

Isoquants, properties and producer's equilibrium

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ISOQUANTS

- Isoquant is also called as equal product curve
- Isoquant indicates various combinations of two factors of production which give the same level of output per unit of time.
- The significance of factors of productive resources is that, any two factors are substitutable e.g. labour is substitutable for capital and vice versa.
- No two factors are perfect substitutes.
- This indicates that one factor can be used a little more and other factor a little less, without changing the level of output.

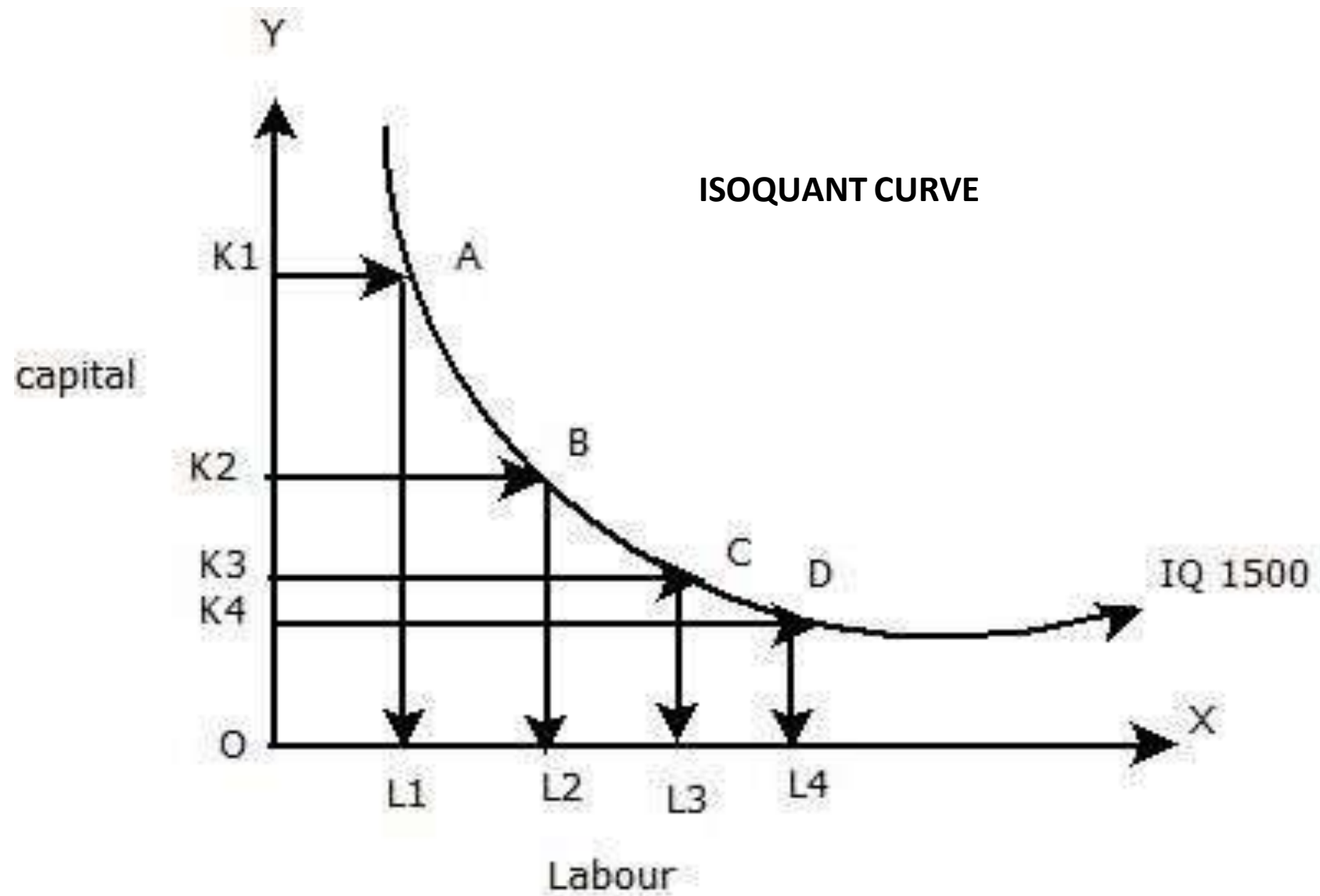
Assumptions

- There are two factor inputs labour and capital
- The proportions of factor are variable.
- Physical production conditions are given
- The Scale of operation is variable
- The state of technology remains constant

SCHEDULE of Output

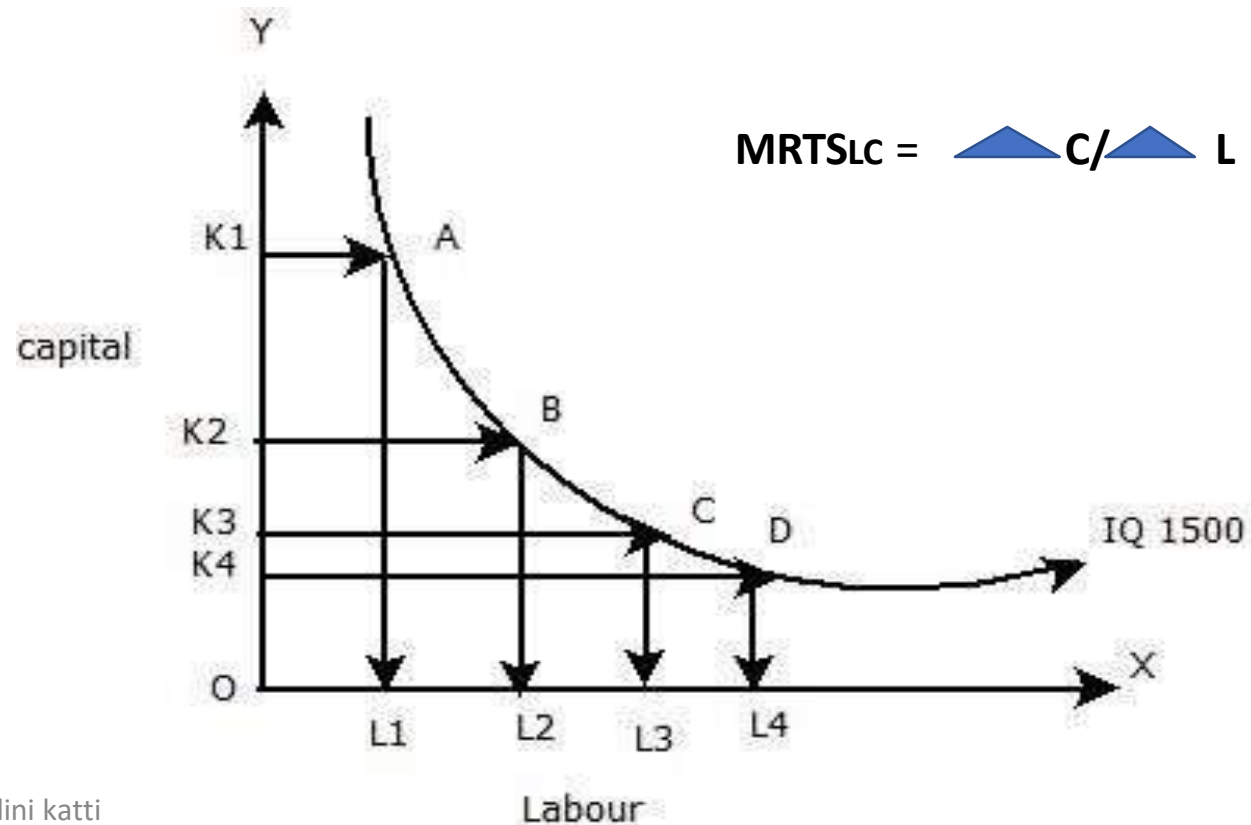
Table indicating various combinations of Labor and Capita

COMBINATIONS	UNITS OF CAPITAL	UNITS OF LABOUR	TOTAL OUTPUT
A	50(OK)	1 (OL1)	1500(IQ1)
B	45(OK2)	2(OL2)	1500(IQ1)
C	41(OK3)	3(OL3)	1500(IQ1)
D	38(OK4)	4(OL4)	1500(IQ1)

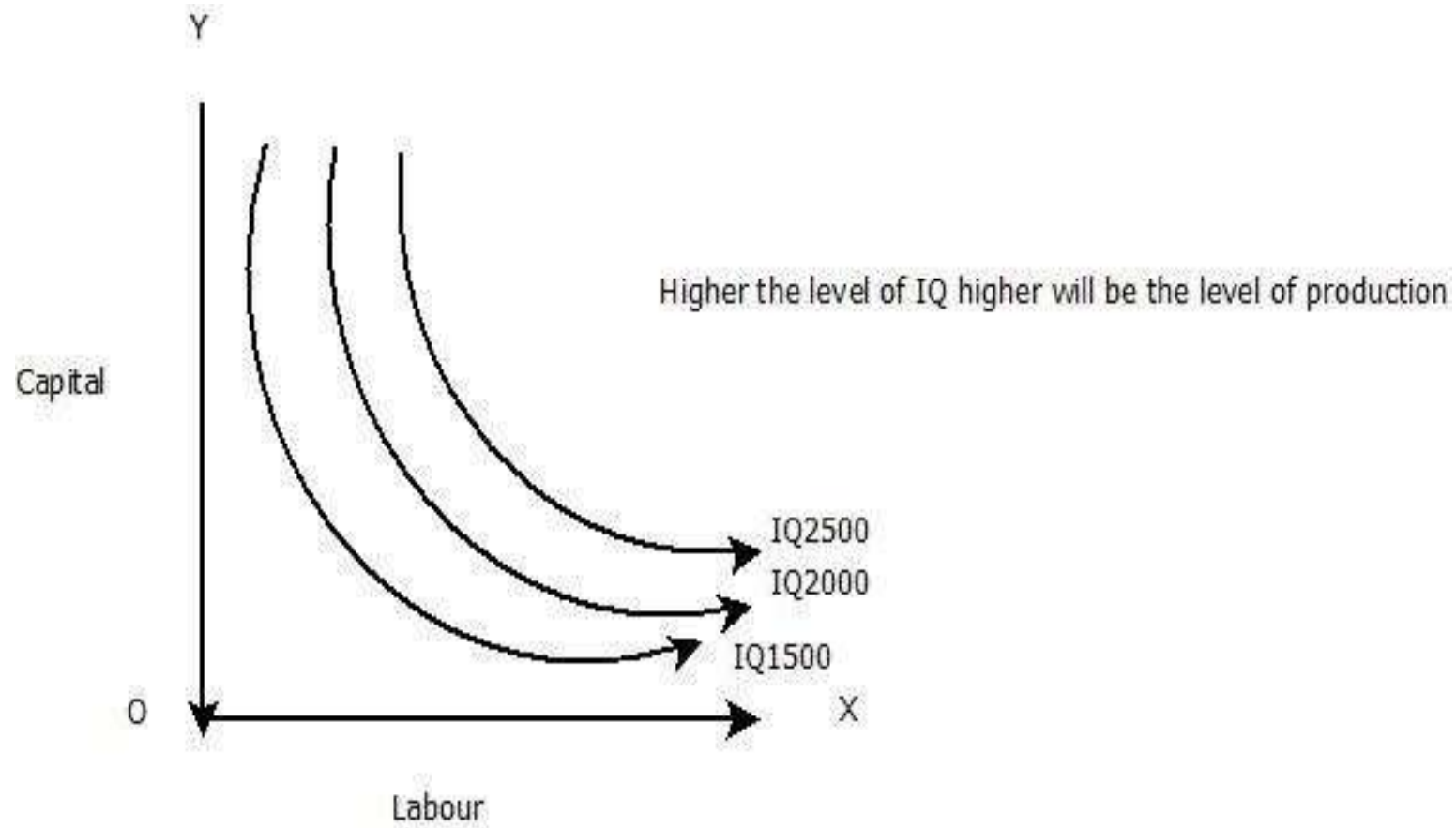


Properties of iso quants

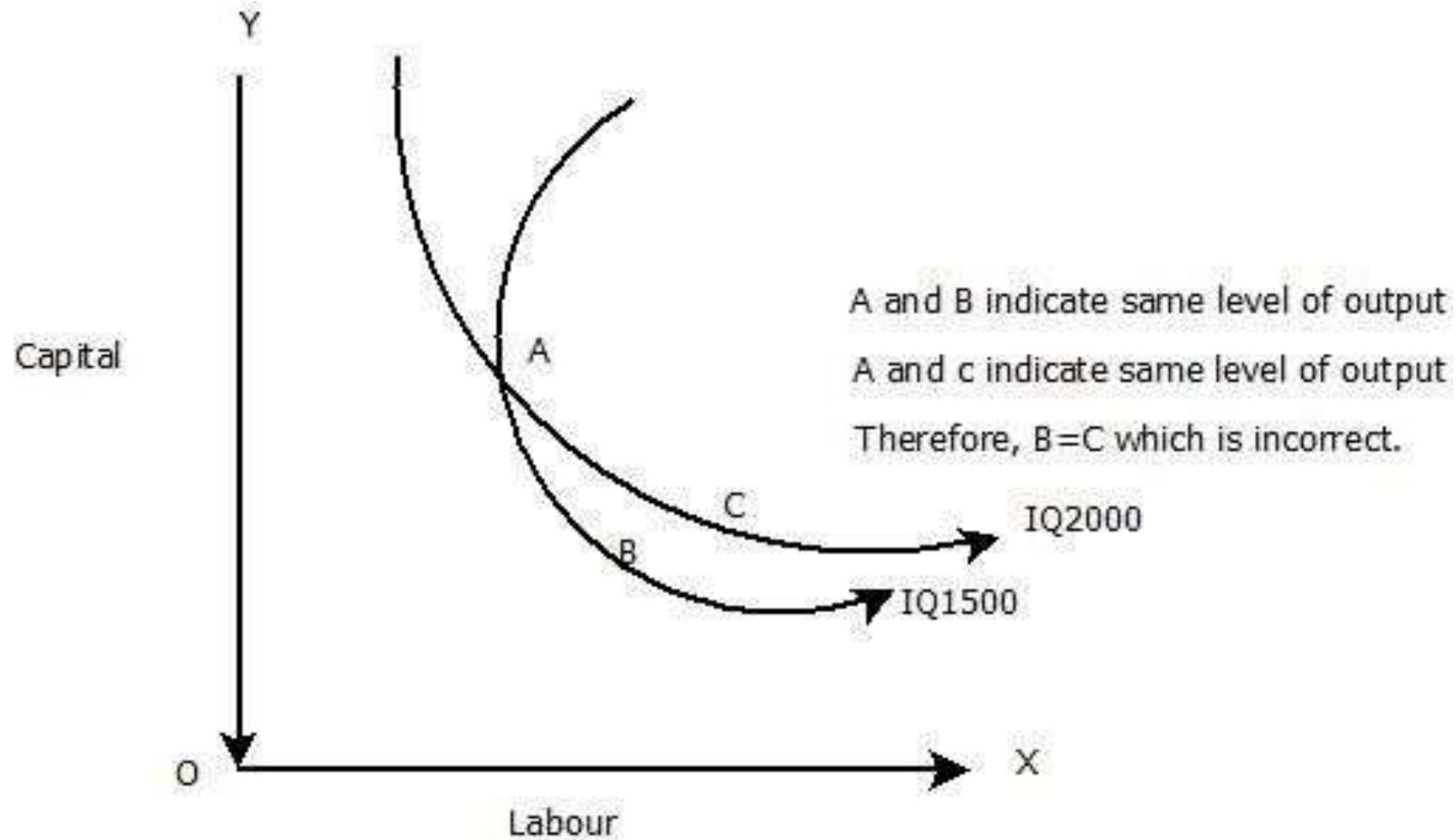
- Isoquant curve has a negative slope, it slopes downward from left to right



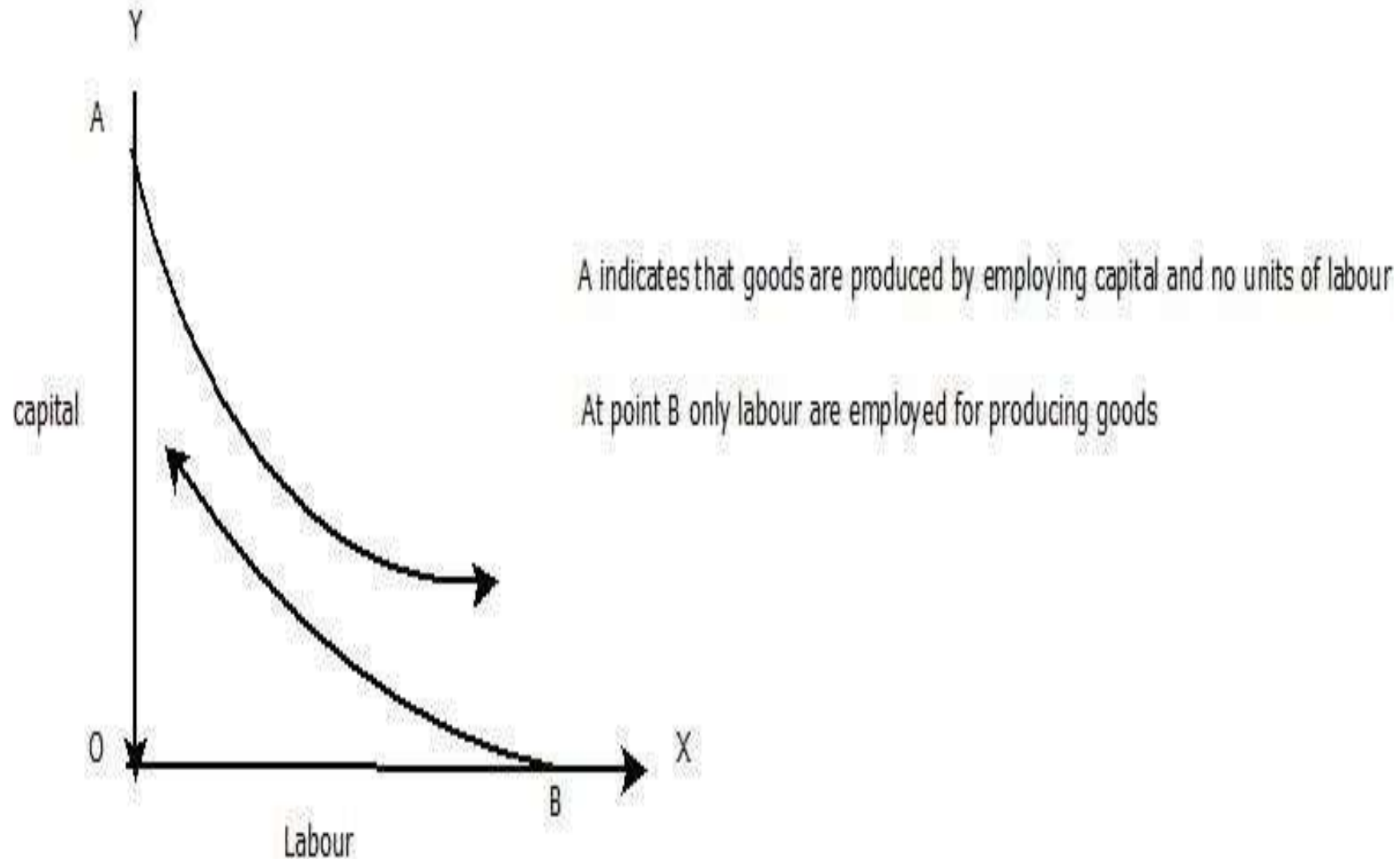
A higher IQ implies a higher level of output



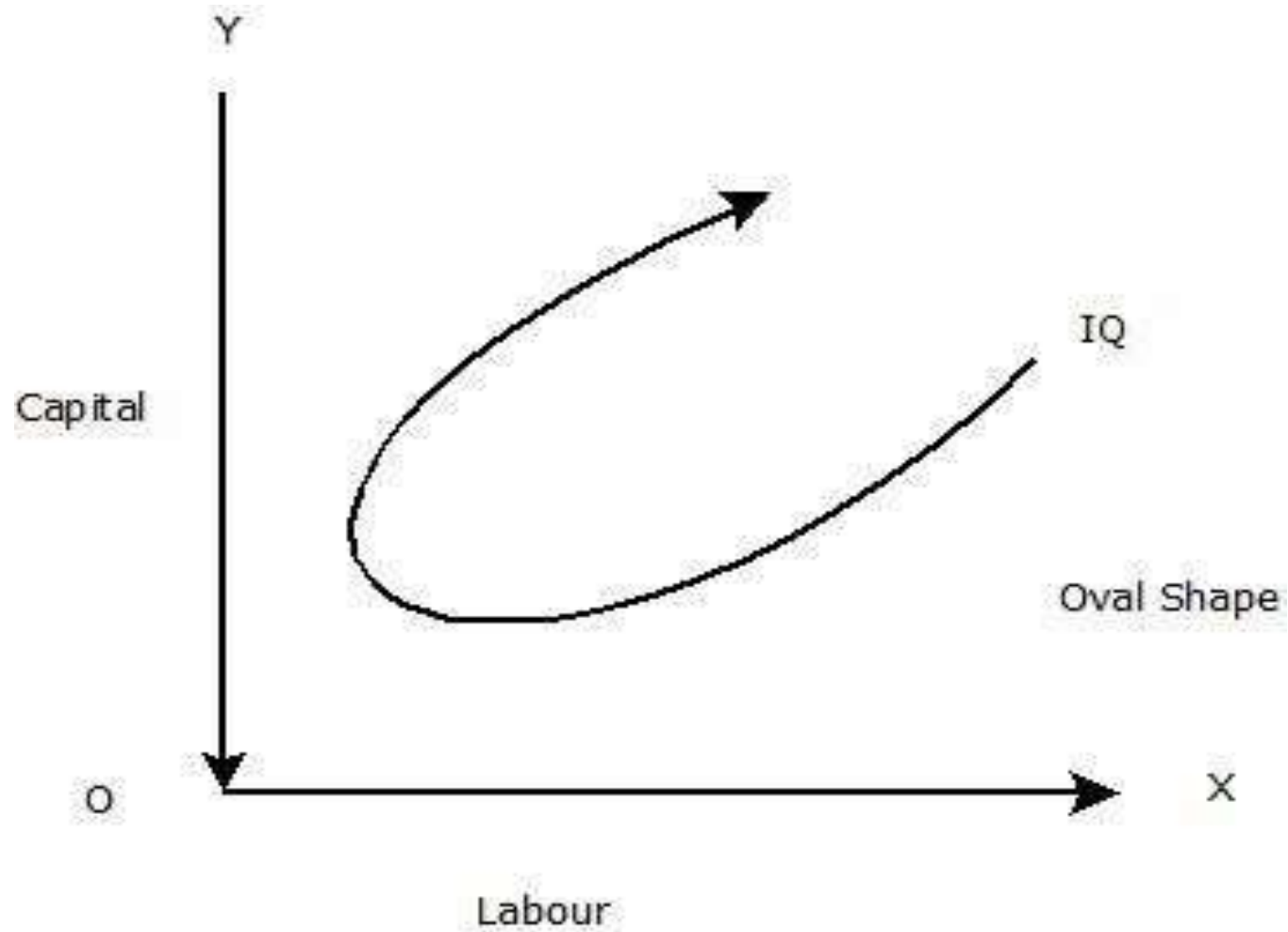
Two isoquants do not intersect each other



No isoquant can touch either axis



Isoquant is not oval in shape



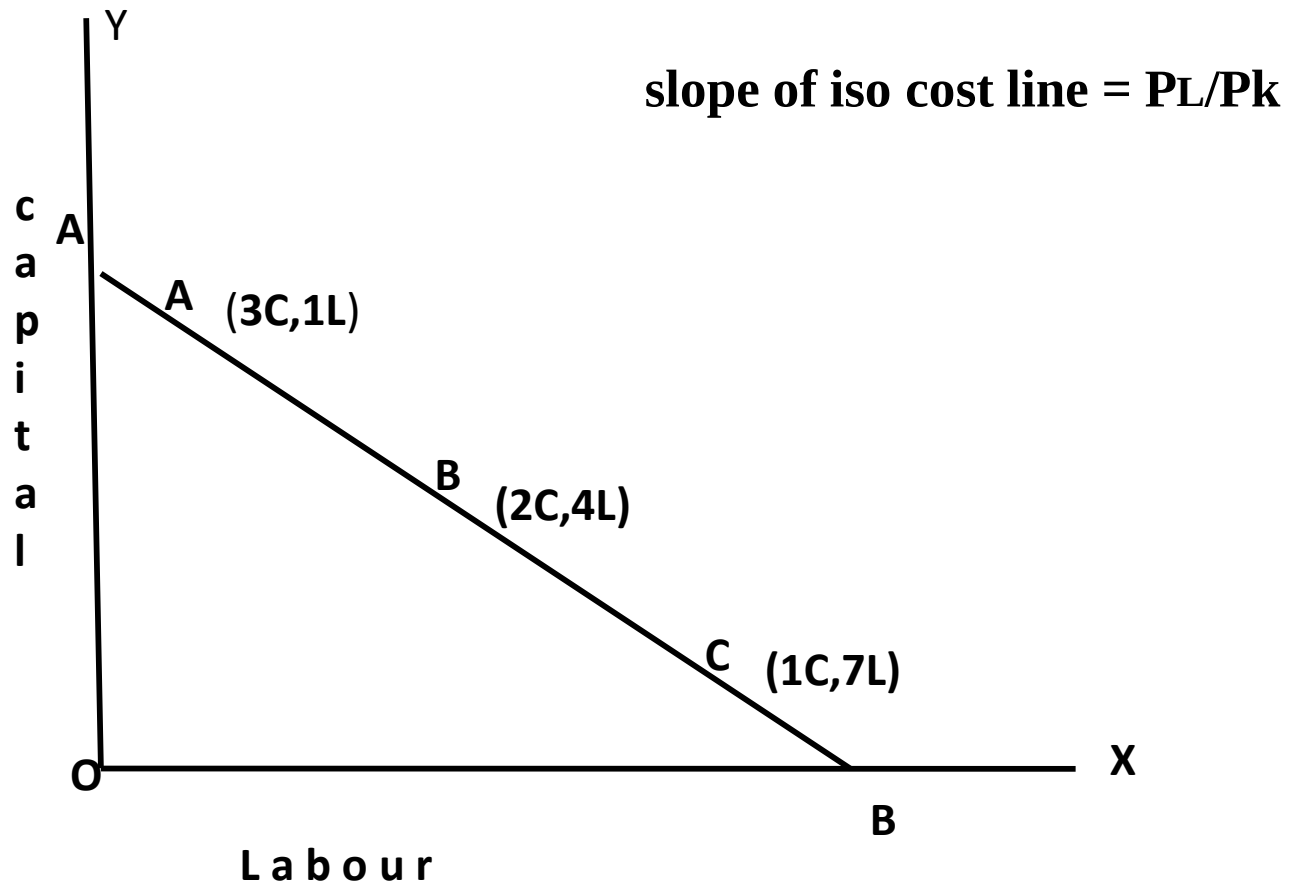
Iso cost line

- Iso cost line is a graphical presentation showing all combinations of the two factors that can be purchased for a given expenditure outlay by a firm.
- Example: total outlay = Rs.50
capital cost = Rs.15 per unit
labour cost = Rs. 5 per unit

Iso cost schedule

combination	Capital (C)	Labour (L)
A	3	1
B	2	4
C	1	7

Iso cost line



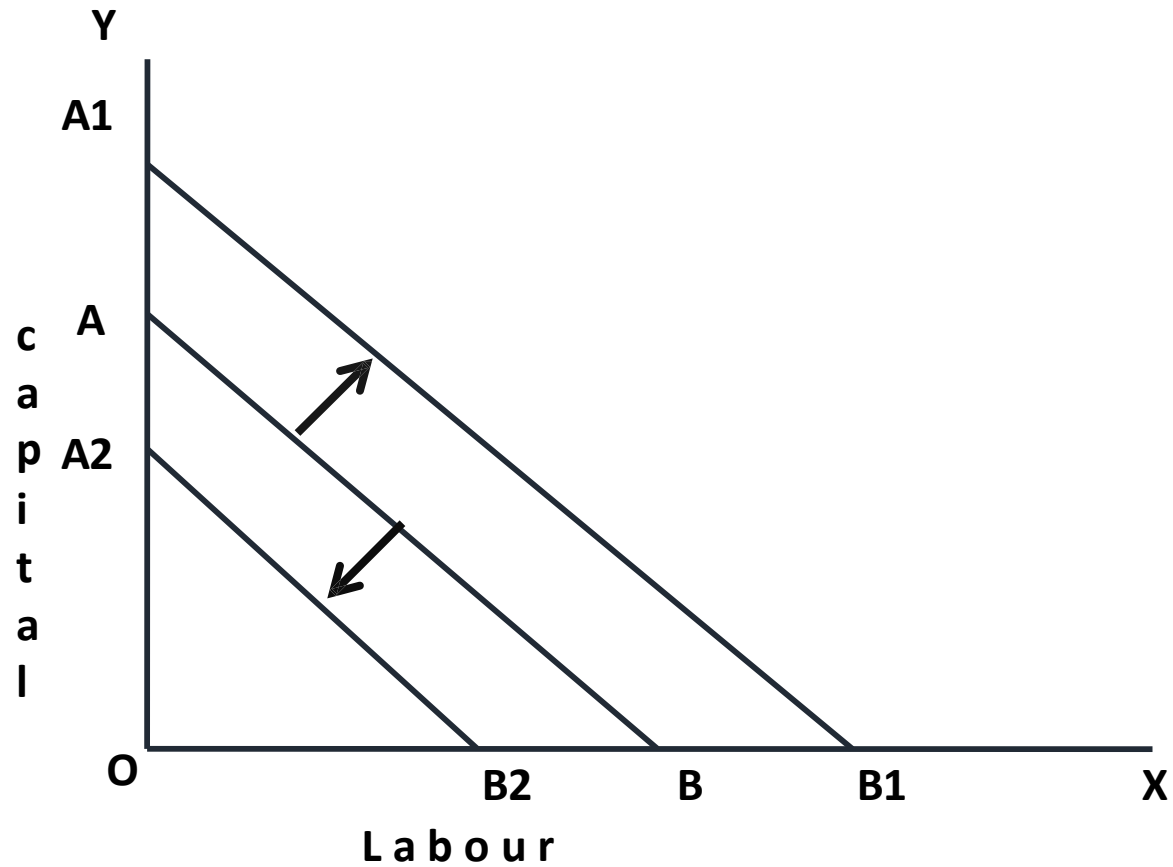
Line /Slope of iso cost

- The **slope of iso cost line** = P_L/P_K .
- In this equation ,
- P_L is the price of labour, and
- P_K is the price of capital.
- The slope of iso cost line indicates the ratio of the factor prices.
- A set of isocost lines can be drawn for different levels of factor prices, or different sums of money.
- The iso cost line will shift to the right when money spent on factors increases or firm could buy more as the factor prices are given.

Slope of iso cost line.....

- With the change in the factor prices the slope of iso cost line will change.
- If the price of labour falls the firm could buy more of labour and the line will shift away from the origin. The slope depends on the prices of factors of production and the amount of money which the firm spends on the factors
- A change in factor price makes changes in the slope of isocost lines as shown in the figure

Slope of iso cost line.....



Producer's Equilibrium

- The least cost factor combination can be determined by imposing the isoquant map on isocost line.
- The point of tangency between the isocost and an isoquant is an important but not a necessary condition for producer's equilibrium.
- The essential condition is that the slope of the isocost line must equal the slope of the isoquant.
- Thus at a point of equilibrium marginal physical productivities of the two factors must be equal the ratio of their prices

Producer's Equilibrium

- The firm can achieve maximum profits by choosing that combination of factors which will cost it the least.
- The choice is based on the prices of factors of production at a particular time.
- The firm can maximize its profits either by maximizing the level of output for a given cost or by minimizing the cost of producing a given output.
- The marginal rate of technical substitution of labour for capital must be diminishing at the point of equilibrium
- A combination where output is maximum and cost is minimum is the **LEAST COST FACTOR COMBINATION**

Producer's equilibrium

