study of production function.

$$Q = f(L, K, \nu, \varepsilon, \ldots..)$$

Where,

Q refers to quantity of output

L is amount of labour

K is amount of capital

ν represents organizational efficiency

ε denotes returns to scale

Production

- The technical relationship between physical inputs and physical output is called production function.
- In production function we include only technically efficient methods of production (may or may not be economically efficient). It includes all those methods of production which produces maximum output from given inputs or minimum input required to produce given level of output.
- Technically inefficient methods of production are not included in production function.

Production

- Among all the technically efficient methods of production, there is one method which is economically efficient method too.
- The production function can be studied as by holding quantities of some factors constant, while varying the amount of other factors. This is explained by law of variable proportions.
- The production function of a firm can also studied by varying the amount of all the factors of production. This forms the subject matter of laws of returns to scale.
- In theory of production we study (a) law of variable proportions (b) law of returns to scale (c) choice of optimum combination of factors of production by a firm.

Production

- **Equal Product Curves or Isoquants:**

An equal-product curve represents all those input combinations which are capable of producing the same level of output. The equal-product curves are thus contour lines which trace the loci of equal outputs. These equal-product curves are also known as isoquants and isoproduct curves.

Production

- The concept of equal-product curve can be easily understood from table 4.1

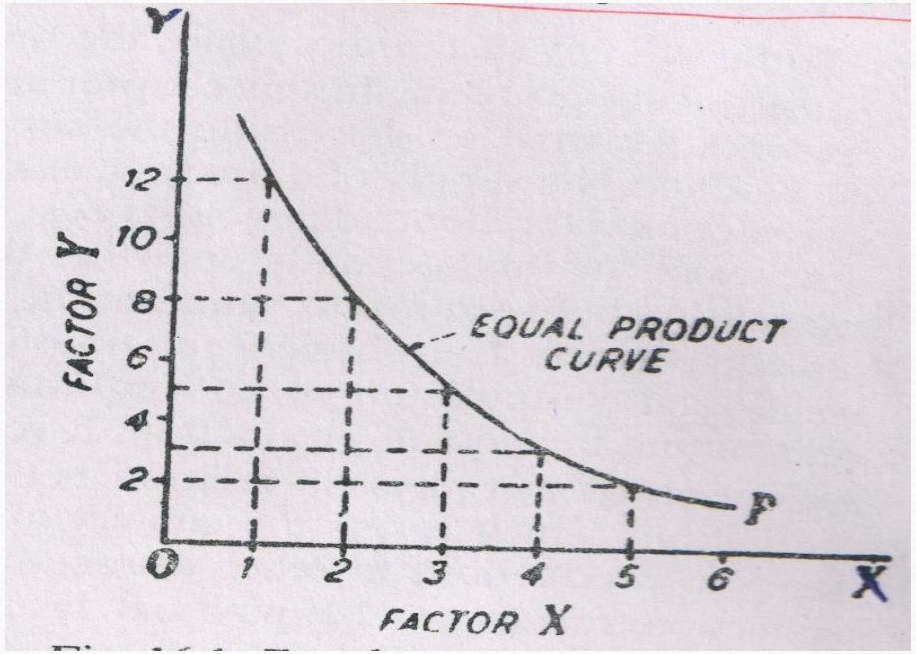
Factor Combinations	Factor X (Labour)	Factor Y (Capital)	Amount of Output
A	1	12	20
B	2	8	20
C	3	5	20
D	4	3	20
E	5	2	20

Production

- Each of the factor combinations A, B, C, D and E produces the same level of output say, 20 units. To start with, factor combination A consisting of 1 unit of factor X and 12 units of factor Y produces the given 20 units of output. Similarly, combination B consisting of 2 units of X and 8 units of Y, combination C consisting of 3 units of X and 5 units of Y, combination D consisting of 4 units of X and units of Y, and combination E consisting of 5 units of X and 2 units of Y are capable of producing the same amount of output, i.e., 20 units.

Production

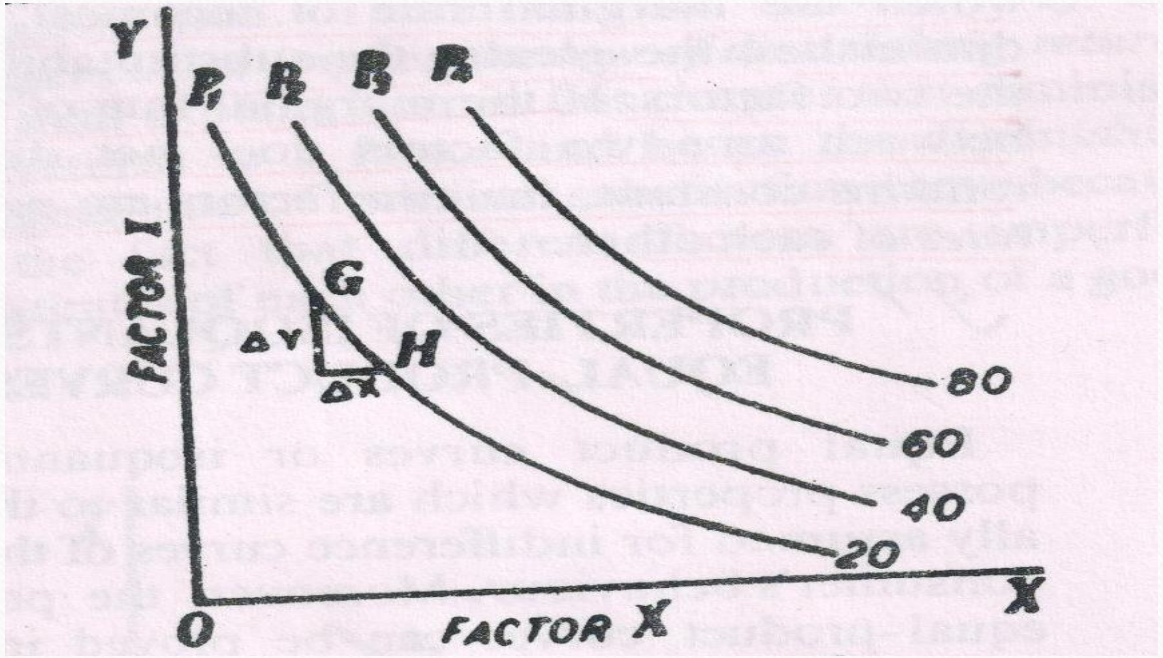
- **Isoproduct Curve: By** joining all the combinations (A,B,C,D), we obtain the equal-product curve showing that every combination represented on it can produce 20 units of output.



Isoproduct Curve

Production

- **Isoproduct Map:** Isoquant map with a set of four equal product curves which represent 20 units, 40 units, 60 units and 80 units of output respectively.



Isoproduct Map