7. Theory Of Consumer Choice Indifference Curve Analysis

Q:1 Explain the Concept of Scale of Preference ?

(A) **Introduction :-** The Concept OF Scale of Preference is the main base of Consumer's Choice. Suppose a Consumer have number of alternative combinations OF two Commodities - x and y. It is assumed that Consumer will arrange the different combinations of Commodities - x - and y that will bring more satisfaction. The Consumer is a Rational Person which have equal Preference For two Combination which give him Same Level of Satisfaction.

economicsguidance.com

(B) **Example**

Combination	Units OF X and y	Satisfaction Level	Ranking
a	15x + 15y	Highest	1st
b	12x + 12y	Less than a	2nd
c	10x + 10y	Less than b	3rd
d	8x + 8y	Less than c	4th

i) a - combination provide highest satisfaction to a Consumer.

ii) But With Reduction in Commodity - Combination of x and y

will Provide Less Satisfaction to consomer.

(C) Consumer's Indifference scale of Preference :-

Combinations	Units of X and Y	Level of Satisfaction	Ranking
a	15 + 15	Same	1st
b	16 + 11	Same	1st
c	17 + 8	Same	1st
d	18 + 6	Same	1st
e	19 + 5	Same	1st

i) In above example Consumer enjoys Same level of Satisfaction in all 5 Combinations.

ii) In Consumer gets more units of X then he has to give up some units of Y.

iii) Thus Our Consumer get Same / indifferent Satisfaction in Various Combinations.

(D) Assumptions :-

1. The Consumer must be rational. His main aim is to enjoy maximum Satisfaction.
2. Cost of Purchasing goods X and Y is not Considered while arranging Combinations
3. The Consumer Can measure Ordinal measurement OF Satisfaction. It means Consumer get more than, Less than or equal satisfaction as Compare to different Combinations

4. The consumer should consistent in his behaviour. It means he prefers combination a to b and b to c then he should prefer a to c.

Q:2 What does an indifference Curve Measure?

(A) Indifference Curve :-

"An indifference curve measures the same Level of satisfaction derived from the different combinations of Two commodities X and Y."

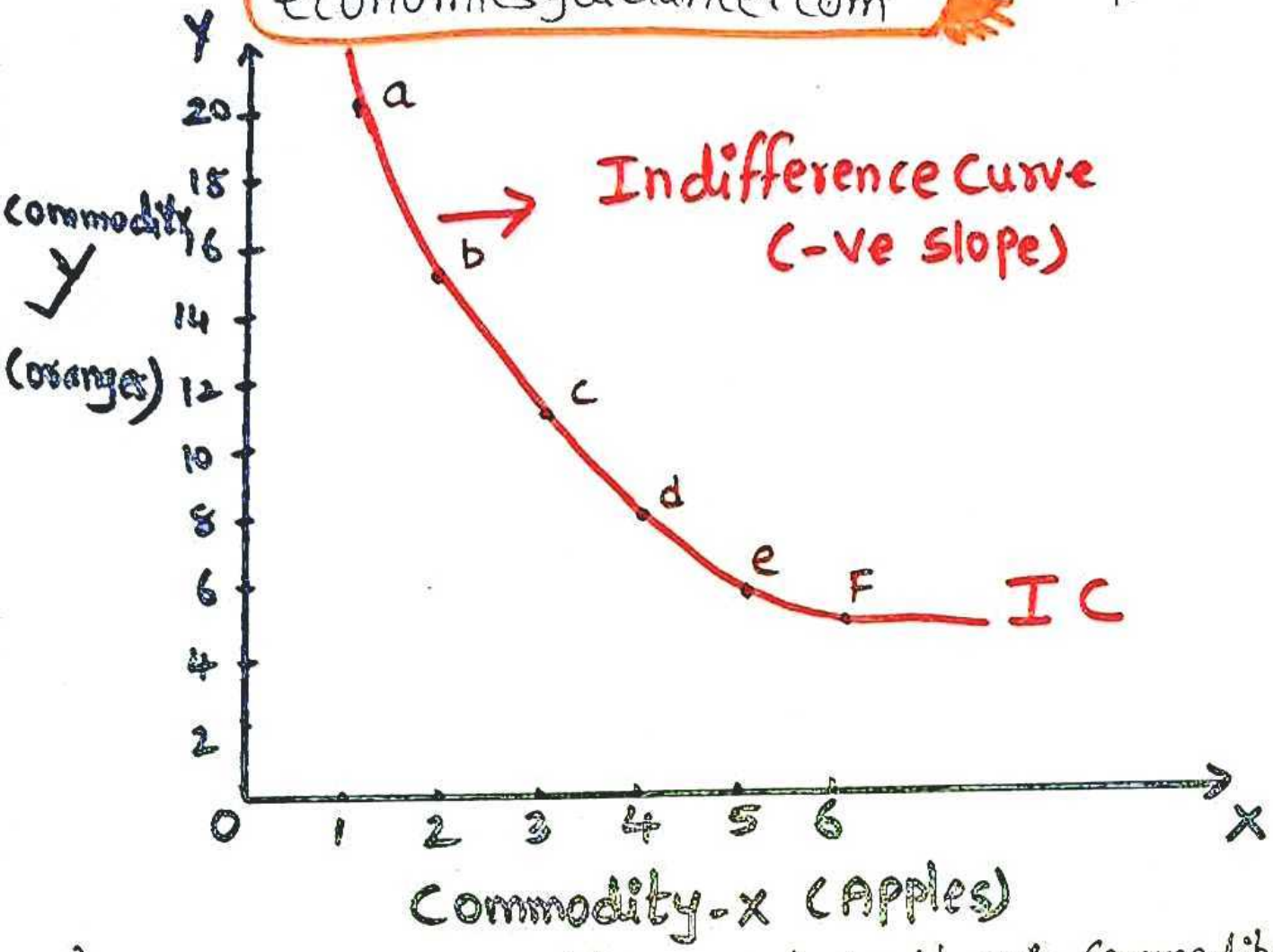
(B) Indifference Schedule :-

Combinations	Commodity - X APPLE	Commodity - Y Orange	Level of Satisfaction
A	1	20	Same
B	2	15	Same
C	3	11	Same
D	4	8	Same
E	5	6	Same
F	6	5	Same

In above Schedule we Observe —

1) A consumer gets Same Satisfaction from the different Combination of Commodity-X (Apple) and Commodity-Y (Orange).

2) When Consumer, consume more units of Commodity-X (Apple) then he has to give up few units of Commodity-Y (Orange).



1) On-Xaxis, Commodity-X and on Y-axis Commodity-Y is shown.
2) By Joining the Combination a to f, we get Indifferece Curve which is Sloping downward from Left to right.
3) As Consumer gets more Units of Apples then he has to giveup some Units of oranges. Thus commodity X and Y has inverse relationship So Ic Curve has Negative Slope.
4) As consomer gets same Level of satisfaction at all the Points - a, b, c, d, e and f. So It is called Indifference Curve.

© Assumptions of Indifference Curve :-

1) **Ordinal Measurement :-** Utility of Satisfaction must be measured in Order like- more, Lessthan or ecqual.

2) **Two commodities :-** A Consumer has to Choose between different combinations of Only Two Commodities X and Y.

3) **Subject to Law of Diminishing Marginal Utility :-** Consumption of Commodities X and y are subject to Law of Diminishing Marginal Utility.

4) **Divisible Commodities :-** The Commodities Used in indifference Curve must be Perfectly divisible so that their Quanity Can be easily increased or decreased.

5) **Continuity :-** A Consumer can give rank the Combinations of X and y according to their Satisfaction Level so that we will have a Smooth and Continuous indifference Curve.

6) **Weak-Ordering :-** Weak-Ordering is one of the important assumption of Indifference Curve. It means Consomer may Prefer A to B or B to A he get Same Satisfaction between A and B.
But Strong-Ordering means Consomer prefer A to B or B to A but he will not get Same Satisfaction between A and B.

Q:3 Write a Short Note- Indifference Map.

(A) Indifference Map :-

An indifference Curve measures the Same Level OF Satisfaction derived From the different Combinations OF Two Commodities X and Y.

(B) Meaning :-

" The indifference Map is the graphical representation of Two or more indifference Curves showing the several combinations of different quantities of Commodities which consumer consumes From his given income and market price of goods and services "

(C) Example :-

Set-1		Set-2		Set-3	
Wheat	Rice	Wheat	Rice	Wheat	Rice
20	1	30	2	40	5
17	2	26	3	36	6
15	3	23	4	33	7
14	4	21	5	31	8
13.5	5	20	6	30	9

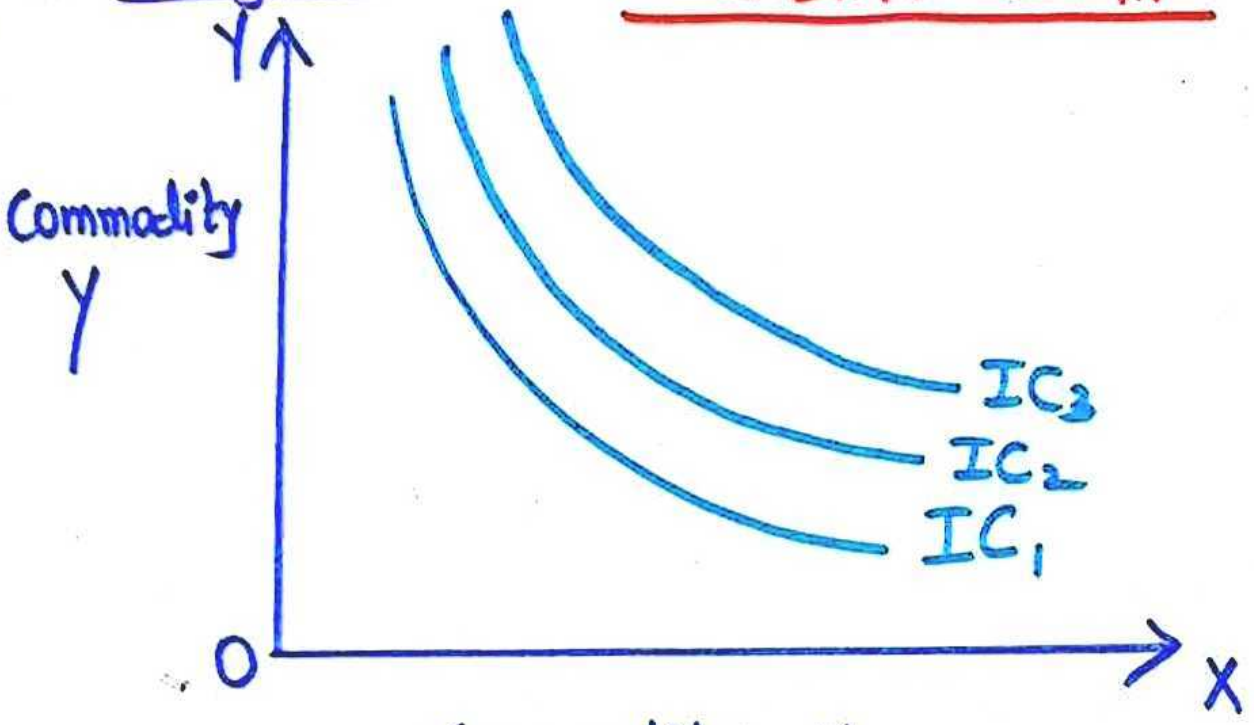
1) The example shows three sets of Combinations between Two Commodities X and y (Wheat and Rice)

2) Set-2 Provide higher satisfaction as compare to Set-1. Similarly Set-3, Provide higher satisfaction as Compare to Set-2.

economicsguidance.com

Ⓓ Diagram :-

An Indifference MAP



economicsguidance.com

1) An indifferce map shows a set of indifference Curves
2) IC_1, IC_2, and IC_3 are the Three indifference Curve shows different Level of Satisfaction.
   Level of Satisfaction → $IC_3 > IC_2 > IC_1$
3) Higher indifference Curve from origin shows higher Level of Satisfaction.

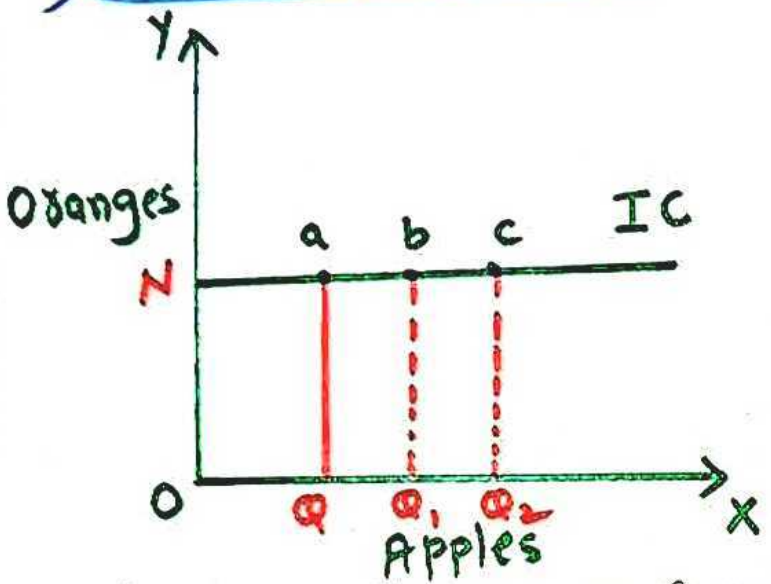
Q:4 Explain Various Properties of indifference Curve ?

Ⓐ PROPERTIES OF INDIFFERENCE CURVE :-

1. Indifference Curve Sloping Downward from Left to Right :- Indifference Curve always sloping downward from Left to Right because when Consumer get more units of One commodity then he has to give up Some units of

Other Commodity. There is inverse Relationship between Satisfaction of both Commodities. So Indifference Curve is sloping down ward.

i) IC Cannot Slope Horizontal :-

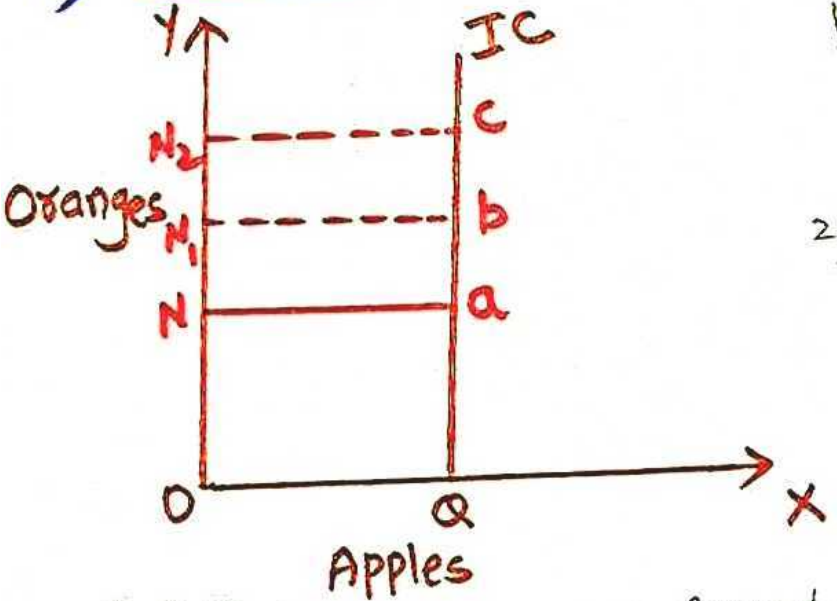


i) Suppose Consumer Consume ON units of Oranges which remain Constant.

ii) When Consumer gets more Units of Apples, like a, b and c then his satisfaction will go on increasing

iii) Thus a Consumer Cannot be indifferent on Horizontal IC

ii) Ic Cannot slope Vertical :-

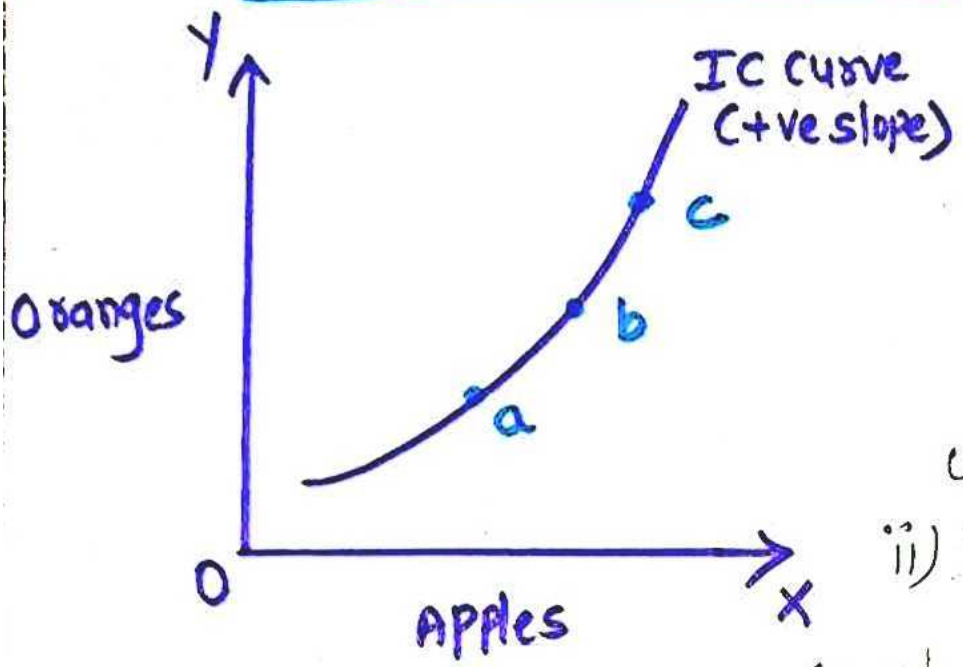


1) Suppose Consumer Consume OQ Units of Apples which remain Constant.

2) When Consumer gets more Units of Oranges like- a, b and c then his Satisfaction will go on increasing.

3) Thus a Consumer Cannot be indifferent on Vertical Indifference Curve.

iii) IC Cannot Slope Upward :-



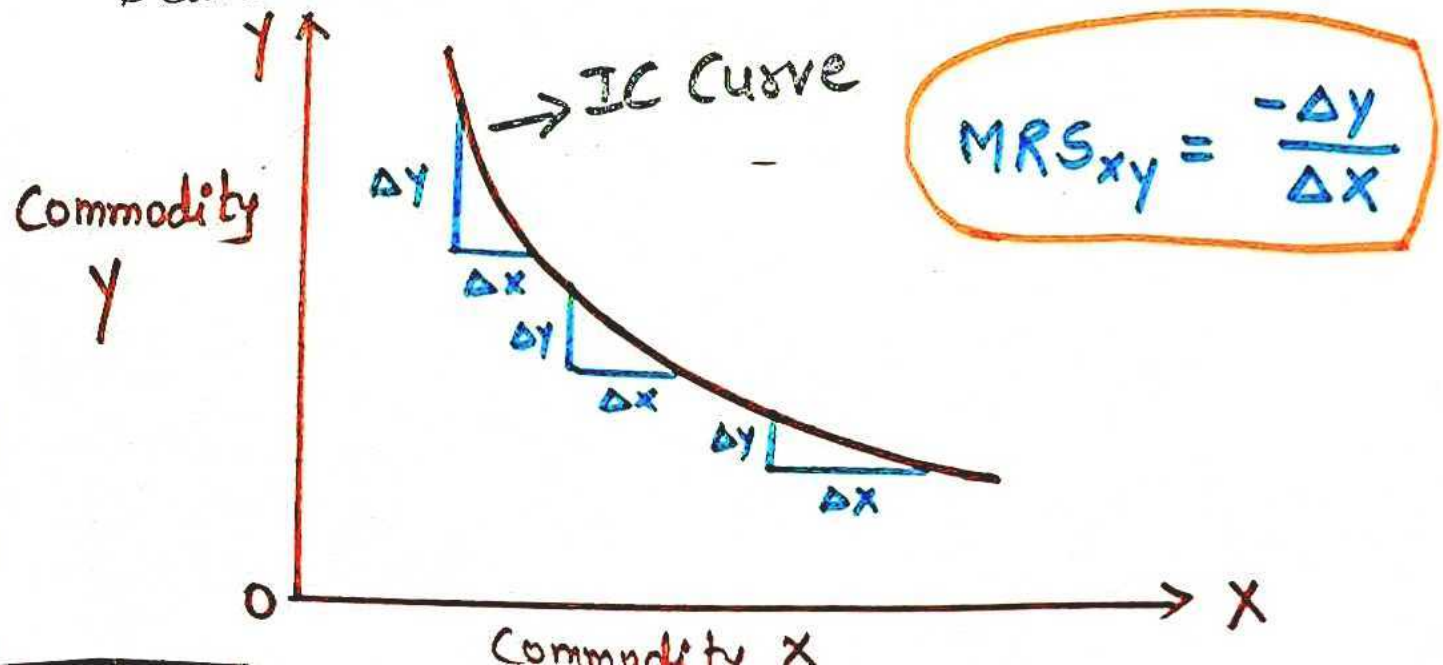
i) Suppose IC Curve is sloping upward with three combinations a, b and c then Consumer's satisfaction will go on increasing.

ii) This Curve has positive Slope. Thus a Consumer cannot be indifferent on Upward sloping Indifference Curve.

Thus IC Curve always sloping downward from Left to right.

(2) Indifference Curves are Convex to the Origin :-

An indifference Curve which is sloping downward must be Convex to the Origin. Convexity means - Marginal Rate of Substitution will go on Diminishing between two commodities X and Y.



$$MRS_{xy} = \frac{-\Delta y}{\Delta x}$$

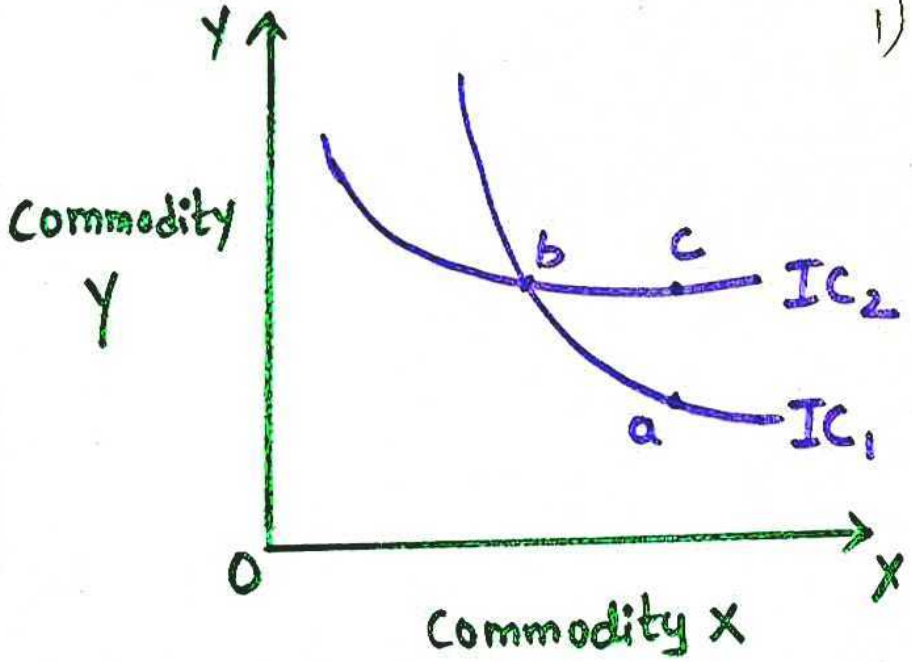
i) When Consumer Consumes one more Units of commodity X then he has to give up (sacrifice) some Units of Commodity Y.

ii) The Units of Y given up for every additional units of X are go on diminishing.

iii) Thus Indifference Curve is Convex to Origin due to Diminishing Marginal Rate of substitution between X and Y.

(3) Indifference Curves Should not intersect :-

An Indifference Curves Should not intersect each other because Higher Indifference Curve shows higher level of Satisfaction and higher distance from Origin.



i) Suppose there are Two indifferent Curve IC_1 and IC_2.

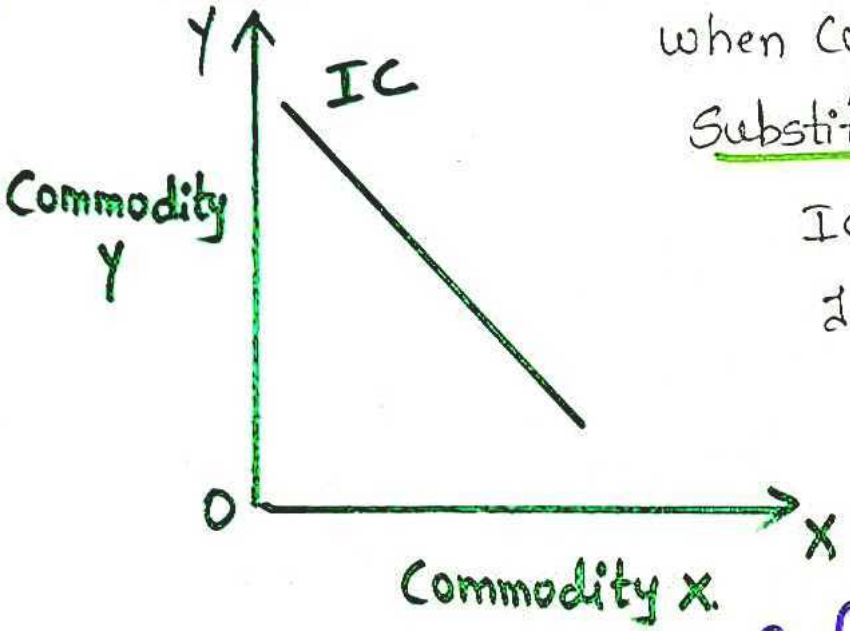
ii) Points a and b are on IC_1.
Points b and c are on IC_2.
Here - a = b and b = c
∴ a = c

iii) But Point a and c lies on different IC Curves which is not Possible.
Thus Indifference Curves Should not intersect each other.

(4) Exceptions to the Normal Indifference Curve:-

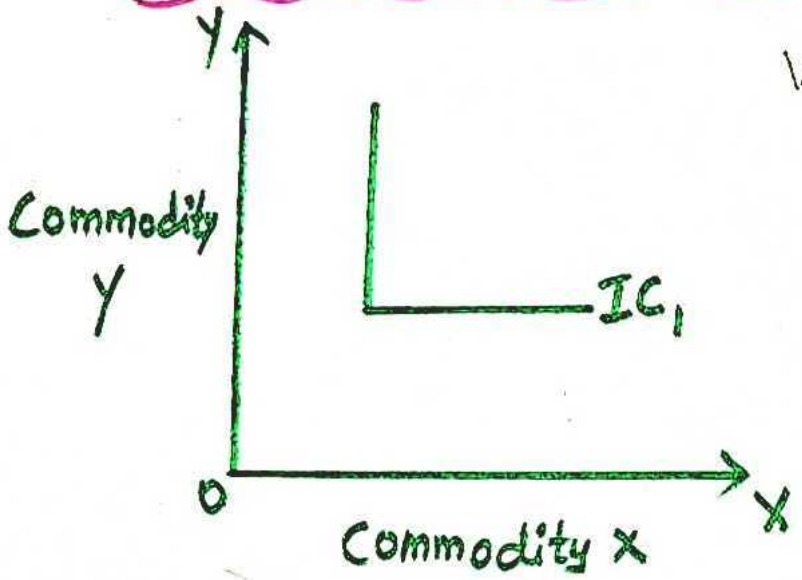
The indifference Curve which is sloping downward from Left to right and Convex to origin. Here Commodities X and Y are the Close-Substitutes but not the Perfect Substitutes

i) When Commodity are Perfect Substitutes:-



When Commodities are Perfect Substitutes to each other then IC Curves are Straight line. It is Constant slope where MRS xy also remain Constant.

ii) When Commodities are Perfect Complements :-



When Commodities are Complementry the IC Curve is of Right angle shape.
Example - Tea and milk.
Here MRS_{xy} is Zero.

Q:5 What is Price-line? OR
Explain the Concept of Budget Constraint?

(A) Budget Constraint/ Price Line :-

An Indifference Curve shows the Same Level of satisfaction derived from the Combination of two Commodities X and Y. But in reality this Combinations of goods depends Upon Consumers income (ability) and Prices of the Commodities. The Price Line is also known as Budget Line or Budget Constraint or Income Constraint Line.

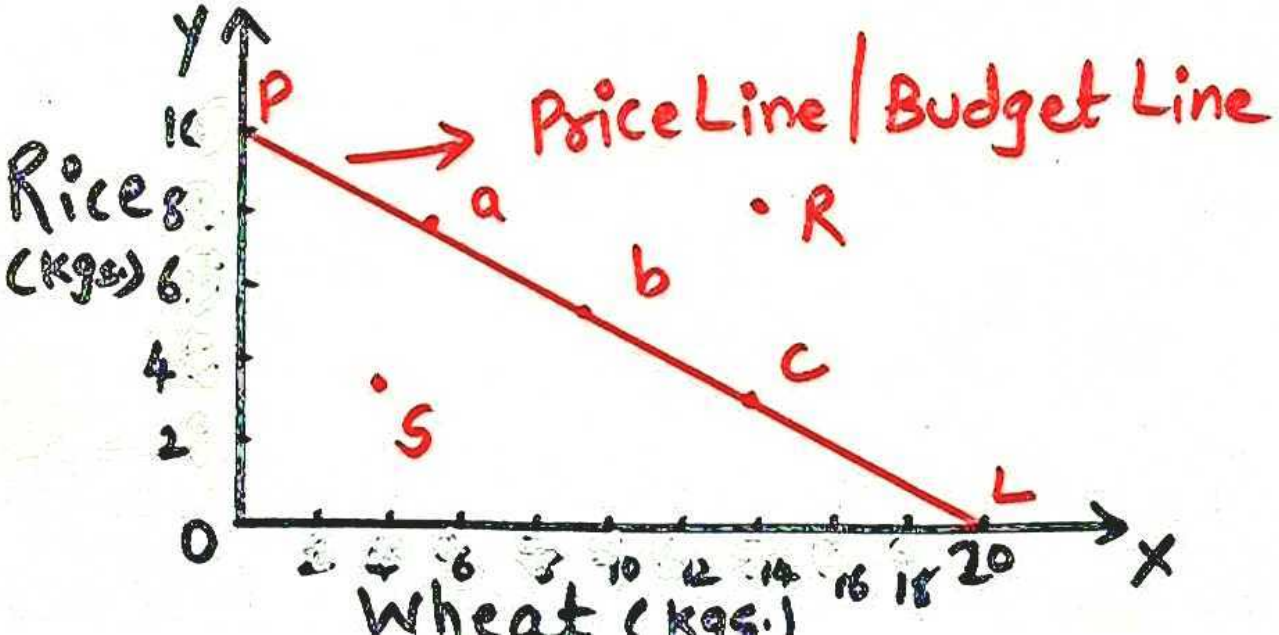
(B) Meaning :-

" Price Line is a line which shows different Combination of Two goods that the Consumer can afford with his income and market Price of goods "

(C) Example :-

Suppose Consumer has a income of ₹ 500. If Consumer spent entire income on Rice, The Price Per kg. of Rice is 50. Then he Can Purchase $\frac{₹500}{₹50}$ = 10 kg. of Rice.

If Consumer spent entire income on wheat, the Price Per kg. of wheat is ₹ 25. Then he Can Purchase - $\frac{₹500}{₹25}$ = 20 kg. of wheat.



1) PL is the Price Line or budget Line. Point P shows that Consumer spend his entire income on Rice.
Point L shows that Consumer spend his entire income on wheat.

2) Point a, b and c on Price-Line PL shows different combination of Rice and wheat.

3) Point R shows Larger combination of Rice and wheat. Consumer income is not enough to Purchase at Point R. So Point R lies Outside of Price line PL.

4) Point S shows Smaller combination of Rice and wheat. But Consumer will not select any Combination inside the Price line PL. He will select any Point on the given Price Line PL.

(D) Slope of Price-Line :-

$$\text{Slope of PL} = \frac{\Delta Y}{\Delta X}$$

Slope of Price-line is the Change in the Vertical distance divided by Change in the Chorizontal distance

$$\text{Slope of PL} = \frac{\text{Change in Rice}}{\text{Change in wheat}} = \frac{1}{2}$$

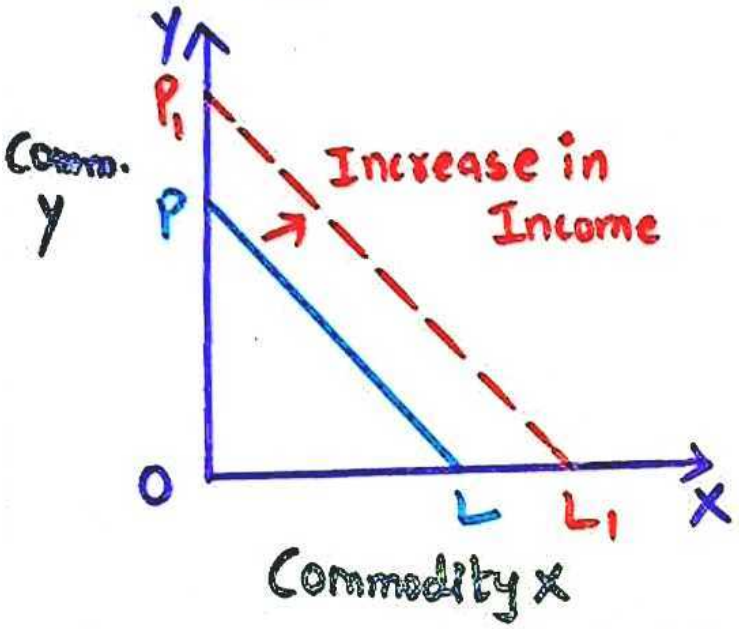
It means every additional unit of Rice, Consumer has to give up 2 units of wheat.

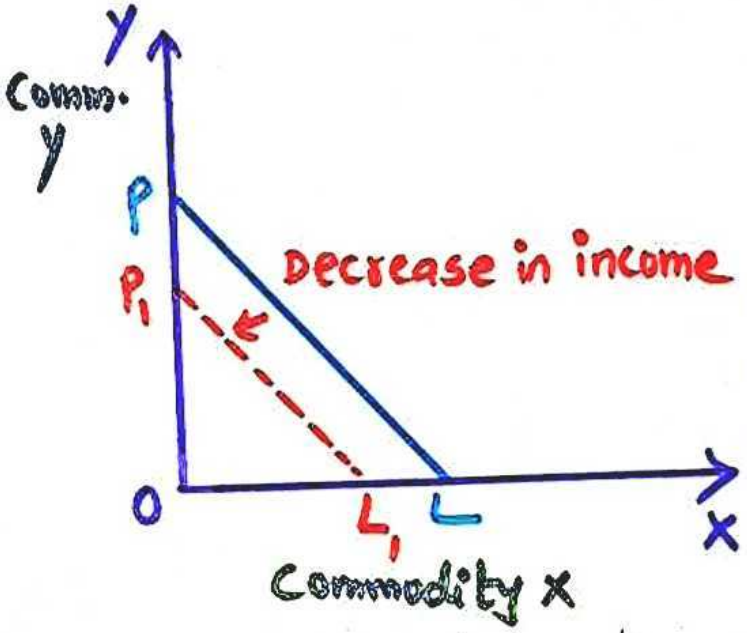
(E) Change in the Position and Slope of the Budget Line :-

When Consumer gets more income, His Purchasing Power increases which Shift Budget line

on the Right Side.

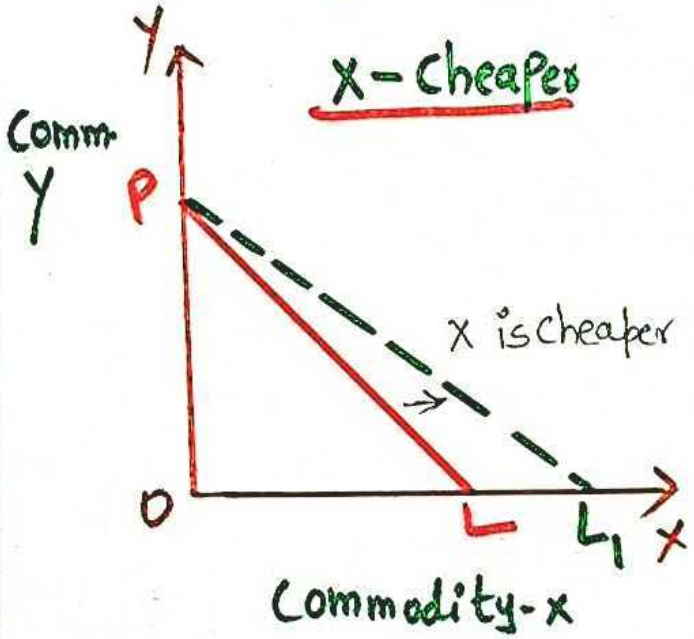
Similarly, when Consumer gets Less income, his Purchasing Power decreases which shift Budget line on the Left-Side.

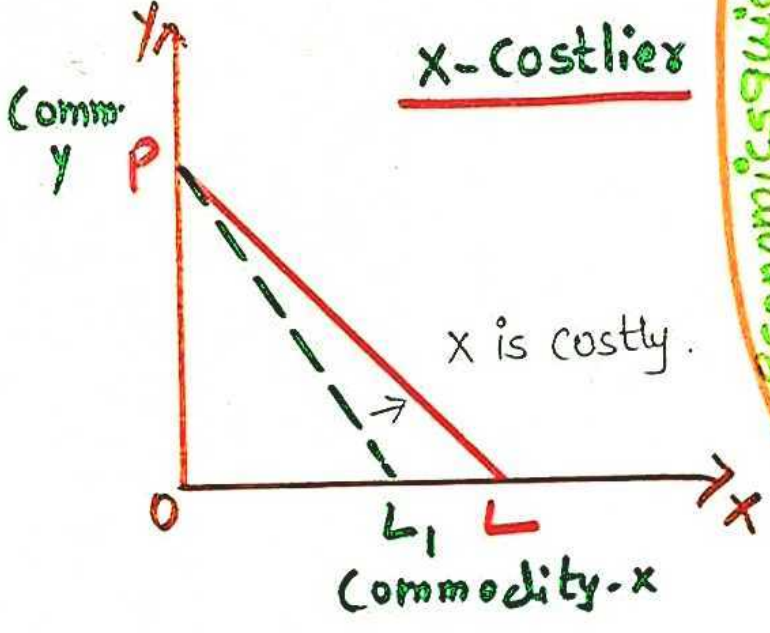




(F) Slope of Budget Line :- The Slope of Price-line Shows Price ratios. It means change in the Prices of Commodities can shift the Priceline slope.

Example :- **i) Change in Price of Commodity X :-**



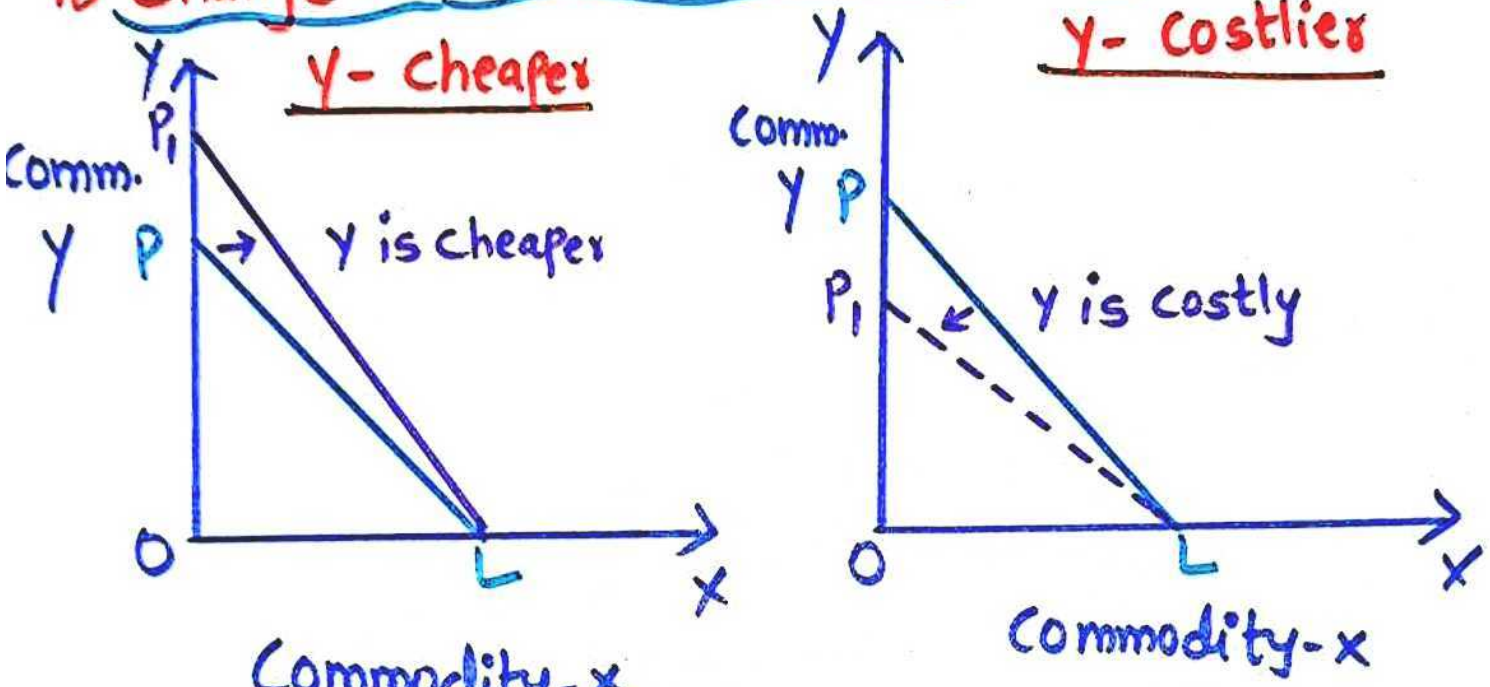


economicsguidance.com

i) When Commodity X become Cheaper, then Consumer Purchase more units of Commodity X. Here PL shift to PL1.

ii) When commodity X becomes Costlier, then Consumer Purchase Less Units of Commodity X. Here PL shift to backward PL_1.

ii) Change in the Price of Commodity-Y:-



i) When Commodity Y becomes Cheaper, then Consumer Purchase more units of Commodity-Y. Here PL shift Upward P_1L.

ii) When Commodity Y becomes Costlier, then Consumer will Purchase Less Units of Commodity-Y. Here PL Shift downward- P_1L.

Q:6. Explain Fully the Consumer's Equilibrium with the help of indifference Curve and Price line ?

OR

" Tangency between indifference Curve and Price line is a necessary condition but not a Sufficient Condition for Consumer's Equilibrium ". Discuss

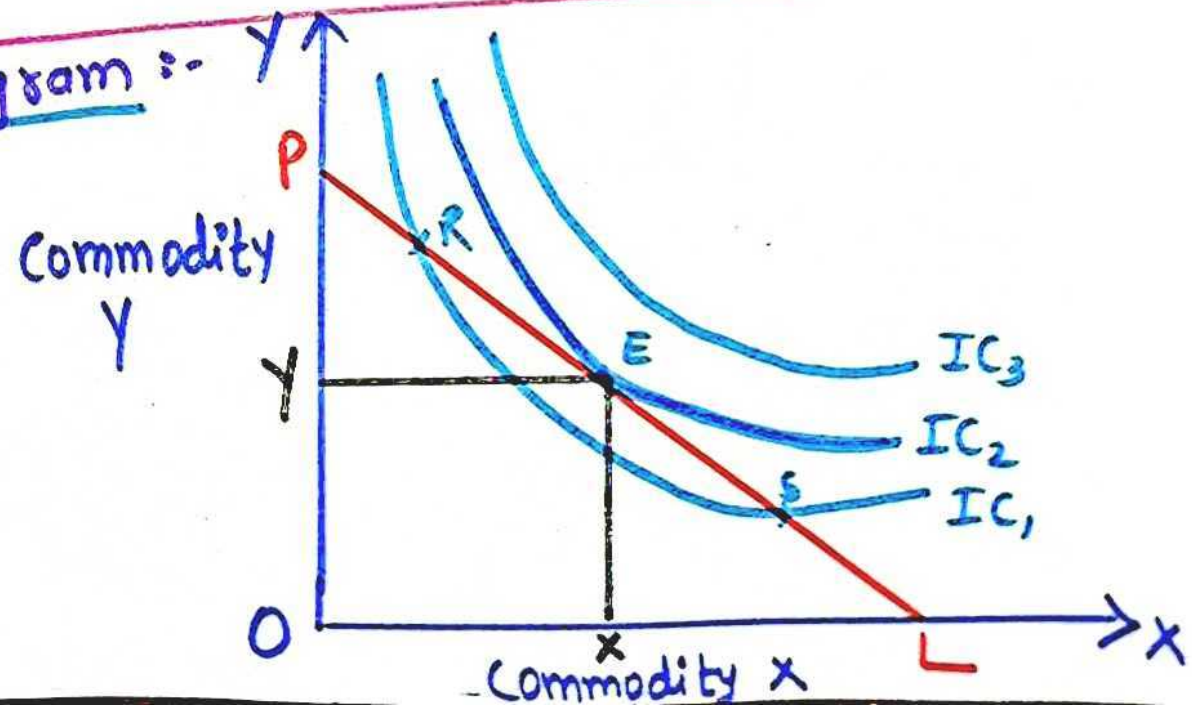
(A) Consumer Equilibrium :- Each and Every Consumer wants to enjoy Maximum Satisfaction with Minimum Expenditure.

Price-Line shows various combinations of commodity X and Y which consumer can purchase from his Limited Income. But Price-line do not indicate the Maximum Level of Satisfaction which consumer can enjoy.

Similarly the Indifference Map shows the different Level of Satisfaction derived from different combination of Commodity X and Y which consumer may or may not purchase it.

"Consumer Equilibrium is the best Combination of Price Line and Indifference Map to give clear idea of Consumer's Maximum Satisfaction Level"

(B) Diagram :-



1) PL is the Price Line / Budget-line of the Consumer.
2) IC_1, IC_2 and IC_3 are different combinations of Commodity X and Y.
3) A Consumer gets minimum Satisfaction at Point R and S on indifference curve IC_1 with given Price line.
4) But Consumer enjoys Maximum Satisfaction at Point E on IC_2 with given Price line - PL. Point E is called Consumer Equilibrium. Here IC_2 is Tangent to Price line PL.
5) Thus Consumer enjoys Equilibrium Position where IC Curve is Tangent to Price Line. But this Condition of Tangency is not only necessary Condition of Equilibrium. The second Condition is that the IC Curve must be Convex to Origin.
6) i) The Necessary Condition is of Tangency where

$$MRS_{xy} = \frac{P_x}{P_y}$$

ii) second condition is that IC Curve must be Convex to Origin.

(C) Assumption :-

1. **Rational Consumer :-** The Consumer must be Rational Consumer which enjoy maximum Satisfaction with Minimum Expenditure.
2. **Limited Income :-** The consumer has Limited income which is fully used to Purchase Two commodities X and Y.

3. **Homogeneous and Divisible :-** All the Units of Commodity X and Y are Homogeneous and Divisible in Smaller Parts.

4. **Perfect Knowledge about Market :-** The Consumer must have Perfect Knowledge about market and Price of the Commodities to get better Satisfaction.

5. **Knowledge of Indifference Map :-** The Consumer must Know the level of Satisfaction derived from the different Sets of Combinations of Two Commodities.

Q:6 Choose the Correct answer and Rewrite the Statements?

1) Indifference Curve measures Satisfaction in **Ordinal numbers**

a) Cardinal numbers ✓b) Ordinal numbers c) geometrical method.

2) An Indifference Curve must be **Convex**

✓a) Convex b) Concave c) neither Convex nor Concave to origin

3) Two indifference Curves cannot be **intersecting**

a) Parallel ✓b) intersecting c) identical.

4) A higher Level of Satisfaction is shown by shifting the indifference Curve **Outward**

✓a) Outward b) inward c) neither (a) nor (b)

5) On the Same indifference Curve, Satisfaction at different Points is **Same**

a) different ✓b) Same c) increases

6. An indifference Curve Cannot be **All the above**
   a) Vertical b) Horizontal c) Upward sloping d) All the above

7. The Necessary Condition OF Consumers equilibrium is $MRS_{xy} = \frac{P_x}{P_y}$
   a) $MRS_{xy} > P_x/P_y$ b) $MRS_{xy} = P_x/P_y$ c) $MRS_{xy} < P_x/P_y$

Q:7 State with Reasons whether the following statements are True or False :-

1. Indifference Curve analysis is based on Cardinal Measurement of Satisfaction.

Ans:- False Reasons :- Q:1 - D Part - 3rd Point

2. An Indifference Curve Slopes Upward from Left to right.

Ans:- False Reasons :- Q:2 - B Part

3. Convex IC indicates diminishing Marginal Rate of Substitution.

Ans:- True Reasons :- Q:2 - C Part - 3rd Point

4. If Two goods are complementry, the IC takes the shape of Right angle.

Ans:- True Reasons : Q:4 - 4th Point - ii Point

5. When Commodities become Cheap, the Price Line Shift inward.

Ans:- False Reasons: Q:5 - F - Part

6. The Sufficient Condition for Consumer's Equilibrium is the Price Line must be Tangent to IC when it is Convex to the Origin.

Ans:- True Reasons :- Q:6 - B Part

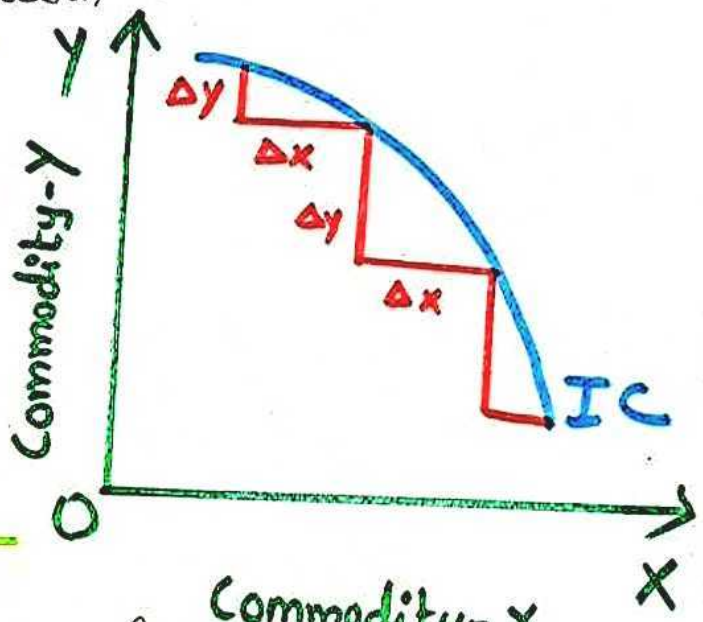
7. An indifference Curve cannot be Concave to the Origin. **True**

Reasons:- i) An indifference Curve must be Convex to the origin but it cannot be Concave to the Origin.

ii) When IC Curve is Convex, it shows diminishing Marginal Rate of Substitution.

iii) But When IC Curve is Concave, it shows increasing Marginal Rate of Substitution

iv) Diagram :-



Here Consumer get more Level of Satisfaction. As Consumer give up more unit of y to get additional unit of X.

This behaviour is Abnormal or irrational because a Rational Consumer would not Prefer to give up more units of Y to get additional unit of X.

Q:8 Match the Following :-

1. Indifference Curve → Scale of Preference.
2. Transitivity → Consistent Behaviour.
3. Increasing MRS_{xy} → Concave Indifference Curve.
4. Vertical Line → Not an Indifference Curve