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Sem-1
Paper- MJC 1
Topic: Marginal Rate Of Substitution

Marginal Rate Of Substitution

The concept of marginal rate of substitution is an important tool of indifference curve analysis of demand. Marginal rate of substitution of x for y (MRS_{xy}) represents the amount of y which the consumer has to give up for the gain of an additional unit of x so that his level of satisfaction remains the same.

TABLE 1.3			
<i>Combination</i>	<i>Good x</i>	<i>Good y</i>	MRS_{xy}
A	1	12	—
B	2	8	4 : 1
C	3	5	3 : 1
D	4	3	2 : 1
E	5	2	1 : 1

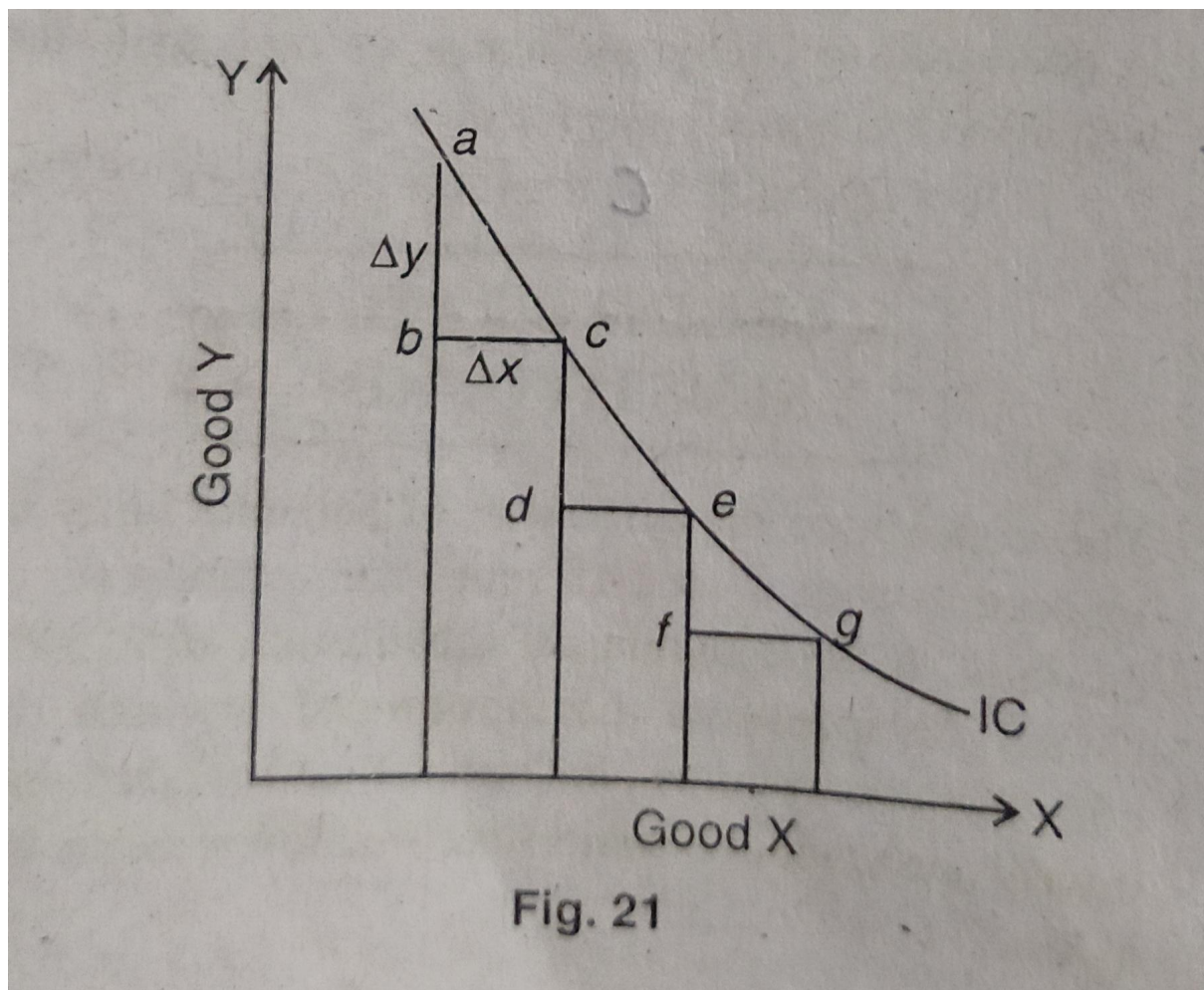
In table 1.3, when the consumer moves from combination A to combination B on his indifference schedule he forgoes 4 units of y for the additional one unit gain in x. Hence, the marginal rate of substitution of x for y is 4. Likewise, when the consumer

moves from B to C , and C to D, and then from D to E in his indifference schedule, the marginal rate of substitution of x for y is 3 , 2 and 1 respectively. As the consumer proceeds to have additional units of x , he is willing to give away less and less units of y so that MRS_{xy} falls from 4:1 to 1:1 in the Eth combination.

The negative of the slope of an indifference curve at any one point is called the Marginal rate of substitution of the two commodities (MRS_{xy}) . In other words, the MRS_{xy} is in fact the slope of the curve at the point on the indifference curve. Thus,

Slope of Indifference curve= - $\Delta Y/\Delta X$ = MRS_{xy}

It means that the MRS_{xy} is the ratio of change in good Y to given change in X.



In figure 21 there are three triangles on the IC curve . The vertical sides ab , cd, and ef represent Δy and the horizontal sides bc , de and fg signify ΔX .

At point c, $MRS_{xy} = ab/bc$

At point e, $MRS_{xy} = cd/de$

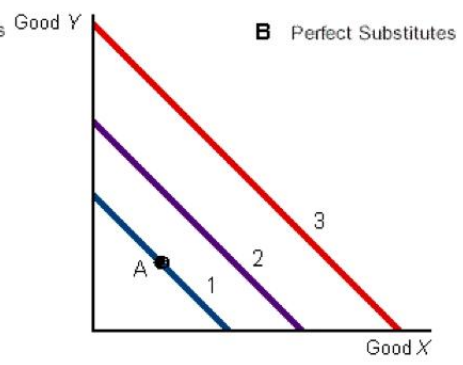
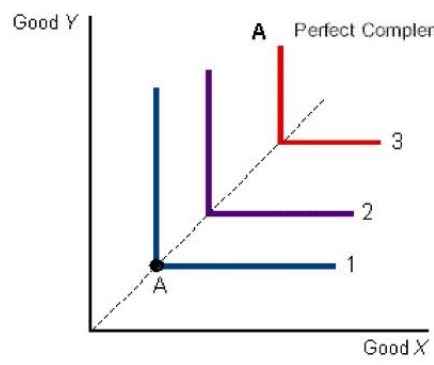
At point g, $MRS_{xy} = ef/fg$.

This also shows that as the consumer moves downwards along the curve, he possesses additional units of x , and gives up lesser and lesser units of y , i.e; the MRS_{xy} diminishes.

Note:

- If the MRS_{xy} is diminishing , the indifference curve must be convex to the origin.
- If MRS_{xy} is constant, the indifference curve will be a straight line sloping downwards to the right.
- If MRS_{xy} is indifference curve will be concave to the origin.
- In case of perfect complementaries trees the MRS_{xy} is zero and the indifference curve will be L shaped.

Graphs :



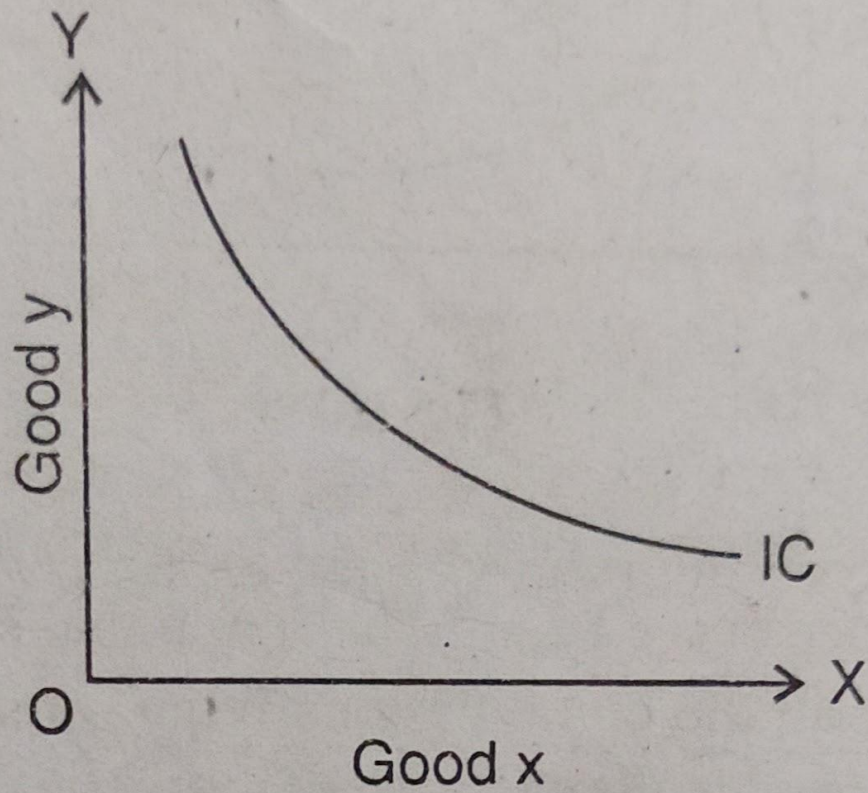


Fig. Convex indifference curve

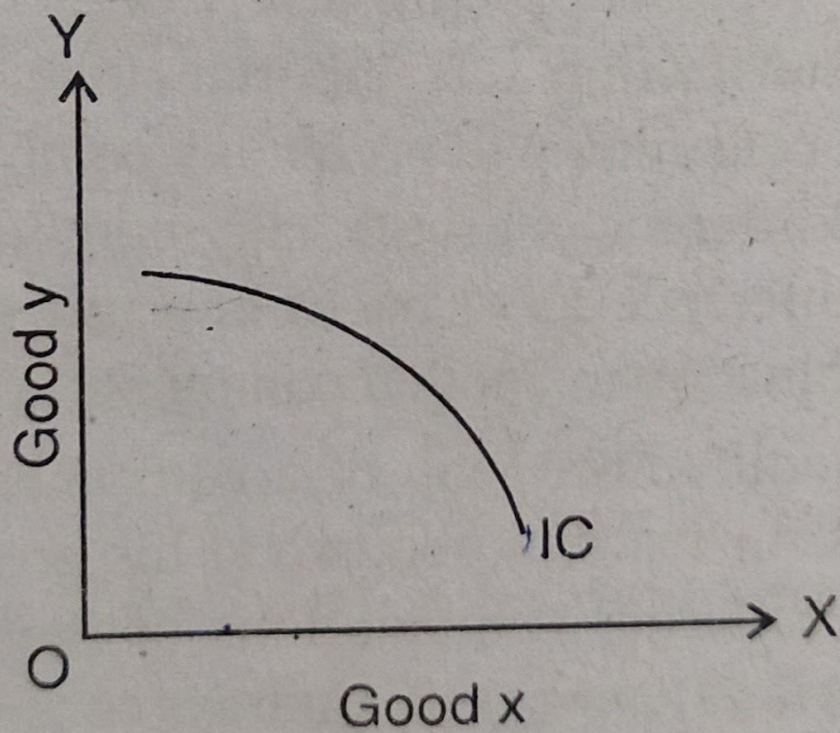


Fig. Convanice indifferent curve

