

I choose the correct answer

1. Utility is

- a) Objective
- b) Subjective
- c) Both a and b
- d) None of the above

Ans: (b) Subjective

2. The shape of an Indifference curve is normally

- a) Convex to the origin
- b) Concave to the origin
- c) Horizontal
- d) Vertical

Ans: (a) Convex to the origin

3. The consumption bundle that are available to the consumer depend on

- a) Colour and shape
- b) Price and income
- c) Income and quality
- d) None of the above

Ans: (b) Price and income

4. The equation of Budget line is

- a) $P_x + p_1x_1 = M$
- b) $M = P_0X_0 + P_x$
- c) $P_1x_1 + p_2x_2 = M$
- d) $Y = Mx + C$

Ans: c) $P_1x_1 + p_2x_2 = M$

5. The demand for these goods increases as income increases

- a) Inferior goods
- b) Giffen goods
- c) Normal goods
- d) none of the above

Ans: (c) Normal goods

6. A vertical demand curve is

- a) Perfectly elastic
- b) Perfectly inelastic
- c) Unitary elastic
- d) None of the above

Ans: (b) Perfectly inelastic

7. Ordinal utility analysis expresses utility in

- a) Numbers
- b) Returns
- c) Ranks
- d) awards

Ans: (c) Ranks

II Fill in the blanks

1. Wants satisfying capacity of commodity is

Ans: Utility

2. Two indifference curves never each other.

Ans: Intersect

3. As income increases, the demand curve for normal goods shifts towards.....

Ans: Rightward

4. The demand for a good moves in thedirection of its price

Ans: Opposite

5. Method of adding two individual demand curve is called as.....

Ans: Horizontal summation

III Match the following

A

B

- | | |
|---------------------------------|-----------------------------------|
| 1. Demand curve | a) $D(p)=a-bp$ |
| 2. Linear Demand curve | b) Downward sloping |
| 3. Unitary elasticity of demand | c) Pen and ink |
| 4. Complementary goods | d) A family of Indifference curve |
| 5. Indifference map | e) $ ed =1$ |

Ans: 1-b; 2-a; 3-e; 4-c; 5-d;

IV Answer the following questions in a sentence or a word

1. What is budget line?

Ans: The line consists of all bundles of goods which cost exactly equal to the money income of consumer is called budget line. It represents all bundles which costs entire income of consumer. It slopes negatively.

2. What do you mean cardinal utility analysis?

Ans: When the utility is measured in numbers like 1,2,3,4,...., it is called as cardinal utility analysis. It was advocated by Prof.Alfred Marshall.

3. Give the meaning of marginal utility.

Ans: It is the additional utility derived by the consumer by consuming additional unit of a commodity. It represents the utility of single unit. It may be written as $MU=TU_n-TU_{n-1}$.

4. What is utility?

Ans: Utility refers to the want-satisfying power of a commodity or a service.

5. Expand MRS.

Ans: Marginal Rate of Substitution.

6. What do you mean by indifference curve?

Ans: Indifference curve shows the different combinations of two products in which the consumer gets equal satisfaction.

7. What is demand?

Ans: The concept ‘demand’ refers to the quantity of a good or service that a consumer is willing and able to purchase at various prices, during a period of time. It includes desire for a commodity, ability to pay and willingness to pay.

V Answer the following in 4 sentences

1. What are the differences between budget line and budget set?

Ans: Budget Line

- It is locus of different combinations of the two goods which the consumer consumes and whose price exactly equals his income.
- It is also known as Price line.

Budget Set

- It is a collection of all bundles available to a consumer at the existing price at his given level of income.
- It is also known as opportunity set

3. What do you mean by inferior goods? Give example.

Ans: The inferior goods are those goods for which the demand increases with the fall in income of consumer and vice-versa. That is, there will be a negative relationship between income of consumer and demand for inferior goods. Here the income of consumer and demand move in opposite directions.

Example: Ragi, jower, Low quality goods.

4. What is monotonic preference?

Ans: A consumer’s preferences are said to monotonic if and only if between any two bundles, the consumer prefers the bundle which has more of at least one of the goods and no less of the other good as compared to the other bundle.

For instance, the consumer, between any bundles say (x_1, x_2) and (y_1, y_2) , if (x_1, x_2) has more of at least one of the goods and no less of the other good compared to (y_1, y_2) then the consumer prefers (x_1, x_2) to (y_1, y_2) . This is called monotonic preferences.

Here the consumer will not remain indifferent between two combinations of commodities when he has an opportunity to have more quantity in one combination than the other.

5. State the law of demand?

Ans: Law of Demand states that other things being equal, there is a negative relation between demand for a commodity and its price.

In other words, when price of the commodity increases, demand for it falls and when price of the commodity decreases, demand for it raises, other factors remaining the constant.

The law can be explained in the following manner: “Other things being equal, a fall in price leads to expansion in demand and a rise in price leads to contraction in demand”.

6. Mention two different approaches which explain consumer behaviour.

Ans m: The two approaches which explain consumer behaviour are:

- a) Cardinal Utility Analysis – Law of Diminishing Marginal Utility
- b) Ordinal Utility Analysis – Indifference Curve analysis

7. What do you mean price elasticity of demand?

Ans: Price elasticity of demand is a measure of the responsiveness of the demand for a good to changes in its price.

In the words of Prof. Stonier & Hague, “Price elasticity of demand is a technical term used by economists to describe the degree of responsiveness of the demand for a good to a change in its price.

It is measured by using the following formula.

$$PED = \frac{\text{Percentage change in demand for the good}}{\text{Percentage change in price of the good}}$$

VI Answer the following questions in 12 sentences

1. Write the differences between total utility and marginal utility.

Total Utility

- It is the aggregate utility derived by the consumer by consuming all the units.
- It represents utility of all the units consumed.
- It may be symbolically written as $TU_n = U_1 + U_2 + U_3 + U_4 + \dots + U_n$.
- It increases in the beginning and later decreases as the consumer consumes more and more units.

Marginal Utility

- It is the additional utility derived by the consumer by consuming additional unit
- It represents the utility of single unit.
- It may be written as

$$MU_n = TU_n - TU_{n-1}$$

- It decreases from the beginning and becomes negative later.

2. Briefly explain the budget set with the help of a diagram.

Ans: The budget set is the collection of products that the consumer can buy with his income at the prevailing market prices. The Budget set is also known as opportunity set. It includes all the bundles (all possible combination of two goods) which the consumer can purchase with his given level of income.

The budget equation can be written as follows:

$$P_1X_1 + P_2 X_2 \leq M.$$

Consider, for example, a consumer who has Rs.20 and suppose, both the goods are priced at Rs.5 and are available only in integral units. The bundles that this consumer can afford to buy are; (0,0), (0,1), (0,2), (0,3), (0,4), (1,0), (1,1), (1,2), (1,3), (2,0), (2,1), (2,2), (3,0), (3,1) and (4,0).

Among these bundles, (0,4), (1,3), (2,0), (2,2), (3,1) and (4,0) cost exactly Rs.20 and all the other bundles cost less than Rs.20.

If both the goods are perfectly divisible, the consumer's budget set would consist of all bundles (x_1, x_2) such that x_1 and x_2 are any numbers greater than or equal to 0 and $P_1X_1 + P_2 X_2 \leq M$.

The budget set can be represented in a diagram as follows:

Quantity of bananas is measured along the horizontal axis and quantity of mangoes is measured along the vertical axis. Any point in the diagram represents a bundle of the two goods. The budget set consists of all points on or below the straight line having the equation $P_1X_1 + P_2 X_2 = M$.

3. Explain the derivation of slope of the budget line.

Ans: The slope of the budget line measures the quantity of change in one product required per unit of change in another product along the budget line.

For example, the amount of change in mangoes required per unit of change in bananas along the budget line is the derivation of slope of the budget line. It can be represented in diagram as follows:

The absolute value of the slope of the budget line measures the rate at which the consumer is able to substitute bananas for mangoes when she spends her entire budget.

Let us consider two points (x_1, x_2) and $(x_1 + \Delta x_1, x_2 + \Delta x_2)$ on the budget line. It will be as follows:

$$P_1X_1 + P_2 X_2 = M \dots\dots\dots(1)$$

$$P_1(x_1 + \Delta x_1) + P_2(x_2 + \Delta x_2) = M \dots\dots\dots(2)$$

Now subtracting (1) from (2), we get

$$P_1\Delta x_1 + P_2\Delta x_2 = 0 \dots\dots\dots(3)$$

By rearranging terms in (3) we get

$$\Delta x_2 / \Delta x_1 = -P_1 / P_2 \dots\dots\dots(4).$$

Therefore, the slope of the budget line is $-P_1/P_2$. This means, the Indifference curve is negatively sloped i.e., it slopes downwards. An increase in the amount of bananas along the indifference curve is associated with a decrease in the amount of mangoes.

4. Explain the indifference map with the diagram.

Ans: A family of indifference curves is called as indifference map. It refers to a set of indifference curves for two commodities showing different levels of satisfaction. The higher indifference curves show higher level of satisfaction and lower Indifference Curve represent lower satisfaction. A rational consumer always chooses more of that product that offers him a higher level of satisfaction which is represented in higher Indifference Curve. It is also called ‘Monotonic preferences’.

The consumer’s preferences over all the bundles can be represented by a family of indifference curves as shown in the following diagram.

In the above diagram, we see the group of three indifference curves showing different levels of satisfaction to the consumer. The arrow indicates that bundles on higher indifference curves are preferred by the consumer to the bundles on lower indifference curves.

5. Write the differences between substitutes and complements.

Substitute goods

- These are alternative goods available to satisfy our wants.
- If the price of a product increases, the demand for its substitute also increases.
- Example for substitute goods are Tea and Coffee, Colgate and Pepsodant, etc.
- Here the demand curve shifts to the right in case of price rise.
- Price and demand move in same direction.

Complementary goods

- These are the goods which are consumed together.
- If the price of a product increases, the demand for its complementary good decreases.
- Example for complementary goods are Pen and Ink, Shoes and socks etc
- Here the demand curve shifts to left in case of price rise.
- Price and demand move in opposite directions.

6. Explain the differences between normal and inferior goods with examples.

Normal goods

- These are the goods for which the demand increases with the increase in the income of consumer.

- Example for normal goods are food, cloths, electronic goods, luxury goods etc.
- There is positive relationship between income and demand.
- Here the demand curve shifts towards right if the income of consumer increases.

Inferior goods

- These are the goods for which the demand decreases with the increase in the income of consumer.
- Example for inferior goods are low quality of goods like unbranded products.
- There is inverse relationship between income and demand.
- Here the demand curve shifts towards left if the income of consumer increases.

VII Answer the following questions in 20 sentences

1. Explain the law of diminishing marginal utility with the help of a table and diagram.

One of the most important propositions of the cardinal utility approach to demand was the Law of Diminishing Marginal Utility. German Economist Gossen was the first to explain it. Therefore, it is called Gossen’s First Law.

Definition:

According to Alfred Marshall, “The additional benefit which a person derives from a given increase of a stock of a thing diminishes, other things being equal, with every increase in the stock that he already has”.

This law simply tells us that, we obtain less and less utility from the successive units of a commodity as we consume more and more of it.

ASSUMPTIONS OF THE LAW OF DMU

- Uniform quality and size of the commodity: The Successive units of the commodity should not differ in any way either in quality or size.
- Suitable quantity of consumption: The commodity units should notk be very small; Eg. Milk should be in glasses and not in spoons.
- Consumption within the same time: Consumption must be continuous. There should not be so much difference in time between the consumption of successive units.
- No change in the price of the commodity or its substitutes: The law is based on the assumption that the commodity’s price is not changes with successive units. The price of the substitutes is also kept at the same level.
- Utility can be measured in cardinal numbers i.e., 1, 2, 3, 4,
- Consumer must be rational, i.e., every consumer wants to maximize his satisfaction.

Explanation of Law of Diminishing Marginal Utility:

The basis of this law is that every want needs to be satisfied only upto a limit. After this limit is reached the intensity of our want becomes zero. It is called complete satisfaction of the want. Therefore, s we consume more and more units of a commodity to satisfy our need, the intensity of our want for it becomes less and

less. Therefore, the utility obtained from the consumption of every unit of the commodity is less than that of the units consumed earlier. This can be explained with the help of the following table. TU- Total Utility, U- Marginal Utility.

Units of Apples	TU	MU
1	30	30
2	50	20
3	65	15
4	75	10
5	80	5
6	82	2
7	82	0
8	80	-2

Suppose a man wants to consume apples and is hungry. In this condition, if he gets one apple, he has very utility for it. Let us say that the measurement of this utility is equal to 30 utils. Having eaten the first he will not remain so hungry as before. Therefore, if he consumes the second apple he will have a lesser amount of utility from the second apple even if it was exactly like first one. The utility he got from the second apple equals 20 units, the third, fourth, fifth and sixth apples give him utility equal to 15, 10, 5 and 2 units respectively. Now, if he is given the seventh apple he has no use for it. That means the utility of the seventh apple to the consumer is zero. It is just possible that if he is given the eight apple for consumption, it may harm him. Here the utility will be negative i.e., -2. Therefore, we are clear that the additional utility of the successive apples to the consumer goes on diminishing as he consumes more and more of it.

The Law of Diminishing Marginal Utility can be explained with the help of the following diagram.

In the diagram the horizontal axis shows the units of apples and the vertical axis measures the MU and TU obtained from the apple units. The total utility Curve will be increasing in the beginning and later falls. The Marginal Utility curve is falling from left down to the right clearly tells us that the satisfaction derived from the successive consumption of apples is falling.

The Marginal Utility of the first apple is known as initial utility. It is 30 utils. The Marginal utility of the seventh apple is Zero. Therefore, this point is called the satiety point. The Marginal Utility of the eighth apple is -2. So, it is called Negative utility and lies below the X axis.

2. Explain the features of Indifference curves with the help of diagrams.

Ans: The main features of Indifference curves are as follows:

- a) **Indifference curve slopes downwards from left to right:** An indifference curve slopes downwards from left to right because, the consumer in order to have more of one product, he has to forego some units of other product. This can be explained with the help of diagram.

Thus, according to above diagram, as long as the consumer is on the same indifference curve, an increase in bananas must be compensated by a fall in quantity of mangoes. That means, an increase in the amount of bananas along the indifference curve is associated with a decrease in the amount of mangoes.

- b) **Higher indifference curve gives greater level of utility:** As long as marginal utility of a commodity is positive, a consumer always prefers more of that commodity to increase his level of satisfaction. This can be explained with the help of table and a diagram:

Combination	Banana	Mango
A	1	10
B	2	10
C	3	10

Let us consider the different combinations of two goods bananas and mangoes A, B and C in the above table and diagram. All the three combinations consist of same quantity of mangoes but different quantities of bananas. As combination B has more bananas than A, B will provide the consumer higher level of satisfaction than A. Therefore, B will lie on higher indifference curve. Similarly, C has more bananas than B and therefore C will provide higher level of satisfaction than B and also lie on higher indifference curve than B. Thus higher indifference curves give greater level of utility.

- c) **Two indifference curves never intersect each other:** If the two indifference curves intersect each other, they will give conflicting results. This can be explained with the help of diagram.

In the above diagram the two indifference curves have intersected with each other. As points A and B lie on IC₂, utilities derived from A and B are same. Similarly, as points A and C lie on the same indifference curve IC₁, the utilities are same. From this, it follows that utility from point B and C are same. But this is clearly an absurd result as on B, the consumer gets a greater number of mangoes with the same quantity of bananas. So the consumer is better off at point B than at Point C. Thus, it is clear that intersecting indifference curves will lead to conflicting results. Thus, two indifference curves cannot intersect each other.

3. Explain the optimal choice of consumer with the help of diagram.

Ans: It is assumed that the consumer chooses her consumption bundle on the basis of her taste and preferences over the bundles in the budget set. It is generally assumed that the consumer has well defined preferences over the set of all possible bundles. She can compare any two bundles. In other words, between any two bundles, she either prefers one to the other or she is indifferent between the two goods.

It is further assumed that the consumer is a rational individual. A rational individual clearly knows what is good or what is bad for her and in any given situation, she always tries to achieve the best for herself. From the bundles which are available to her, a rational consumer always chooses the one which gives her maximum satisfaction. The consumer always tries to move to a point on the highest possible indifference curve given her budget set.

Thus, the optimum point would be located on the budget line. A point below the budget line cannot be the optimum. Compared to a point below the budget line, there is always some point on the budget line which contains more of at least one of the goods and no less of the other. Thus, the consumer's preferences are monotonic.

The point at which the budget line is tangent to one of the indifference curves would be the optimum choice of consumer. This is because, the budget line other than the point at which it touches the indifference curves lies on a lower indifference curve is considered as inferior. So such a point cannot be the consumer's optimum. The optimum bundle is located on the budget line at the point where the budget line is tangent to an indifference curve.

This can be explained with the help of the following diagram.

In the above diagram, PQ is budget line, IC1, IC2 and IC3 are indifference curves showing different levels of satisfaction. Banana is measured in OX axis and Mango is measured in OY axis. The above diagram illustrates the consumer's optimal choice also known as consumer's equilibrium. At (x_1, x_2) , the budget line PQ is tangent to the indifference curve IC2. The indifference curve just touching the budget line is the highest possible indifference curve given the consumer's budget set. Bundles on the indifference curve above IC2 are not affordable. Points on the indifference curve IC2 are certainly inferior to the points on the IC2 as they lie on IC1. Therefore, (x_1, x_2) is the consumer's optimum bundle.

4. Explain the movement along the demand curve and shift in demand curve with the help of two diagrams.

Ans: It is important to note that the amount of a good that the consumer chooses depends on the price of the good, the prices of other goods, income of the consumer and her tastes and preferences. The demand function is a relation between the amount of the good and its price when other things remain constant.

The demand curve is a graphical representation of the demand function. At higher prices, the demand is less and at lower prices, the demand is more. Thus, any change in the price leads to movements along the demand curve.

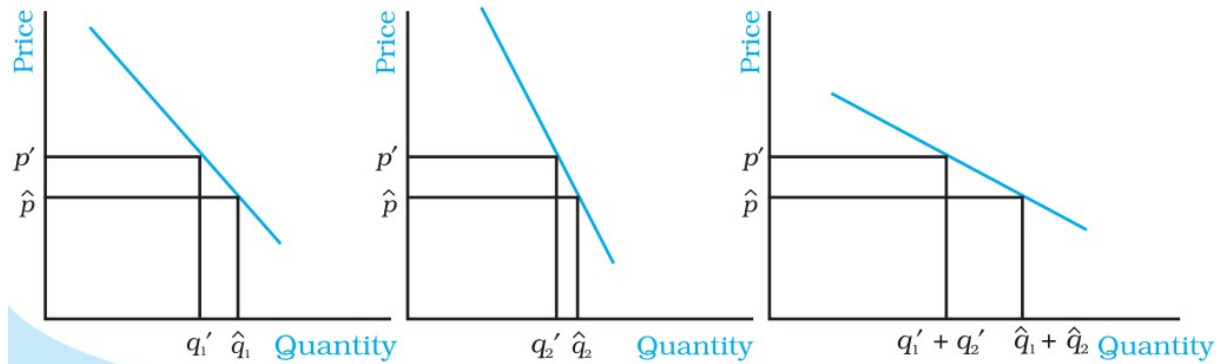
On the other hand, changes in any of the other things like, income of consumer, price of related goods (substitutes and complementary goods) and tastes and preferences, lead to a shift in the demand curve. The following two diagrams depict the movement along the demand curve and a shift in the demand curve.

The above diagrams show movement along a demand curve and shift of a demand curve. Diagram (a) depicts a movement along the demand curve and diagram (b) depicts a shift in the demand curve.

5. Explain the market demand curve with the help of diagrams.

Ans: In the market for a good, there are many consumers. It is important to find out the market demand for the good. "The market demand for a good at a particular price is the total demand of all

consumers taken together”. Derivation of the market demand curve: The market demand curve for a good can be derived from the individual demand curves.



Let's consider there are only two consumers in the market for a good.

Suppose at price, the demand of consumer 1 is and that of consumer 2 is. Then the market demand for a good at is +.

Similarly, at price, if the demand of consumer 1 is and that of consumer 2 is. Then the market demand for a good at is +.

Thus, the market demand for a good at each price can be derived by adding up the demands of the two consumers at that price. If there are more than two consumers in the market for a good, the market demand can be derived similarly.

The market demand curve of a good can also be derived from the individual demand curves graphically by adding up the individual demand curves horizontally. This method of adding two individual demand curves us called „Horizontal Summation“. $p_1 q_2 + p_2 q_1$
 $p_1 \hat{q}_2 + p_2 \hat{q}_1$

VIII Assignment and project oriented question

1. A consumer wants to consume two goods. The Price of bananas is Rs.5 and price of mangoes is Rs.10. The consumer income is Rs.40.

- a) How much bananas can she consume if she spend her entire income on that good
- b) How much mangoes can she consume if she spend her entire income on that good
- c) Is the slope of budget line is downward or upward
- d) Are the bundles on the budget line equal to the consumers' income or not
- e) If you want to have more of banana you have to give up mangoes. Is it true?

Ans:

The given values are; the price of banana (P1) is Rs.5, The Price of mangoes (P2) is Rs.10 and Consumer's income is Rs. 40.

Then, the equation of the budget line will be $p_1x_1 + p_2x_2 = M$, $5x_1 + 10x_2 = 40$

- (a) 8 Bananas (40/5)
- (b) 4 Mangoes (40/10)
- (c) Slope of budget line is downward from left to right.
- (d) Yes, the bundles on the budget line are equal to the consumer's income.
- (e) True. If we want to have more of banana we have to give up mangoes.