Indifference Curve, Indifference Map & Properties of Indifference Curve

1 Mark Questions

1. Define an indifference curve. (All India 2014, Delhi 2010)

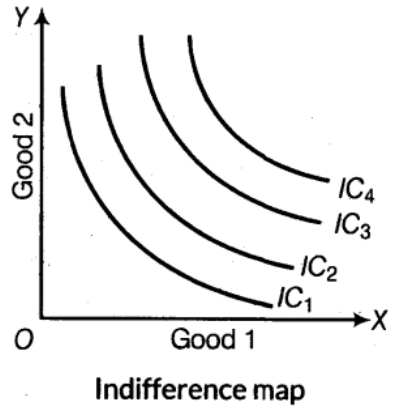
Ans. Indifference curve is a curve showing different combinations of two goods, each combination offering the same level of satisfaction to the consumer. So that the consumer is indifferent, between all set of bundles.

2.What is meant by monotonic preferences. (All India 2014)
or
What are monotonic preferences? (Delhi 2010)

Ans. Monotonic preferences means that greater consumption of a commodity by the consumer gives him higher level of satisfaction, as compared to less.

3.Define an indifference map. (Delhi 2010; All India 2010)

Ans. Indifference map refers to a set of indifference curves corresponding to different income levels of the consumer.



Indifference map

3 Marks Questions

4. Explain the meaning of Diminishing Marginal Rate of Substitution with the help of a numerical example. (All India 2013)

Ans. Marginal Rate of Substitution refers to the rate at which the consumer is willing to sacrifice one good to obtain one more unit of the other good.

$$MRS_{xy} = \frac{\text{Quantity of the Good Sacrificed}}{\text{Quantity of the Good Obtained}} \text{ or } \frac{\Delta Y}{\Delta X}$$

For example,

Combinations	Good X	Good Y	Marginal Rate of Substitutions
A	1	8	–
B	2	4	4Y : 1X
C	3	2	2Y : 1X
D	4	1	1Y : 1X

(2)

∴ He is willing to sacrifice less unit of *Y* to obtain additional unit of *X* as shown in the schedule

5. Define Marginal Rate of Substitution. Why is an indifference curve convex? (Delhi 2012)
or
Define an indifference curve. Why is it convex to the origin? (All India 2011)

Ans. Marginal Rate of Substitution Marginal Rate of Substitution refers to the rate at which the consumer is willing to sacrifice one good to obtain one more unit of the other good.

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Indifference curve is a curve showing different combinations of two goods, each combination offering the same level of satisfaction to the consumer. So that the consumer is indifferent, between all set of bundles.

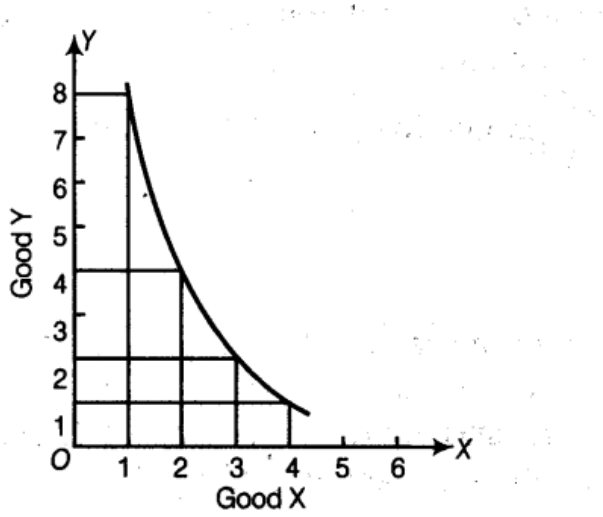
Indifference curves is convex to the point of origin because of diminishing Marginal Rate of Substitution. We can say that for every additional unit of a good, a consumer is willing to give up less and less amount of another good as the utility that he derives from its consumption goes on diminishing.

4 Marks Questions

6. Define an indifference curve, Explain why an indifference curve is downward sloping from left to right. (Delhi 2012)

Ans. **Indifference curve** is a curve showing different combinations of two goods, each combination offering the same level of satisfaction to the consumer. So that the consumer is indifferent, between all set of bundles.

An indifference curve always slopes downward from left to the right, i.e. it has a negative slope. It is because of the simple reason that if the consumer wants to have more units of one good, he will have to reduce the number of units of another good, his level of satisfaction remaining unchanged, in other words, an indifference curve slope downwards because of limited income of the consumer

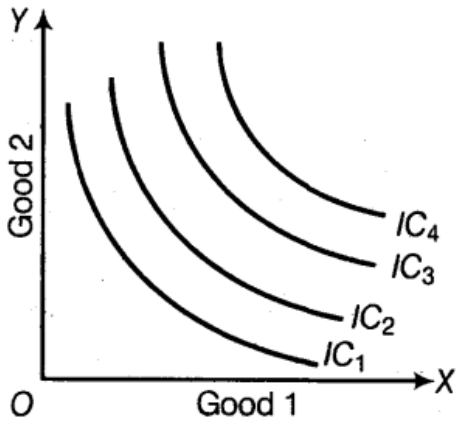


Downward sloping indifference curve

Note After the study of above answer. We observe two things. First, the indifference curve is sloping downward from left to right. Second, the indifference curve is strictly convex towards the origin.

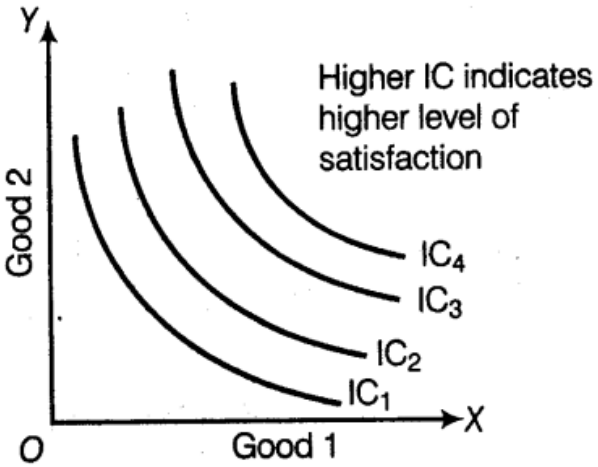
7. Define an indifference map. Explain why an indifference curve to the right shows higher utility level. (Delhi; All India 2012)

Ans. **Indifference map** refers to a set of indifference curves corresponding to different income levels of the consumer.



Indifference map

Higher indifference curve gives higher level of satisfaction than the lower indifference curve, as we move to the right, the level of satisfaction also rises. Hence, IC_2 represents higher level of satisfaction than the IQ. Because IC_2 curve lies to the right side of the IQ curve. This is because of monotonic preferences because higher indifference curve means that the consumer is getting more of both the commodities, and atleast more units of one good and no less of other



Indifference map

6 Marks Questions

8. Explain the concept of 'Marginal Rate of Substitution' with the help of a numerical example. Also, explain its behavior along an indifference curve. (All India 2014)

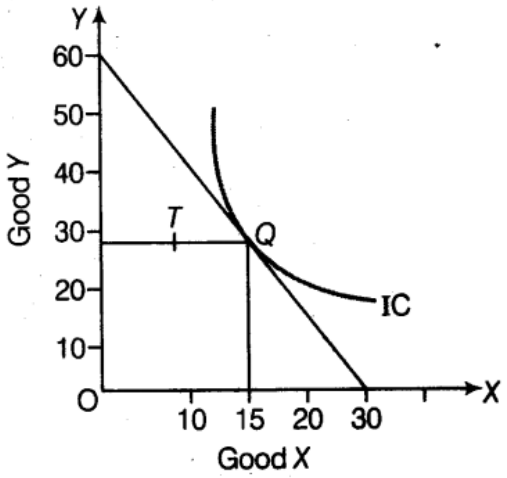
Ans. Marginal Rate of Substitution refers to the rate at which the consumer is willing to substitute one good to obtain one more unit of the other good. Symbolically,

$$MRS_{XY} = \frac{\text{Quantity of the Good Sacrificed}}{\text{Quantity of the Good Obtained}} \quad or \quad = \frac{\Delta Y}{\Delta X}$$

Example Equilibrium is struck at point Q. At the point of equilibrium, price line and indifference curve are tangent to each other implying that the slope of price line

$$\left(\frac{P_X}{P_Y}\right) = \text{slope of IC} \left(\frac{\Delta Y}{\Delta X}\right) \text{called Marginal Rate of Substitution}$$

If a consumer wants to have more of X, it reduces the MU of X. Therefore, he will be willing to sacrifice less unit of Y. As he goes on obtaining more and more of X, MU of X starts declining so he will sacrifice less and less of good Y.



9. Explain why is an indifference curve (a) downward sloping, and (b) convex (All India 2014, Foreign 2014)
or
Explain three properties of indifference curves. (All India 2013, 2011: Delhi 2011)
or
State and explain the characteristics of indifference curves. (Delhi 2010)

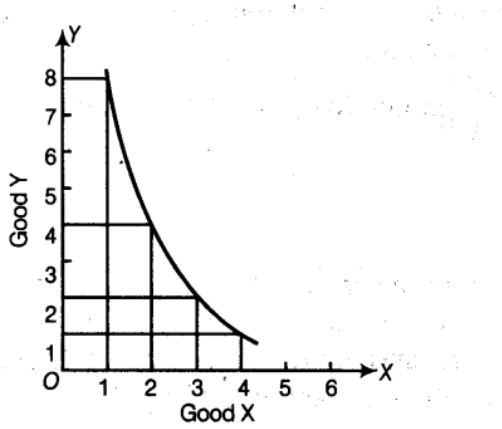
Ans. Properties/characterstics of indifference curves are:
(i) Indifference curves are negatively sloped or they slope downward It shows that more of one commodity implies less of the other, so that total satisfaction (at any point on Indifference curve) remains the same.

(ii) Indifference curves are convex to the point of origin An indifference curve will ordinarily be convex to the point of origin. This is because of diminishing Marginal Rate of Substitution. We can say that for every additional unit of a good, a consumer is willing

to give up lesser and lesser amount of another good.
(iii) Indifference curve touches neither X-axis nor Y-axis It is often assumed that a consumer buys a combination of two goods. Hence, an indifference curve touches neither X-axis nor Y-axis as touching either axis represents zero units of the respective goods.
(iv) Indifference curves never touch or intersect each other Each Indifference curve represents a different level of satisfaction. So, their intersection is ruled out. Also if indifference curves intersects Law of Transitivity and indifference law will contradict each other.
Note (i) According to Law of Transitivity if a consumer prefer bundle A over bundle B, and bundle B over bundle C, then he will indirectly prefer bundle A over bundle C.
(ii) According to indifference law if a consumer is indifferent between bundle A and B, and bundle B and C, then he will be indifferent over bundle A and C too.

10.What are monotonic preferences? Explain why is an indifference curve (Delhi 2011)
(i) Downward sloping from left to right
(ii) Convex to the origin.

Ans. Monotonic preferences means that greater consumption of a commodity by the consumer gives him higher level of satisfaction.
(i) **Downward sloping from left to right.**
Indifference curve is a curve showing different combinations of two goods, each combination offering the same level of satisfaction to the consumer. So that the consumer is indifferent, between all set of bundles.
An indifference curve always slopes downward from left to the right, i.e. it has a negative slope. It is because of the simple reason that if the consumer wants to have more units of one good, he will have to reduce the number of units of another good, his level of satisfaction remaining unchanged, in other words, an indifference curve slope downwards because of limited income of the consumer



Downward sloping indifference curve

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(ii) **Convex to the origin**

Marginal Rate of Substitution Marginal Rate of Substitution refers to the rate at which the consumer is willing to sacrifice one good to obtain one more unit of the other good.

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11. Explain the concept of Marginal Rate of Substitution (MRS) by giving an example. What happens to MRS when consumer moves downward along the indifference curve? Give reasons for your answer.(Delhi2011)

Ans. Marginal Rate of Substitution refers to the rate at which the consumer is willing to substitute one good to obtain one more unit of the other good. Symbolically,

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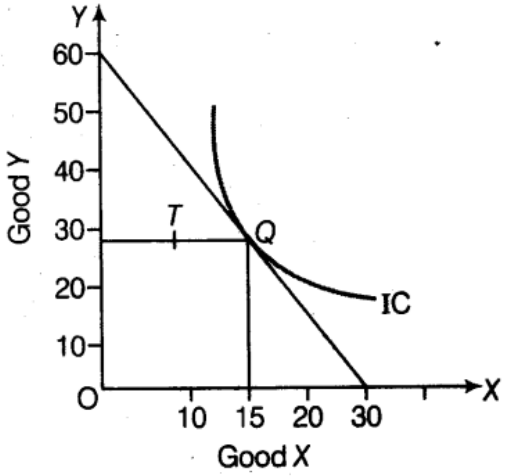
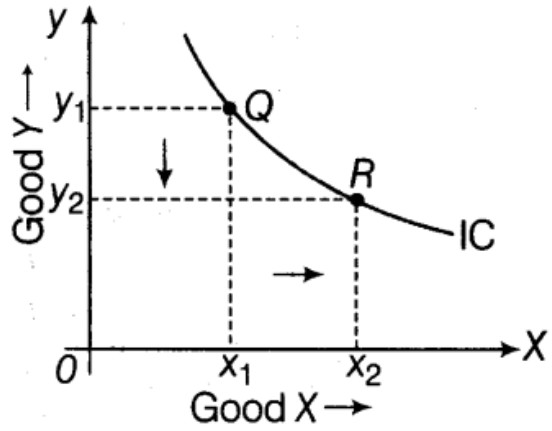


Suppose initially, the consumer is at point Q where he units of good X and yj units of good. Now, the consumer comes down to point R i.e. the consumer wants to have more of x from xj to x_2 (where x_2 > X|) it reduces the MU of x. Therefore, he will be willing to sacrifice less unit of y. As he goes on obtaining more and more of x, MU of x starts declining, so he will sacrifice lesser and units of good y say fromyi toy_2 and so on.



Indifference curve

Suppose initially, the consumer is at point Q where he get x1 units of good X and units of good. Now, the consumer comes down to point R i.e. the consumer wants to have more of x from x-j to x_2 (where x_2 > X|) it reduces the MU ofx. Therefore, he will be willing to sacrifice less unit of y. As he goes on obtaining more and more of x, MU of x starts declining, so he will sacrifice lesser and units of good y say from y-| to y_2 and so on.