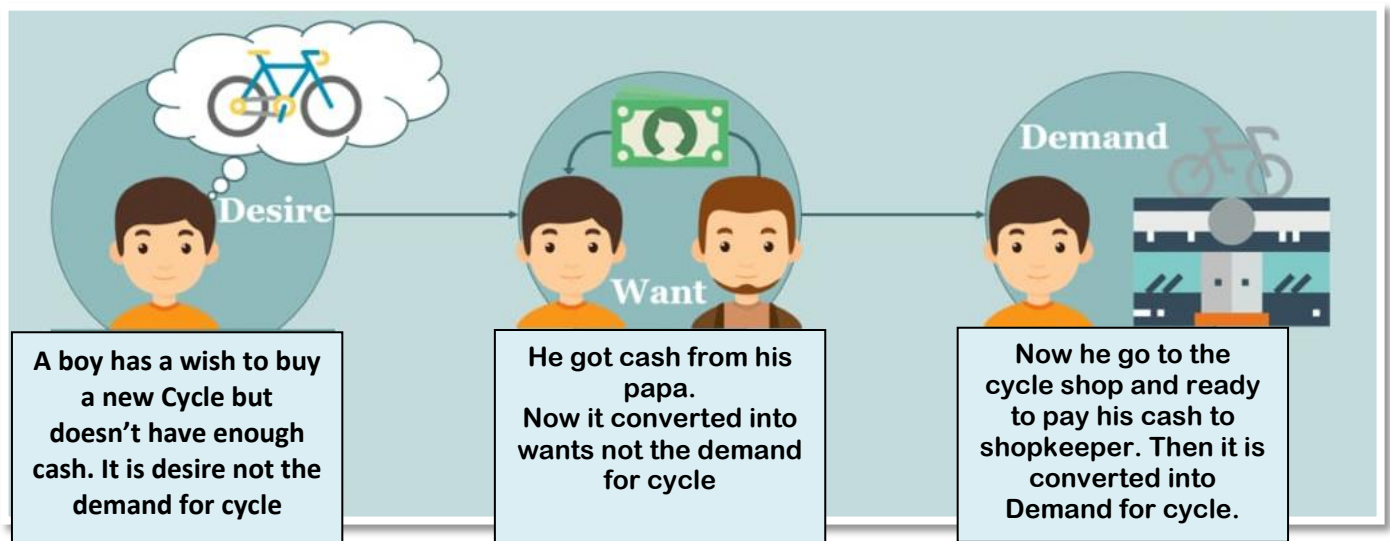


CHAPTER – 2 THEORY OF DEMAND AND SUPPLY

UNIT – 1 THEORY OF DEMAND

MEANING OF DEMAND -

The concept 'demand' refers to the quantity of a good or service that consumers are willing and able to purchase at various prices during a given period of time. It is to be noted that demand, in Economics, is something more than the desire to purchase, though desire is one element of it.



Effective demand for a thing depends on

- i. desire
- ii. Means to purchase and
- iii. Willingness to use those means for that purchase. Unless desire is backed by purchasing power or ability to pay, and willingness to pay, it does not constitute demand. Effective demand alone would figure in economic analysis and business decisions.

Two things are to be noted about the quantity demanded.

- 1) The quantity demanded is always expressed at a given price. At different prices different quantities of a commodity are generally demanded.
- 2) The quantity demanded is a flow. We are concerned not with a single isolated purchase, but with a continuous flow of purchases and we must therefore express demand as 'so much per period of time'

TOPIC – 1
MEANING OF DEMAND



Question 1

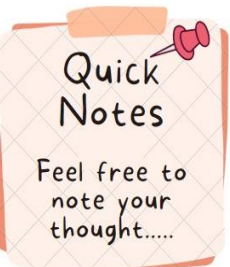
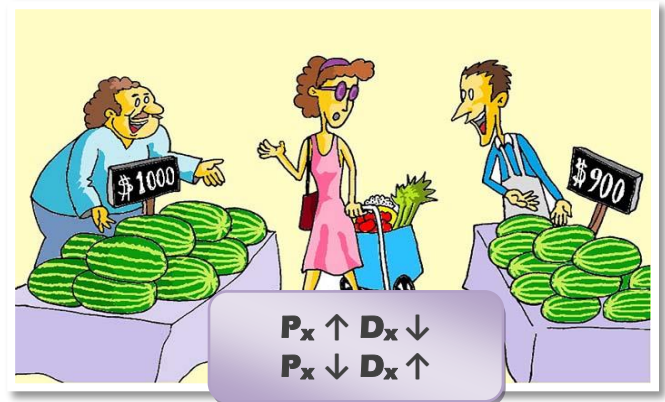
Demand for a commodity refers to -

- a) Desire for the commodity
- b) Need for the commodity
- c) Quantity demanded of that Commodity
- d) Quantity of the commodity demanded at a certain price during any particular period of time

Answer: (d)

WHAT DETERMINES DEMAND?

1. Price of the commodity:
Ceteris paribus i.e. other things being equal, the demand for a commodity is inversely related to its price. It implies that a rise in the price of a commodity brings about a fall in the quantity purchased and vice-versa. This happens because of income and substitution effects.
2. Price of related commodities:
Related commodities are of two types:
 - a) Complementary goods and
 - b) Competing goods or substitutes.





Basis	Competing goods or substitutes	Complementary goods
Definition	Two commodities are called competing goods or substitutes when they satisfy the same want and can be used with ease in place of one another.	Complementary goods are those goods which are consumed together or simultaneously.
Price-Demand Relationship	In the case of these goods, there is always a positive relationship between the price of a commodity and the quantity demanded.	There is always an inverse relationship between the price of the commodity and the quantity demanded of these goods.
Cross Demand	The cross demand is positive for these goods.	For these goods, the cross-demand is negative.
Degree of Cross Elasticity	Less than One. i.e. $E_Y < 1$	Less than zero. i.e. $E_Y < 0$.
Price Effect	The increase in the price of a commodity increases the demand for substitute goods and vice versa.	The increase in the price of a commodity decreases the demand for complementary goods and vice versa.

3. Disposable Income of The Consumer: The purchasing power of a buyer is determined by the level of his disposable income. Other things being equal, the demand for a commodity depends upon the disposable income of the potential purchasers. A decrease in disposable income generally lowers the quantity demanded at all possible prices And Vicer Versa



The nature of relationship between disposable income and quantity demanded depends upon the nature of goods. A basic description of the nature of goods is useful in describing the effect of income on demand.

Goods are of 2 types



Basis	Normal Goods	Inferior Goods
Meaning	These are the goods for which demand increases with a rise in income and vice-versa.	These are the goods for which demand decreases with a fall in income and vice-versa.
Price-Demand Relationship	In the case of these goods, there is always an inverse relationship between the price of commodity and quantity demanded.	There may or may not be an inverse relationship between the price of the commodity and the quantity demanded.
Income Effect	The income effect is positive here.	For these goods, the income effect is negative.
Essentials of life	These goods may or may not be the essentials of life.	These goods refer to the essentials of life.
Degree of Income Elasticity	Less than One. i.e. $E_Y < 1$	Less than zero. i.e. $E_Y < 0$.
Examples	Some of the examples are- Television, branded clothes, and expensive houses, etc.	Some of the examples are- bread, cereals, peanut butter, and non-branded products, etc.

4. Tastes and preferences of consumers:



The demand for a commodity also depends Upon the tastes and preferences of Consumers and changes in them over a Period of time the demand for a Commodity also depends upon the tastes and preferences of consumers and changes in them over a period of time. Goods

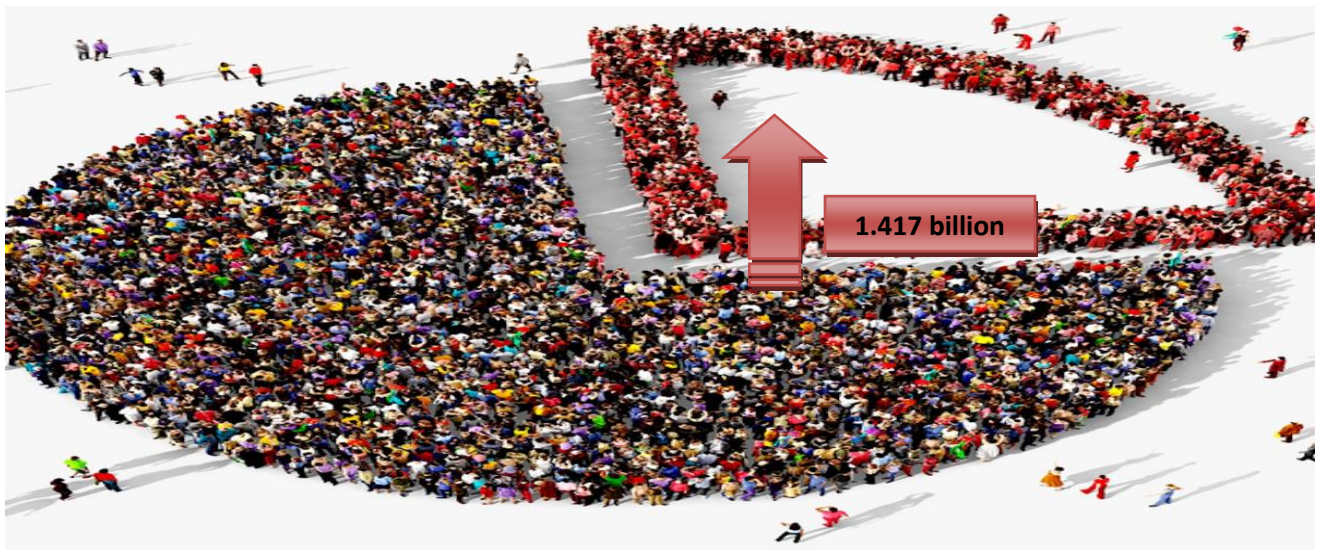


which are more in fashion command higher demand than goods which are of old design and out of fashion. Consumers may perceive a product as obsolete and discard it before it is fully utilised and prefer another good which is currently in fashion.

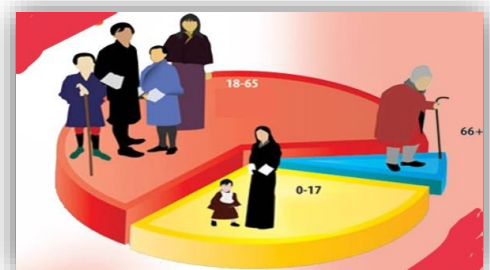
External Effects on Utility

- **Demonstration or Bandwagon effect** - It extent to which the demand for a commodity is increased due to the fact that others are also consuming the same commodity

- **Snob effect** - It extent to which the demand for a consumers' good is decreased owing to the fact that others are also consuming the same commodity. This represents the desire of people to be exclusive; to be different; to dissociate themselves from the "common herd."
 - **Veblen effect** - Highly priced goods are consumed by status seeking rich people to satisfy their need for conspicuous consumption
5. **Consumer Expectations**: Consumers' expectations regarding future prices, income, supply conditions etc. influence current demand. If the consumers expect increase in future prices, increase in income and shortages in supply, more quantities will be demanded. If they expect a fall in price or fall in income they will postpone their purchases of nonessential commodities and therefore, the current demand for them will fall.
6. **Other Factors**: Apart from the above factors, the demand for a commodity depends upon the following factors:
- a) **Size of population**: Generally, larger the size of population of a country or a region, greater is the demand for commodities in general.



- b) **Age Distribution of Population**: If there are more Old people in a region, the demand for spectacles, Walking sticks, etc. will be high. Similarly, if the Population consists of more of children, demand For toys, baby, foods, toffees, etc. will be more.



c) The level of National Income and its Distribution:

The level of national income is a crucial Determinant of market demand. Higher the National income, higher will be the demand For all normal goods and services.

d) Consumer-credit facility and interest rates:

Availability of credit facilities induces people To purchase more than what their current Incomes permit them. Credit facilities mostly determine the demand for durable goods which are expensive and require bulk payments at the time of purchase. Low rates of interest encourage People to borrow and therefore demand will be more.

e) Government policies and Regulations: : The governments influence demand through its taxation, purchases, expenditure, and subsidy policies. While taxes increase prices and decrease the quantity demanded, subsidies decrease the prices and increase the quantity demanded.

Apart from above, factors such as weather conditions, business conditions, stage of business cycle, wealth, levels of education, marital status, socioeconomic class, group membership, habits of the consumer, social customs and conventions, salesmanship and advertisements also play important roles in influencing demand.

“P.O.I.N.T.”

P → Price of other goods (substitute or complementary)

O → Outlook (consumer expectations of the future)

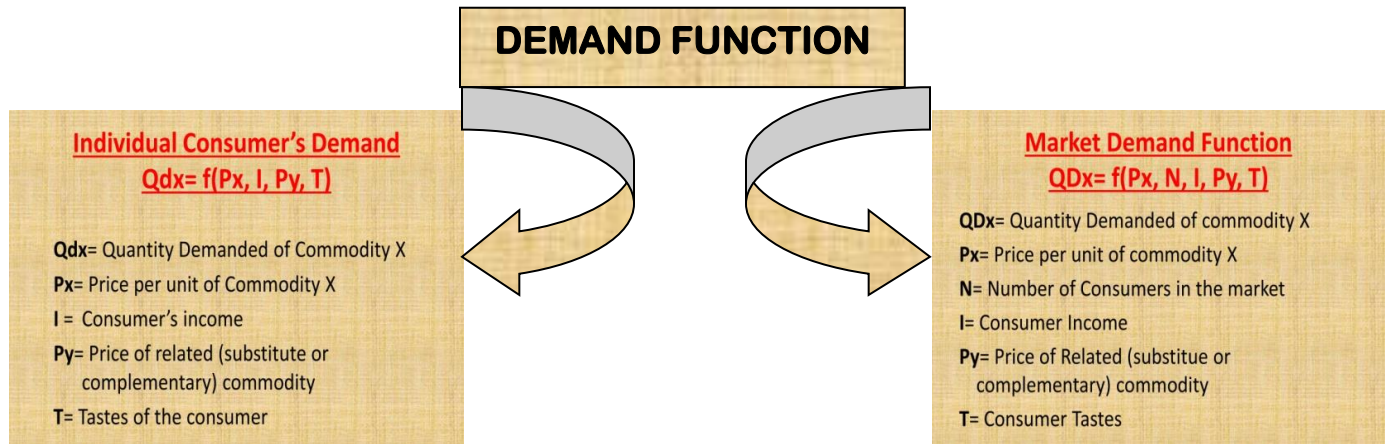
I → Income (normal goods versus inferior goods)

N → Number of potential customers (pop. of market)

T → Taste (fashion or trends)

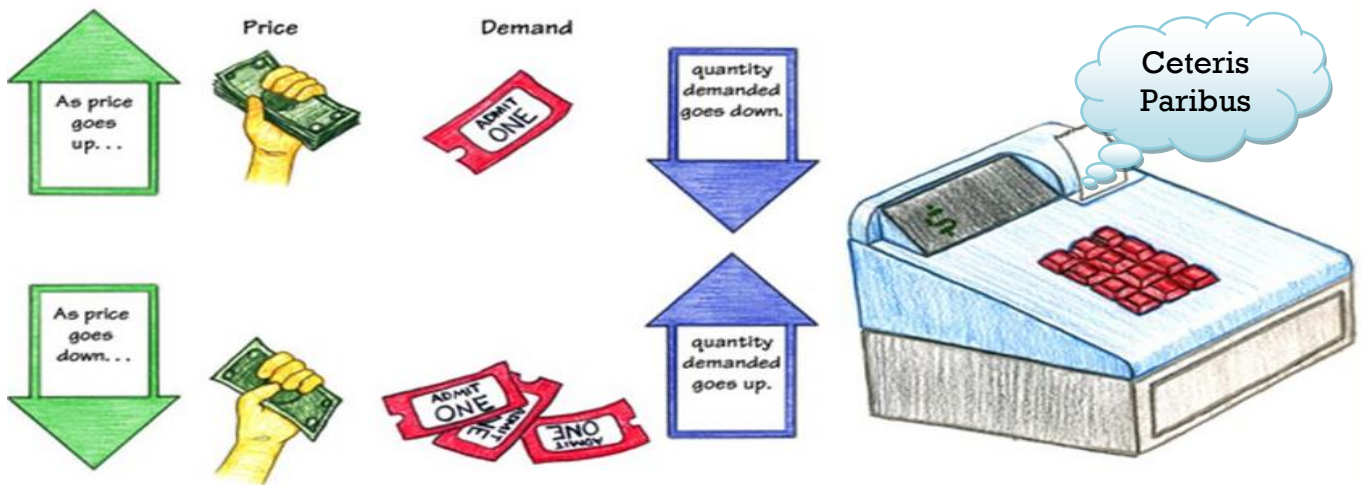
DEMAND FUNCTION -

The demand function states the relationship between the demand for a product (the dependent variable) and its determinants (the independent or explanatory variables). A demand function is of two types:-



LAW OF DEMAND-

According to the law of demand, other things being equal, if the price of a commodity falls, the quantity demanded of it will rise and if the price of a commodity rises, its quantity demanded will decline.

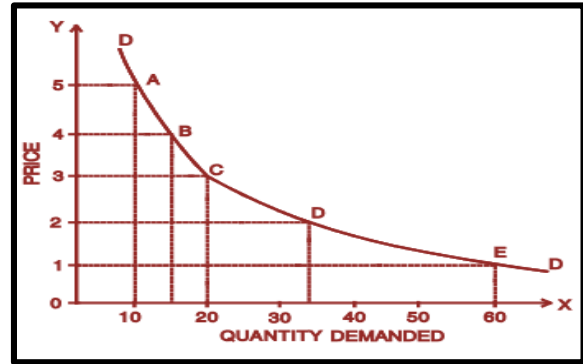


Definition of the Law of Demand Prof. Alfred Marshall defined the Law thus: "The greater the amount to be sold, the smaller must be the price at which it is offered in order that it may find purchasers or in other words the amount demanded increases with a fall in price and diminishes with a rise in price"

INDIVIDUAL DEMAND SCHEDULE

A demand schedule is a table showing the quantities of a good that buyers would choose to purchase at different prices, per unit of time, with all other variables held constant. To illustrate the relation between the quantity of a commodity demanded and its price, we may take a hypothetical data for prices and quantities of ice-cream. A demand schedule is drawn upon the assumption that all the other influences remain unchanged. It thus attempts to isolate the influence exerted by the price of the good upon the amount sold.

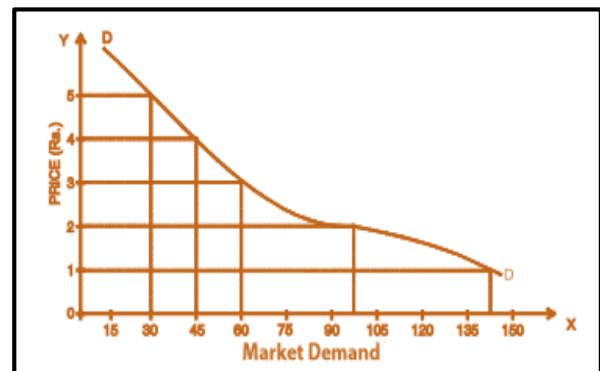
	Price (In Rupees)	Quantity demanded (Units)
A	5	10
B	4	15
C	3	20
D	2	35
E	1	60



MARKET DEMAND SCHEDULE-

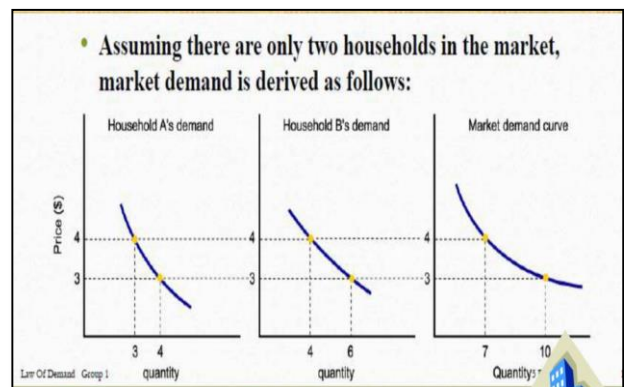
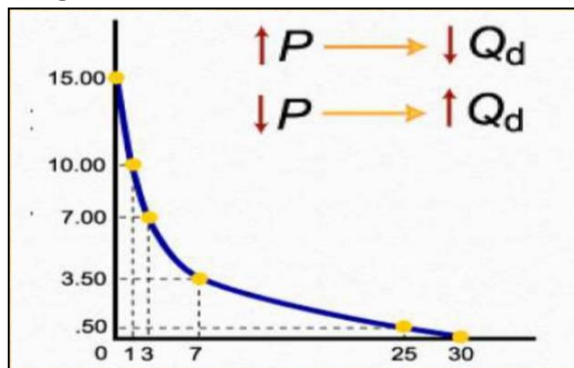
The market demand for a commodity gives the alternative amounts of the commodity demanded per time period, at various alternative prices, by all the buyers in the market. In other words, it is the total quantity that all the buyers of a commodity are willing to buy per unit of time at a given price, other things remaining constant. The market demand for a commodity thus depends on all the factors that determine the individual's demand and, in addition, on the number of buyers of the commodity in the market.

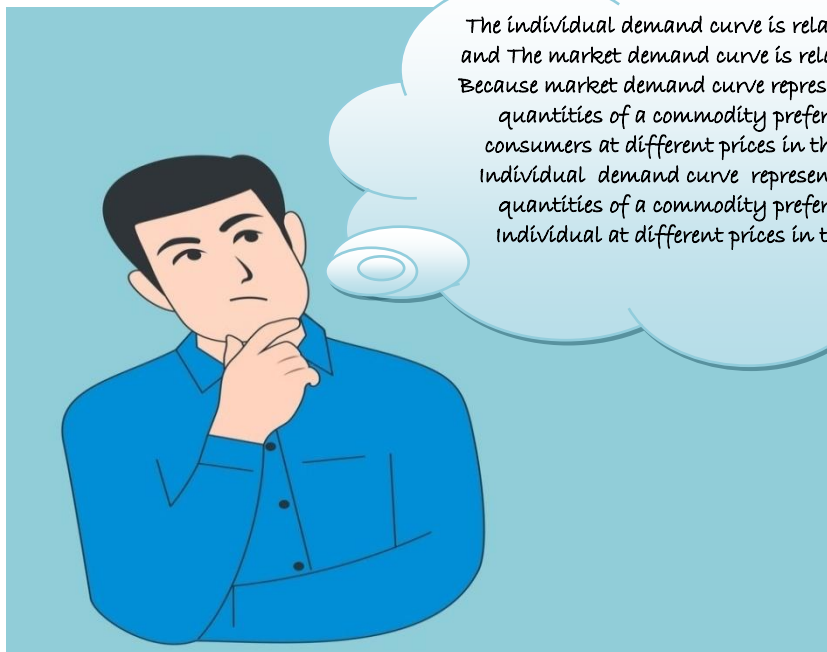
Price (₹)	Quantity demanded by			Total Market Demand
	P	Q	R	
5	10	8	12	30
4	15	12	18	45
3	20	17	23	60
2	35	25	40	100
1	60	35	45	140



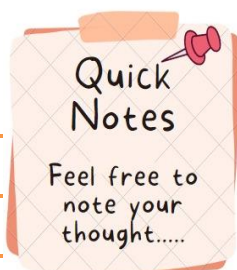
THE DEMAND CURVE

A demand curve is a graphical presentation of the demand schedule. By convention, the vertical axis of the graph measures the price per unit of the good. The horizontal axis measures the quantity of the good, which is usually expressed in some physical measure per time period. By plotting each pair of values as a point on a graph and joining the resulting points, we get the individual's demand curve for a commodity. It shows the relationship between the quantities of a good that buyers are willing to buy and the price of the good.





The individual demand curve is relatively steeper and The market demand curve is relatively flatter Because market demand curve represents different quantities of a commodity preferred by all consumers at different prices in the market & Individual demand curve represents different quantities of a commodity preferred by an individual at different prices in the market



TOPIC – 2
DETERMINANTS OF DEMAND,
DEMAND FUNCTION, SCHEDULE & CURVE

**Question 1**

The important Factor that determines demand:-

- a) Price of the commodity
- b) Price of related commodities
- c) Income of the consumer
- d) All

Question 2

Which of the following pairs of goods is an example of substitutes?

- a) Tea and sugar
- b) Tea and coffee.
- c) Pen and ink
- d) Shirt and trousers.

Question 3

For what types of goods demand fall with rise in income levels of household?

- a) Inferior goods
- b) Luxuries
- c) Substitutes
- d) Necessities

Question 4

In case of inferior goods like bajra, a fall in its price tends to:

- a) Makes the demand remain
- b) Reduce the demand
- c) Increase the demand
- d) Change the demand in an abnormal way

Question 5

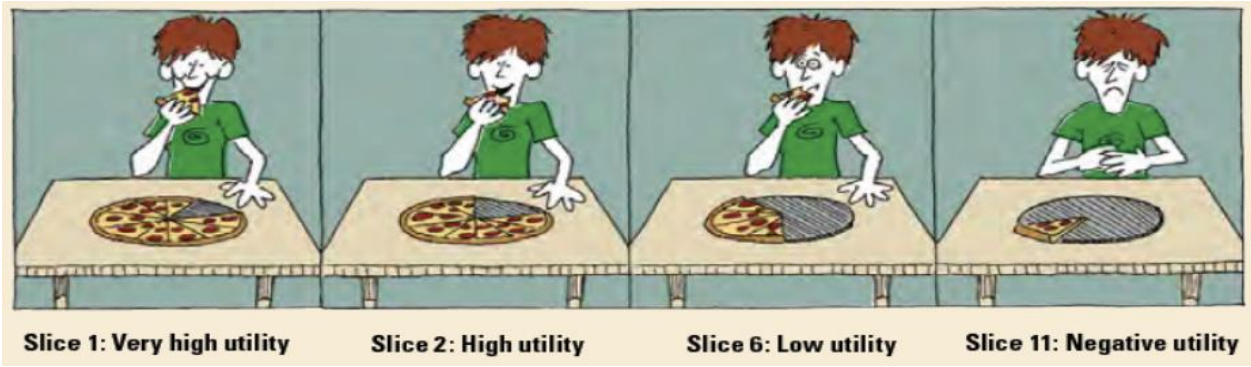
In case of Normal goods, Rise in price leads to?

- a) Fall in demand
- b) Rise in demand
- c) No change
- d) Initially rise then ultimately fall

Answer: 1(d), 2(b), 3(a), 4(b), 5(a)

RATIONALE OF THE LAW OF DEMAND -

1. Law of diminishing marginal utility:



A consumer is in equilibrium (i.e. maximises his satisfaction) when the marginal utility of the commodity and its price equalize. According to Marshall, the consumer has diminishing utility for each additional unit of a commodity and therefore, he will be willing to pay only less for each additional unit.

A rational consumer will not pay more for lesser satisfaction. He is induced to buy additional units only when the prices are lower. The operation of diminishing marginal utility and the act of the consumer to equalize the utility of the commodity with its price result in a downward sloping demand curve.

2. Price effect: The total fall in quantity demanded due to an increase in price is termed as Price effect. The law of demand can be dubbed as “Negative Price Effect” with some exceptions. The price effect manifests itself in the form of income effect and substitution effect.

a. Substitution effect: When the price of a Commodity falls, it becomes relatively Cheaper than other commodities. Assuming that the prices of all other Commodities remain constant, it Induces consumers to substitute the commodity whose price has fallen for other commodities which have now become relatively expensive. The result Is that the total demand for the commodity whose price has fallen increases. This is called substitution effect.

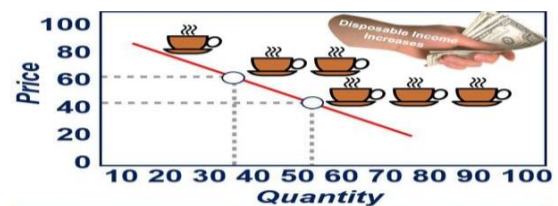


Price of the orange juice increased



Consumer's demand for the cheaper alternative (cranberry juice) increased.

b. Income effect: When the price of a Commodity falls, the consumer can buy the same quantity of the commodity with lesser money or he can buy more of the same commodity with the same amount of money.



In other words, as a result of fall in the price of the commodity, consumer's real income or purchasing power increases. This increase in the real income induces him to buy more of that commodity. Thus, the demand for that commodity (whose price has fallen) increases. This is called income effect.

3. Arrival of new consumers: When the price of a commodity falls, more consumers start buying it because some of those who could not afford to buy it earlier may now be able to buy it.



4. Different uses: Certain commodities have multiple uses. If their prices fall, they will be used for varied purposes and therefore their demand for such Commodities will increase. When the Price of such commodities are high (or rises) they will be put to limited uses only. Thus, different uses of a Commodities make the demand curve Slope downwards reacting to changes in price.



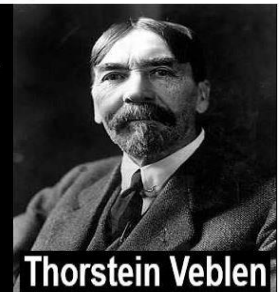
EXCEPTIONS TO THE LAW OF DEMAND

According to the law of demand, other things being equal, more of a commodity will be demanded at lower prices than at higher prices. The law of demand is valid in most cases; however there are certain cases where this law does not hold good. The following are the important exceptions to the law of demand.

- (i) Conspicuous goods: Articles of prestige Value or Snob appeal or articles of Conspicuous consumption are used by The rich people as status symbol for enhancing their social prestige or /and for displaying wealth. These articles will not conform to the usual law of demand as they become more attractive only if their prices are high or keep going up. This Was found out by Veblen in his doctrine of "Conspicuous Consumption" and hence this effect is called Veblen effect or prestige goods effect. Veblen effect takes place as some consumers measure the utility of a commodity by its price i.e., if the commodity is expensive they think that it has got more utility. As such, they buy less of this commodity at low price and more of it at high price. Diamonds are often given as an example of this case. Higher the price of diamonds, higher is the prestige value attached to them and hence higher is the demand.

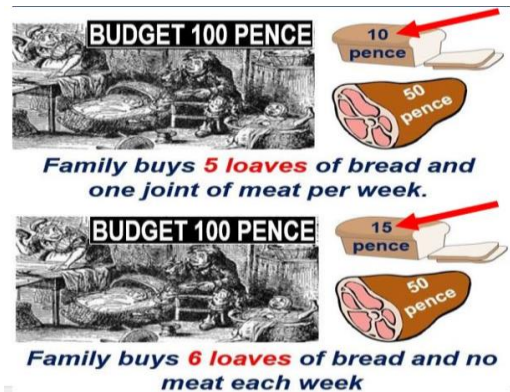


"Conspicuous consumption of valuable goods is a means of reputability to the gentleman of leisure."



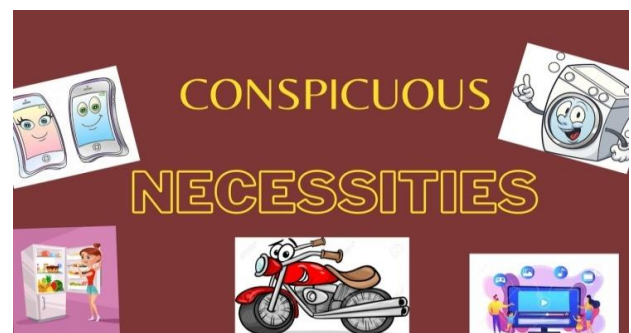
Thorstein Veblen

- (ii) Giffen goods: Sir Robert Giffen, a Scottish economist and statistician, was surprised to find out that as the price of bread increased, the British workers purchased more bread and not less of it. This was something against the law of demand. Why did this happen? The reason given for this is that, when the price of bread went up, it caused such a large decline in the purchasing power of the poor people that they were forced to cut down the consumption of meat and other more expensive foods. Since bread, even when its price was higher than before, was still the cheapest food article, people consumed more of it and not less when its price went up.



Such goods which exhibit direct price-demand relationship are called 'Giffen goods'. Generally those goods which are inferior, with no close substitutes available and which occupy a substantial place in consumers' budget are called 'Giffen goods'. All Giffen goods are inferior goods; but all inferior goods are not Giffen goods. Examples of Giffen goods are coarse grains like bajra, low quality rice and wheat etc.

- (iii) Conspicuous necessities: The demand for certain goods is affected by the demonstration effect of the consumption pattern of a social group to which an individual belongs. These goods, due to their constant usage, become necessities of life. For example, in spite of the fact that the prices of television sets, refrigerators, air-conditioners etc. have been continuously rising, their demand does not show any tendency to fall.



- (iv) Future expectations about prices: It has been observed that when the prices are rising, households, expecting that the prices in the future will be even higher, tend to buy larger quantities of such commodities. For example, when there is wide-spread drought, people expect that prices of food grains would rise in future. They demand greater quantities of food grains even as their price rises. On the contrary, if prices are falling and people anticipate further fall, rather than buying more, they postpone their purchases. However, it is to be noted that here it is not the law of demand which is invalidated. There is a change in one of the factors which was held constant while deriving the law of demand, namely change in the price expectations of the people.

(v) Incomplete information and irrational behaviour:

The law has been derived assuming consumers to be rational and knowledgeable about market-Conditions. However, at times, consumers have incomplete information and therefore make inconsistent decisions regarding purchases. Similarly, in practice, a household may demand larger quantity of a commodity even at a higher price because it may be ignorant of the ruling price of the commodity. Under such circumstances, the law will not remain valid.

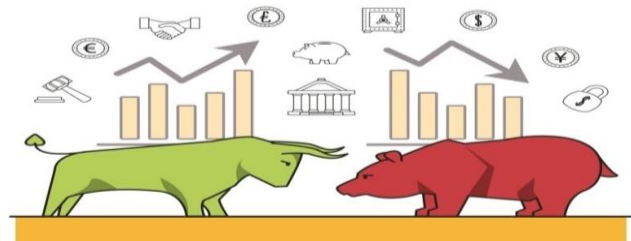


Sometimes, consumers tend to be irrational and make impulsive purchases without any rational calculations about the price and usefulness of the product and in such contexts the law of demand fails

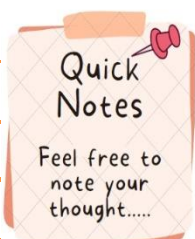
(vi) Demand for necessities: The law of demand does not apply much in the case of necessities of life. Irrespective of price changes, people have to consume the minimum quantities of necessary commodities.



(vii) Speculative goods: In the speculative market, particularly in the market for stocks and shares, more will be demanded when the prices are rising and less will be demanded when prices decline.



The law of demand will also fail if there is any significant change in other factors on which demand of a commodity depends. If there is a change in income of the household, or in the prices of related commodities or in tastes and fashion etc., the inverse demand and price relation may not hold good.



TOPIC – 3
LAW OF DEMAND, ITS REASONS & EXCEPTIONS

**Question 1**

Normally, when the price of a commodity increases its demand:

- a) Remains constant
- b) Increases
- c) Decreases
- d) Zero

Question 2

Giffen goods are the Exceptions of law of Demand?

- a) True
- b) False
- c) Can't true
- d) None

Question 3

What is demand function?

- a) Relation between the demand for a Product And its supply
- b) Relationship between the demand For a production and its supply
- c) Relationship between the demand And determinates
- d) None

Question 4

"High priced goods consumed by status seeking rich people to satisfy their need for conspicuous goods" is:

- a) Veblen effect
- b) Bandwagon effect
- c) Snob effect
- d) Demonstration effect

Question 5

If price of the commodity increases, what will be the effect on Quantity demanded?

- a) Decreases
- b) increases
- c) No change
- d) Can't say

Question 6

Demand Function expresses ____ relation between demand of commodity and its factor:

- a) Inverse
- b) Direct
- c) Functional
- d) None of these

Question 7

Demand curve of a normal commodity:-

- a) Downwards from left to right
- b) Upwards from left to right

c) Parallel to x - axis

d) Parallel to y -axis

Question 8

Law of demand relates to:

a) Price only

b) Price and quantity demanded of a good

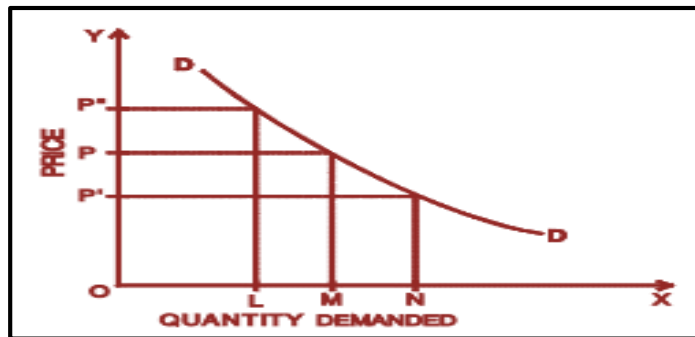
c) Quantity demanded only

d) Supply

Answer: 1(c), 2(a),3(c), 4(a),5(a),6(c),7(a),8(b)

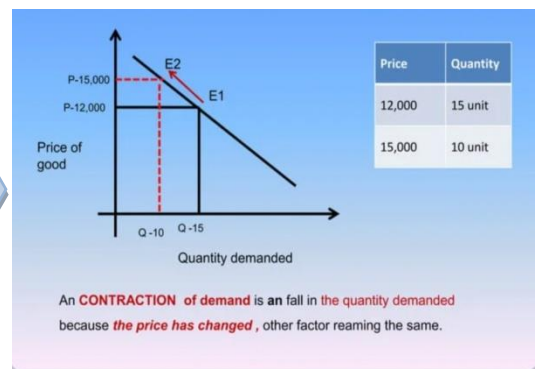
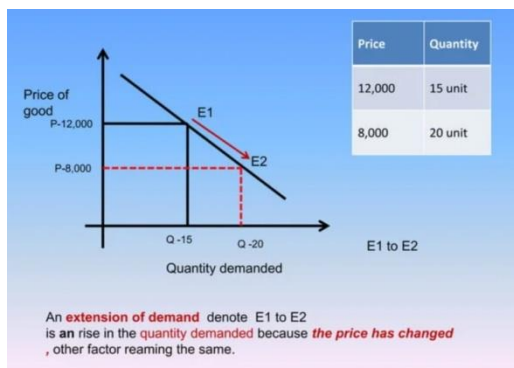
EXPANSION AND CONTRACTION OF DEMAND -

The demand schedule, demand curve and the law of demand all show that when the price of a commodity falls, its quantity demanded increases, other things being equal. When, as a result of decrease in price, the quantity demanded increases



MOVEMENT IN DEMAND CURVE

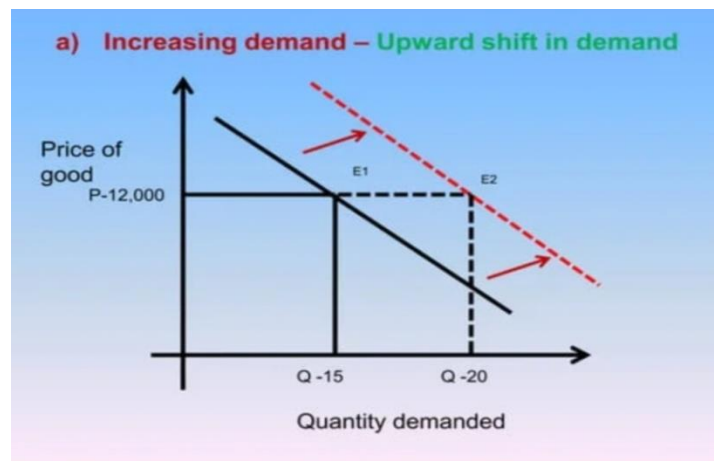
It should be noted that expansion and contraction of demand take place as a result of changes in the price while all other determinants of price viz. income, tastes, propensity to consume and price of related goods remain constant. The 'other factors remaining constant' means that the position of the demand curve remains the same and the consumer moves downwards or upwards on it.



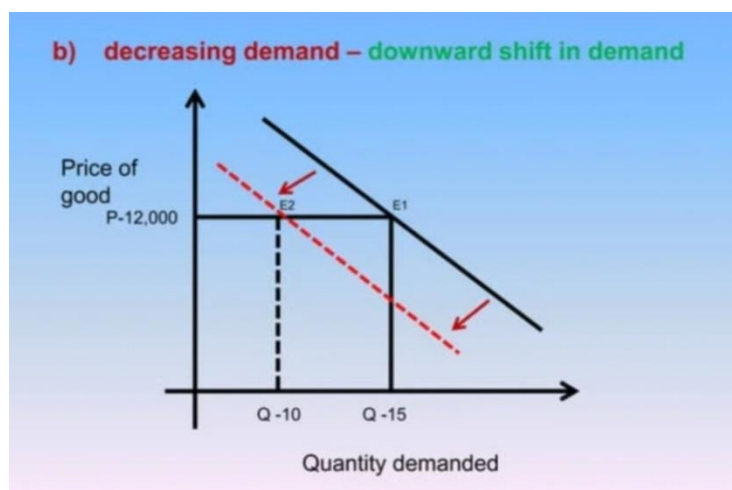
INCREASE AND DECREASE IN DEMAND – SHIFT IN DEMAND CURVE

Demand curve is drawn to show the relationship between price and quantity demanded of a commodity, assuming all other factors being constant. However, other factors are bound to change sooner or later. A change in one of 'other factors' shifts the demand curve it is of two types:-

- A rightward shift in the demand curve (when more is demanded at each price) can be caused by a rise in income a rise in the price of a substitute, a fall in the price of a complement, a change in tastes in favour of this commodity, an increase in population, and a redistribution of income to groups who favour this commodity



- A leftward shift in the demand curve (when less is demanded at each price) can be caused by a fall in income, a fall in the price of a substitute, a rise in the price of a complement, a change in tastes against this commodity, a decreases in population, and a redistribution of income away from groups who favour this commodity.



TOPIC- 4
CHANGE IN DEMAND CURVE

**Question 1**

Movement along the same demand curve show:

- | | |
|---------------------------------------|------------------------------------|
| a) Expansion of demand | b) Expansion of supply |
| c) Expansion of contraction of demand | d) Increase and decrease of demand |

Question 2

A rightward shift in the demand curve is cause due to?

- | | |
|--------------------------------------|--|
| a) When more is demand at each price | b) When less is demanded at each price |
| c) Both | d) None |

Question 3

An increase in demand can result from:

- | | |
|--|--|
| a) A decline in the market price | b) An increase in income |
| c) A reduction in the price of substitutes | d) An increase in the price of complements |

Question 4

In case of movement of the demand curve, it:

- | | |
|-----------------------------|------------------------|
| a) Moves upward or downward | b) Moves left or right |
| c) Both of the above | d) None of the above |

Answer: 1(c), 2(a), 3(b), 4(a)

ELASTICITY OF DEMAND

Elasticity of demand is defined as the responsiveness of the quantity demanded of a good to changes in one of the variables on which demand depends. More precisely, elasticity of demand is the percentage change in quantity demanded divided by the percentage change in one of the variables on which demand depends.

PRICE ELASTICITY -

Price elasticity of demand expresses the response of quantity demanded of a good to a change in its price, given the consumer's income, his tastes and prices of all other goods.

$$EP = \frac{\frac{\text{Change in Quantity}}{\text{Original Quantity}} \times 100}{\frac{\text{Change in Price}}{\text{Original Price}} \times 100}$$

In symbolic terms:

$$EP = \frac{\Delta q}{q} \times \frac{p}{\Delta p} = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

Where –

- Ep stands for price elasticity
- q stands for quantity
- p stands for price
- Δ Stands for a very small change.

Illustration 1

The price of a good decrease from Rs. 100 to Rs. 60 per unit. If the price elasticity of demand for it is 1.5 and the original quantity demanded is 30 units, calculate the new quantity demanded.

Solution:

$$EP = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

$$Ep = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

Here $1.5 = \frac{\Delta q}{40} \times \frac{100}{30} = 18$

Therefore new quantity demanded = 30 + 18 = 48 units

Illustration 2

A 5% fall in the price of a good leads to a 15% rise in its demand. Determine the elasticity and comment on its value.

Solution:

$$\begin{aligned} \text{Price Elasticity} = Ep &= \frac{\% \text{ change in quantity demanded}}{\% \text{ change in Price}} \\ &= 15\% / 5\% = 3 \end{aligned}$$

Comment: The good in question has elastic demand.

Illustration 3

The quantity demanded by a consumer at price ` 9 per unit is 800 units. Its price falls by 25% and quantity demanded rises by 160 units. Calculate its price elasticity of demand.

Solution:

Illustration 4

A consumer buys 80 units of a good at a price of ` 4 per unit. Suppose price elasticity of demand is - 4. At what price will he buy 60 units?

Solution:

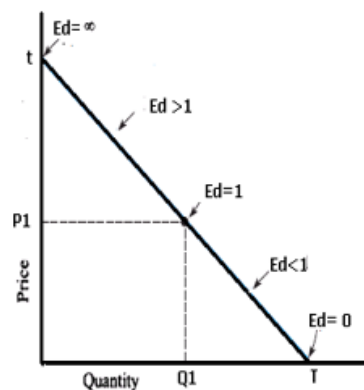
POINT ELASTICITY -

In point elasticity, we measure elasticity at a given point on a demand curve. The concept of point elasticity is used for measuring price elasticity where the change in price is infinitesimal. Point elasticity makes use of derivative rather than finite changes in price and quantity. It may be defined as:

$$EP = \frac{-dp}{dq} \times \frac{p}{q}$$

Measurement of Elasticity on a Linear Demand Curve - Geometric Method

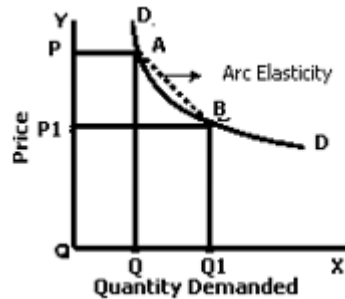
By definition, the price elasticity of demand is the change in quantity associated with a change in price ($\Delta Q/\Delta P$) times the ratio of price to quantity (P/Q). Therefore, the price elasticity of demand depends not only on the slope of the demand curve but also on the price and quantity



Elasticity at Different Points on the Demand Curve

Arc-ELASTICITY -

Often we may be required to calculate price elasticity over some portion of the demand curve rather than at a single point. In other words, the elasticity may be calculated over a range of prices. When price and quantity changes are discrete and large we have to measure elasticity over an arc of the demand curve.



Arc Elasticity formula

$$E_p = \frac{Q_2 - Q_1}{\frac{(Q_2 + Q_1) / 2}{P_2 - P_1}}$$

$$E_p = \frac{Q_2 - Q_1}{Q_2 + Q_1} \cdot \frac{P_2 + P_1}{P_2 - P_1}$$

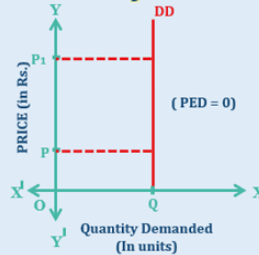
Where P1, Q1 are the original price and quantity and P2, Q2 are the new ones

Interpretation of the numerical values of elasticity of demand

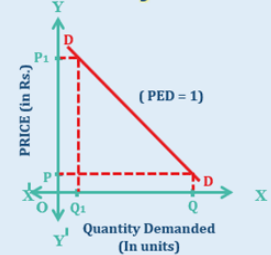
1. Perfectly elastic



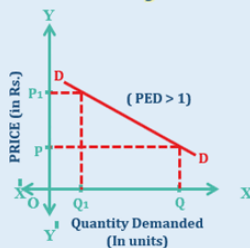
2. Perfectly inelastic



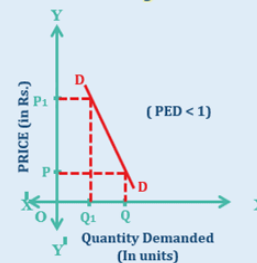
3. Unitary elastic



4. Relatively elastic



5. Relatively inelastic



Tutor'sTips.com

- The numerical value of elasticity of demand can assume any value between zero and infinity.
- Elasticity is zero, if there is no change at all in the quantity demanded when price changes i.e. when the quantity demanded does not respond at all to a price change.
- Elasticity is one, or unitary, if the percentage change in quantity demanded is equal to the percentage change in price.
- Elasticity is greater than one when the percentage change in quantity demanded is greater than the percentage change in price. In such a case, demand is said to be elastic.
- Elasticity is less than one when the percentage change in quantity demanded is less than the percentage change in price. In such a case, demand is said to be inelastic.
- Elasticity is infinite, when a 'small price reduction raises the demand from zero to infinity. Under such a case, consumers will buy all that they can obtain of the commodity at some price. If there is a slight increase in price, they would not buy anything from the particular seller. This type of demand curve is found in a perfectly competitive market.

Elasticity measures, meaning and nomenclature

Numerical measures of elasticity	Verbal Description	Terminology
Zero	Quantity demanded does not change as price change	Perfectly (or completely inelastic)
Greater than zero, but less	Quantity demanded changes by a smaller percentage than	

than one	does price	Inelastic
One	Quantity demanded changes by exactly the same percentage as does price.	Unit elasticity
Greater than one, but less than infinity	Quantity demanded changes by exactly the same percentage as does price.	Elastic
Infinity	Purchases are prepared to buy all they can obtain at some price and none at all at an even slightly higher price	Perfectly (or infinitely) elastic

Total Revenue

Total revenue (TR) = Price × Quantity sold

Price Effect: After a price increase (decrease), each unit sold sells at a higher (lower) price, which tends to raise (lower) the revenue.

Quantity Effect: After a price increase (decrease), fewer (more) units are sold, which tends to lower (increase) the revenue

The relationship between Price elasticity and Total Revenue (TR)

Demand			
	Elastic	Unitary Elastic	Inelastic
Price increase	TR Decreases	TR remains same	TR increases
Price decreases	TR Increases	TR remains same	TR Decreases

DETERMINATES OF PRICE ELASTICITY OF DEMAND

- Availability of substitutes
- Position of a commodity in a consumer's budget
- Nature of the need that a commodity satisfies
- Number of uses to which a commodity can be put
- Time period
- Consumer habits
- Tied demand
- Price ranged
- Minor Complementary Items

INCOME ELASTICITY OF DEMAND -

Income elasticity of demand is the degree of responsiveness of quantity demanded of a good to changes in the income of consumers. In symbolic form,

$$E_i = \frac{\text{Percentage change in demand}}{\text{percentage change in income}}$$

$$\begin{aligned} E_i &= \frac{\Delta Q}{Q} \div \frac{\Delta Y}{Y} \\ &= \frac{\Delta Q}{Q} \times \frac{Y}{\Delta Y} \\ &= \frac{\Delta Q}{\Delta Y} \times \frac{Y}{Q} \end{aligned}$$

- E_i = Income elasticity of demand
- ΔQ = Change in demand
- Q = Original demand
- Y = Original money income
- ΔY = Change in money income

There is a useful relationship between income elasticity for a good and the proportion of income spent on it. The relationship between the two is described in the following three propositions:

1. If the proportion of income spent on a good remains the same as income increases, then income elasticity for the good is equal to one.
2. If the proportion of income spent on a good increase as income increases, then the income elasticity for the good is greater than one.
3. If the proportion of income spent on a good decrease as income rises, then income elasticity for the good is less than one.

Illustration 1

A car dealer sells new as well as used cars. During the previous year were as follows;

Car type	Price	Quantity (Nos)
New	6.5 lakhs	400
Used	60,000	4000

During the previous year, other things remaining the same, the real incomes of the customers rose on average by 10%. During the last year sales of new cars increased to 500, but sales of used cars declined to 3,850.

What is the income elasticity of demand for the new as well as used cars? What inference do you draw from these measures of income elasticity?

Solution:**Income Elasticity of demand for new cars**

Percentage change in income = 10%, given

Percentage change in Quantity of new cars demanded

$$= (\Delta Q/Q) \times 100 = (100/400) \times 100 = 25$$

$$\text{Income elasticity of demand} = 25\% / 10\% = + 2.5$$

New car is therefore income elastic. Since income elasticity is positive, new car is a normal good.

Income Elasticity of demand for used cars

Percentage change in income = 10%, given

% Change in quantity of used cars demanded = $(\Delta Q/Q) \times 100 = (-150/4000) \times 100 = -3.75\%$ Income of

$$\text{elasticity of demand} = -3.75/10 = -0.375$$

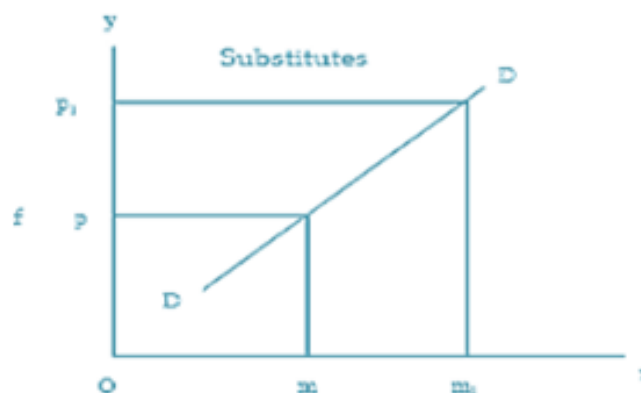
Since Income elasticity is negative, used car is an inferior good.

CROSS ELASTICITY OF DEMAND

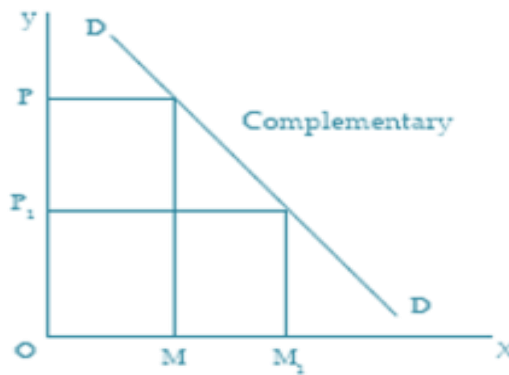
Price of Related Goods and Demand: The demand for a particular commodity may change due to changes in the prices of related goods. These related goods may be either complementary goods or substitute goods. This type of relationship is studied under 'Cross Demand'. Cross demand refers to the quantities of a commodity or service which will be purchased with reference to changes in price, not of that particular commodity, but of other inter-related commodities, other things remaining the same

Substitute Products: In the case of substitute commodities, the cross demand curve slopes upwards (i.e. positively) showing that more quantities of a commodity, will be demanded whenever there is a rise in the price of a substitute commodity.

Therefore, whenever there is an increase in the price of one commodity, the demand for the substitute commodity will increase.



Complementary Goods: In the case of complementary goods, as shown in the figure below, a change in the price of a good will have an opposite reaction on the demand for the other commodity which is closely related or complementary. There is an inverse relationship between price of a commodity and the demand for its complementary good (other things remaining the same).



A change in the demand for one good in response to a change in the price of another good represents cross elasticity of demand of the former good for the latter good. Here, we consider the effect of changes in relative prices within a market on the pattern of demand. Symbolically, (mathematically)

$$E_c = \frac{\Delta q_x}{q_x} \div \frac{\Delta p_y}{p_y}$$

$$E_c = \frac{\Delta Q_x}{p_y} \div \frac{p_y}{q_x}$$

where –

- E_c stands for cross elasticity.
- q_x stands for original quantity demanded of X. Δq_x stands for change in quantity demanded of X.
- p_y stands for the original price of good Y.
- Δp_y stands for a small change in the price of Y.

Illustration 1

A shopkeeper sells only two brands of note books Imperial and Royal. It is observed that when the price of Imperial rises by 10% the demand for Royal increases by 15%. What is the cross price elasticity for Royal against the price of Imperial?

Solution:

$$E_c = \frac{\text{Percentage change in quantity demanded of good X}}{\text{Percentage change in price of good y}}$$

$$E_c = \frac{15\%}{10\%} = +1.5$$

The two brands of note book Imperial and Royal are substitutes with significant substitutability

ADVERTISEMENT ELASTICITY –

Advertisement elasticity of sales or promotional elasticity of demand is the responsiveness of a good's demand to changes in firm's spending on advertising. Advertising elasticity of demand is typically positive.

Higher the value of advertising elasticity greater will be the responsiveness of demand to change in advertisement. Advertisement elasticity varies between zero and infinity. It is measured by using the formula

Advertisement Elasticity:

$$EA = \frac{\% \text{ Change in demand}}{\% \text{ Change in spending on advertising}}$$

$$EA = \frac{\Delta Q_d / Q_d}{\Delta A / A}$$

Where-

- ΔQ_d denotes change in demand.
- ΔA denotes change in expenditure on advertisement. Q_d denotes initial demand.
- A denotes initial expenditure on advertisement.

Illustration 1

Ram and sons are going for heavy advertisement campaign to enhance their sales. When analysed it was realised that the expenditure on advertisement by the company has gone up from Rs. 2,00,000 to Rs. 3,00,000 and the sales of this product increased from 10 lakh units to 20 lakh units. What is the advertising elasticity of demand?

- | | |
|-------|------|
| a) -1 | b) 4 |
| c) 2 | d) 3 |

Answer: 1(C)

ELASTICITY OF DIFFERENT GOODS

- If two goods are perfect substitutes for each other, the cross elasticity between them is infinite.
- Greater the cross elasticity, the closer is the substitute.
- If two goods are totally unrelated, cross elasticity between them is zero.
- If two goods are substitutes (like tea and coffee), the cross elasticity between them is positive, that is, in response to a rise in price of one good, the demand for the other good rises.
- On the other hand, when two goods are complementary (tea and sugar) to each other, the cross elasticity between them is negative so that a rise in the price of one leads to a fall in the quantity demanded of the other.

DEMAND FORECASTING -

Forecasting, in general, refers to knowing or measuring the status or nature of an event or variable before it occurs. Forecasting of demand is the art and science of predicting the probable demand for a product or a service at some future date on the basis of certain past behaviour patterns of some related events and the prevailing trends in the present.

TYPES OF FORECASTS-

1. Macro-level forecasting deals with the general economic environment prevailing in the economy as measured by the Index of Industrial Production (IIP), national income and general level of employment etc.
 - (i) Industry- level forecasting is concerned with the demand for the industry's products as a whole. For example, demand for cement in India.
 - (ii) Firm- level forecasting refers to forecasting the demand for a particular firm's product, say, the demand for ACC cement.
2. Based on time period, demand forecasts may be short-term demand forecasting and long-term demand forecasting.
 - (i) Short-term demand forecasting covers a short span of time, depending of the nature of industry. It is done usually for six months or less than one year and is generally useful in tactical decisions.
 - (ii) Long-term forecasts are for longer periods of time, say two to five years and more. It provides information for major strategic decisions of the firm such as expansion of plant capacity.

DEMAND DISTINCTIONS-

1. Producer's goods and Consumer's goods: Producer's goods are those which are used for the production of other goods - either consumer goods or producer goods themselves.
2. Demand for Durable goods and Non-durable goods: Goods may be further sub-divided into durable and non-durable goods. Non-durable goods are those which cannot be consumed more than once.

On the other hand, durable goods do not quickly wear out, can be consumed more than once and yield utility over a period of time.

3. Derived demand and Autonomous demand: The demand for a commodity that arises because of the demand for some other commodity called 'parent product', is called derived demand
4. Demand for firm's product and industry demand: The term industry demand is used to denote the total demand for the products of a particular industry, e.g. the total demand for steel in the country.
5. Short-run demand and Long-run demand: Short-run demand refers to demand with its immediate reaction to changes in product price and prices of related commodities, income fluctuations, ability of the consumer to adjust their consumption pattern, their susceptibility to advertisement of new products etc.

Long-run demand refers to demand which exists over a long period. Most generic goods have long- term demand. Long term demand depends on long-term income trends, availability of substitutes, credit facilities etc.

FACTOR AFFECTING DEMAND FOR NON-DURABLE CONSUMER GOODS:

1. Disposable income: Other things being equal, the demand for a commodity depends upon the disposable income of the household. Disposable income is found out by deducting personal taxes from personal income.
2. Price: Other things being equal, the demand for a commodity depends upon its own price and the prices of related goods (its substitutes and complements). While the demand for a good is inversely related to its own price and the price of its complements, it is positively related to the price of its substitutes.
3. Demography: This involves the characteristics of the population, human as well as non-human, using the product concerned. For example, it may pertain to the number and characteristics of children in a study of demand for toys and characteristics of automobiles in a study of the demand for tyres or petrol.

Non-durables are purchased for current consumption only.

FACTORS AFFECTING THE DEMAND FOR PRODUCER GOODS:

Since producers' goods or capital goods help in further production, the demand for them is derived demand, derived from the demand of consumer goods they produce. The demand for them depends upon the rate of profitability of user industry and the size of the market of the user industries. Hence data required for estimating demand for producer goods (capital goods) are:

- (i) growth prospects of the user industries;
- (ii) norms of consumption of capital goods per unit of installed capacity.

METHODS OF DEMAND FORECASTING:

1. Survey of Buyers' Intentions: The most direct method of estimating demand in the short run is to ask customers what they are planning to buy during the forthcoming time period, usually a year. This method involves direct interview of potential customers. Depending on the purpose, time available and costs to be incurred, the survey may be conducted by any of the following methods:
 - a) Complete enumeration method where nearly all potential customers are interviewed about their future purchase plans.
 - b) Sample survey method under which only a scientifically chosen sample of potential customers are interviewed.
 - c) End-use method, especially used in forecasting demand for inputs, involves identification of all final users, fixing suitable technical norms of consumption of the product under study, application of the norms to the desired or targeted levels of output and aggregation.

2. Collective opinion method: This method is also known as sales force opinion method or grass roots approach. Firms having a wide network of sales personnel can use the knowledge, experience and skills of the sales force to forecast future demand. Under this method, salesmen are required to estimate expected sales in their respective territories.
3. Expert Opinion method: In general, professional market experts and consultants have specialised knowledge about the numerous variables that affect demand. This, coupled with their varied experience, enables them to provide reasonably reliable estimates of probable demand in future.
4. Statistical methods: Statistical methods have proved to be very useful in forecasting demand. Forecasts using statistical methods are considered as superior methods because they are more scientific, reliable and free from subjectivity. The important statistical methods of demand forecasting are:
 - a) Trend Projection method: This method, also known classical method, is considered as a 'naive' approach to demand forecasting. A firm which has been in existence for a reasonably long time would have accumulated considerable data on sales pertaining to different time periods. Such data, when arranged chronologically, yield a 'time series'. The popular techniques of trend projection based on time series data are;
 - b) Graphical method: This method, also known as 'free hand projection method' is the simplest and least expensive. This involves plotting of the time series data on a graph paper and fitting a freehand curve to it passing through as many points as possible. The direction of the curve shows the trend. This curve is extended into the future for deriving the forecasts. The direction of this free hand curve shows the trend. The main draw-back of this method is that it may show the trend but the projections made through this method are not very reliable.

FITTING TREND EQUATION

Least Square Method: It is a mathematical procedure for fitting a line to a set of observed data points in such a manner that the sum of the squared differences between the calculated and observed value is minimized. This technique is used to find a trend line which best fit the available data.

The least square method is based on the assumption that the past rate of change of the variable under study will continue in the future. The forecast based on this method may be considered reliable only for the period during which this assumption holds.

REGRESSION ANALYSIS

This is the most popular method of forecasting demand. Under this method, a relationship is established between the quantity demanded (dependent variable) and the independent variables (explanatory variables) such as income, price of the good, prices of related goods etc.

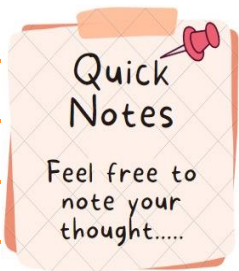
CONTROLLED EXPERIMENTS

Under this method, future demand is estimated by conducting market studies and experiments on consumer behaviour under actual, though controlled, market conditions. This method is also known as market experiment method.

An effort is made to vary separately certain determinants of demand which can be manipulated, for example, price, advertising, etc., and conduct the experiments assuming that the other factors would remain constant.

BAROMETRIC METHOD OF FORECASTING

The various methods suggested till now are related with the product concerned. These methods are based on past experience and try to project the past into the future. Such projection is not effective where there are economic ups and downs.



UNIT - 2

THEORY OF CONSUMER BEHAVIOUR

NATURE OF HUMAN WANTS

In economics, the term 'want' refers to a wish, desire or motive to own or use goods and services that give satisfaction. Wants may arise due to physical, psychological or social factors. Since the resources are limited, we need to make a choice between the urgent wants and the not so urgent wants.



- All wants of human beings exhibit some characteristic features.
- Wants are unlimited in number. All wants cannot be satisfied.
- Wants differ in intensity. Some are urgent, others are less intensely felt
- “Utility” depends on intensity of wants.
- In general, Utility is satisfaction. But in economic sense, Utility is a want satisfying power of a commodity.
- Each want is satiable
- Wants are competitive. They compete each other for satisfaction because resources are scarce in relation to wants
- Wants are complementary. Some wants can be satisfied only by using more than one good or group of goods
- A particular want may be satisfied in alternative ways
- Wants are subjective and relative. And hence, utility is also subjective or relative concept.
- Wants vary with time, place, and person and hence utility.
- Some wants recur again whereas others do not occur again and again
- Wants may become habits and customs
- Wants are affected by income, taste, fashion, advertisements and social norms and customs
- Wants arise from multiple causes such as physical and psychological instincts, social obligations and individual's economic and social status
- Utility is a psychological concept. It is different from usefulness and has no

concern with moral or ethical values.

- The two important concepts of utility are Total Utility (TU) and Marginal Utility (MU) which are useful in theories of consumer behaviour.
- TU refers to the sum total of utilities derived from the consumption of all the units of a commodity consumed by a consumer at a given time. In other words, it is a sum of marginal utilities up to the units consumed by a consumer. $TU = \sum MU$
- MU is the additional utility derived from the consumption of an additional unit of the commodity. $MU = TU_n - TU_{n-1}$ Or $MU = \Delta TU / \Delta N$

CLASSIFICATION OF WANTS

In Economic wants are classified into three categories, viz, necessities, comforts and luxuries.

NECESSARIES:

Necessaries are those which are essential for living.

Necessaries are further sub-divided into necessities for life or existence, necessities for efficiency and conventional necessities. Necessaries for life are things necessary to meet the minimum physiological needs for the maintenance of life such as minimum amount of food, Clothing and shelter. Man requires something more than the necessities of life to maintain longevity, energy and efficiency of work, such as nourishing food, adequate clothing, clean water, comfortable dwelling, education, recreation etc. These are necessities for efficiency. Conventional necessities arise either due to pressure of habit or due to compelling social customs and conventions. They are not necessary either for existence or for efficiency.



COMFORTS:

While necessities make life possible comforts make life comfortable and satisfying. Comforts are less urgent than necessities. Tasty and wholesome food, good house, clothes that suit different occasions, audio-visual and labour saving equipments etc. make life more comfortable.



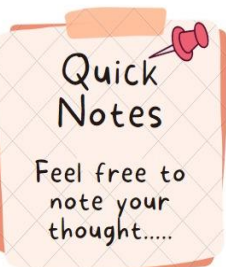
LUXURIES:

Luxuries are those wants which are superfluous and expensive. They are not essential for living. Items such as expensive clothing, exclusive vintage cars, classy furniture and goods used for vanities etc. fall under this category. The above categorization is not rigid as a thing which is a comfort or luxury for one person or at one point of time may become a necessity for another person or at another point of time. As all of us are aware, the things which were considered luxuries in the past have become comforts and necessities today.



UTILITY:

The concept of utility is used in neo Classical Economics to explain the operation of the law of demand. Utility Is the want satisfying power of a commodity.



Lined area for writing notes, consisting of multiple horizontal orange lines.

TOPIC – 1
NATURE AND TYPES OF WANTS

**Question 1**

Human wants are in companion to means to satisfy them.

- | | |
|--------------|--------------|
| a) Finite | b) Unlimited |
| c) Unlimited | d) Limited |

Question 2

Those want which are superfluous and expensive

- | | |
|----------------|-------------|
| a) Comforts | b) Luxuries |
| c) Necessaries | d) None |

Question 3

In Economics wants are classified in to Parts

- | | |
|------|------|
| a) 1 | b) 2 |
| c) 3 | d) 4 |

Question 4

The want satisfying power of a commodity is known as:

- | | |
|------------|----------------|
| a) Supply | b) Consumption |
| c) Utility | d) Demand |

Answer: 1(c), 2(b), 3(c), 4(C)

MARGINAL UTILITY ANALYSIS

This theory which is formulated by Alfred Marshall, a British economist, seeks to explain how a consumer spends his income on different goods and services so as to attain maximum satisfaction. This theory is based on certain assumptions.

Total utility: Assuming that utility is measurable and additive, total utility may be defined as the sum of utility derived from different units of a commodity consumed by a consumer. Total utility is the sum of marginal utilities derived from the consumption of different units' i.e.

$$TU_n = MU_1 + MU_2 + \dots + MU_n$$

Marginal utility: It is the addition made to total utility by the consumption of an additional unit of a commodity. In other words, it is the utility derived from the marginal or one additional unit consumed or possessed by the individual.

Marginal utility = the addition made to the total utility by the addition of consumption of one more unit of a commodity.

Symbolically,

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

Where,

- MU_n is the marginal utility of the n th unit,
- TU_n is the total utility of the n th unit, and
- TU_{n-1} is the total utility of the $(n-1)$ th unit.

ASSUMPTION OF MARGINAL UTILITY ANALYSIS:

1. Rationality: A consumer is rational and attempts to attain maximum satisfaction from his limited money income.



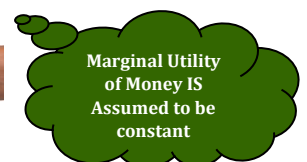
2. Cardinal Measurability of Utility: According to neoclassical economists, utility is a cardinal concept i.e., utility is a measurable and quantifiable entity. It implies that utility can be measured in cardinal numbers and assigned a cardinal number like 1, 2, 3 etc. Marshall and some other economists used a psychological unit of measurement of utility called utils. According to this theory, money is the measuring rod of utility. The amount of money which a person is prepared to pay for a unit of a good, rather than go without it, is a measure of the utility which he derives from the good



3. Constancy of the Marginal Utility of Money: The marginal utility of money remains constant throughout when the individual is spending money on a good. This assumption, although not realistic, has been made in order to facilitate the measurement of utility of commodities in terms of money.



CONSTANT
= CONSTANT



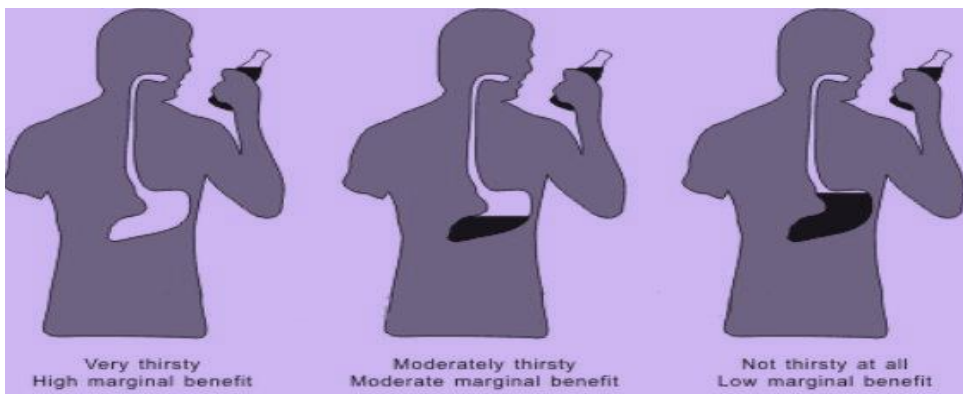
If the marginal utility of money changes as income changes, the measuring-rod of utility becomes unstable and therefore would be inappropriate for measurement.

4. The Hypothesis of Independent Utility: The total utility which a person gets from the whole collection of goods purchased by him is simply the sum total of the separate utilities of the goods. The theory ignores complementarity between goods.

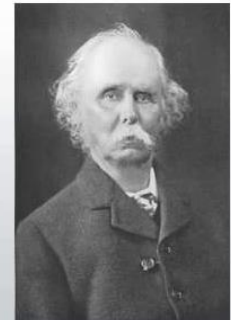
THE LAW OF DIMINISHING MARGINAL UTILITY:

One of the important laws under Marginal Utility analysis is the Law of Diminishing Marginal Utility.

Marshall, who was the exponent of the marginal utility analysis, stated the law as follows: "The additional benefit which a person derives from a given increase in the stock of a thing diminishes with every increase in the stock that he already has."



Alfred Marshall

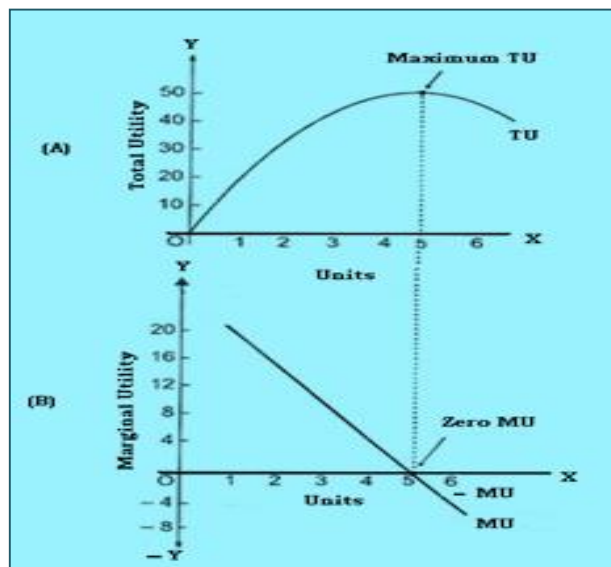


The following important relationships between total utility and marginal utility:

1. Total utility rises as long as MU is positive, but at a diminishing rate because MU is diminishing.
2. Marginal utility diminishes throughout.
3. When marginal utility is zero, total utility is maximum. It is a saturation point.
4. When marginal utility is negative, total utility is diminishing.
5. MU is the rate of change of TU or the slope of TU.
6. MU can be positive, zero or negative

Quantity of chocolate bar consumed per day	Total utility	Marginal utility
1	20	20
2	34	14
3	45	11
4	50	5

5	50	0
6	46	-4



The law states that the consumer is said to be at equilibrium, when the following condition is met:

$$\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y} = MU_M$$

LIMITATIONS OF THE LAW:

The law of diminishing marginal utility is applicable only under certain assumptions.

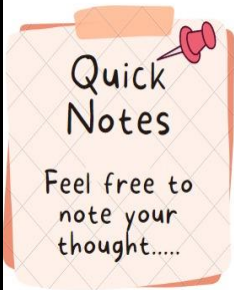
1. Homogenous units: The different units consumed should be identical in all respects. The habit, taste, temperament and income of the consumer also should remain unchanged.
2. Standard units of Consumption: The different units consumed should consist of standard units. If a thirsty man is given water by successive spoonfuls, the utility of the second spoonful of water may conceivably be greater than the utility of the first.
3. Continuous Consumption: There should be no time gap or interval between the consumption of one unit and another unit i.e. there should be continuous consumption.
4. The Law fails in the case of prestigious goods:

The law may not apply to articles like gold, cash, diamonds etc. where a greater quantity may increase the utility rather than diminish it. It also fails to apply in the case of hobbies, alcohol, cigarettes, rare collections etc.



- 5. Case of related goods: Utility is not in fact independent. The shape of the utility curve may be affected by the presence or absence of articles which are substitutes or complements. The utility obtained from tea may be seriously affected if no sugar is available and the utility of bottled soft drinks will be affected by the availability of fresh juice.

- 6. Based on unrealistic assumptions: The assumptions of cardinal measurability of utility, constancy of marginal utility of money, continuous consumption and consumer rationality are unrealistic.



TOPIC – 2
MARGINAL UTILITY ANALYSIS

**Question 1**

Total utility is maximum when:-

- a) Marginal utility is maximum
- b) Marginal utility is zero
- c) Average utility is maximum
- d) Average utility zero

Question 2

Marginal utility approach was given by:

- a) J. R Hicks
- b) Alfred Marshall
- c) Robbins
- d) A. G. Pigou

Question 3

According to the law of diminishing marginal utility__?

- a) Additional consumption always Yield extra utility
- b) Additional consumption leads to lower average total utility
- c) Additional consumption always Yield negative utility
- d) After a point any addition in the consumption causes a reduction

Question 4

When marginal utility from the consumption of a commodity is zero then the:

- a) Total utility is zero
- b) Total utility is rising
- c) Total utility is highest
- d) Total utility is falling

Question 5

The total utility divided by the number of units consumed is known as?

- a) Total utility
- b) Average utility
- c) Marginal utility
- d) None of above

Question 6

Marginal utility is _____

- a) Extra output firm obtains by adding another unit
- b) Explains why product supply curves slope upward
- c) Typically rises as successive units of a good are consumed
- d) Extra satisfaction from consumption of 1 more unit

Question 7

Which of the following statement is not true?

- a) MU is the slope of TU curve
- b) MU cannot be negative
- c) MU is the rate of change of TU
- d) MU can become zero

Question 8

The second glass of lemonade gives lesser satisfaction to thirsty boy. This is a clear case of

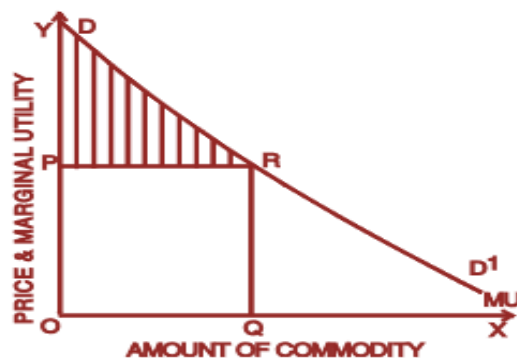
- a) Law of Demand
 b) Law of Diminishing
 c) Law of diminishing marginal utility
 d) Law of supply

Answer: 1(b), 2(b), 3(d), 4(C),5(b),6(d),7(c),8(c)

CONSUMER'S SURPLUS:

Marshall defined the concept of consumer's surplus as the "excess of the price which a consumer would be willing to pay rather than go without a thing over that which he actually does pay", is called consumer's surplus."

Consumer's surplus = what a consumer is ready to pay - what he actually

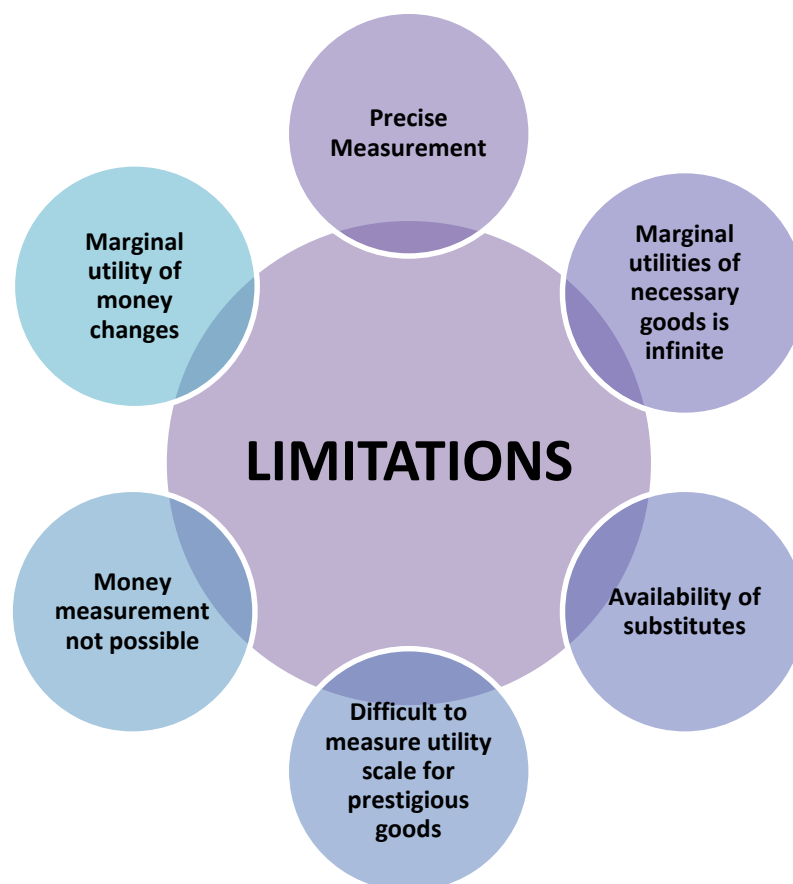


The concept of consumer's surplus is derived from the law of diminishing marginal utility. The law of diminishing marginal utility, the more of a thing we have, the lesser marginal utility it has. In other words, as we purchase more of a good, its marginal utility goes on diminishing. The consumer is in equilibrium when the marginal utility of a good is equal to its price



LIMITATIONS:

1. Consumer's surplus cannot be measured precisely - because it is difficult to measure the marginal utilities of different units of a commodity consumed by a person.
2. In the case of necessities, the marginal utilities of the earlier units are infinitely large. In such case the consumer's surplus is always infinite.
3. The consumer's surplus derived from a commodity is affected by the availability of substitutes
4. There is no simple rule for deriving the utility scale of articles which are used for their prestige value.
5. Consumer's surplus cannot be measured in terms of money because the marginal utility of money changes as purchases are made and the consumer's stock of money diminishes.
6. The concept can be accepted only if it is assumed that utility can be measured in terms of money or otherwise. Many modern economists believe that this cannot be done.



TOPIC – 3
CONSUMER SURPLUS

**Question 1**

Consumer Surplus is based on which concept?

- | | |
|-----------------------------------|------------------|
| a) Diminishing Marginal Utility | b) Law of Demand |
| c) Indifference curve is approach | d) None |

Question 2

Consumer's surplus is also known as?

- | | |
|----------------------|-------------------------|
| a) Different surplus | b) Elasticity of demand |
| c) Buyer's surplus | d) Indifference surplus |

Question 3

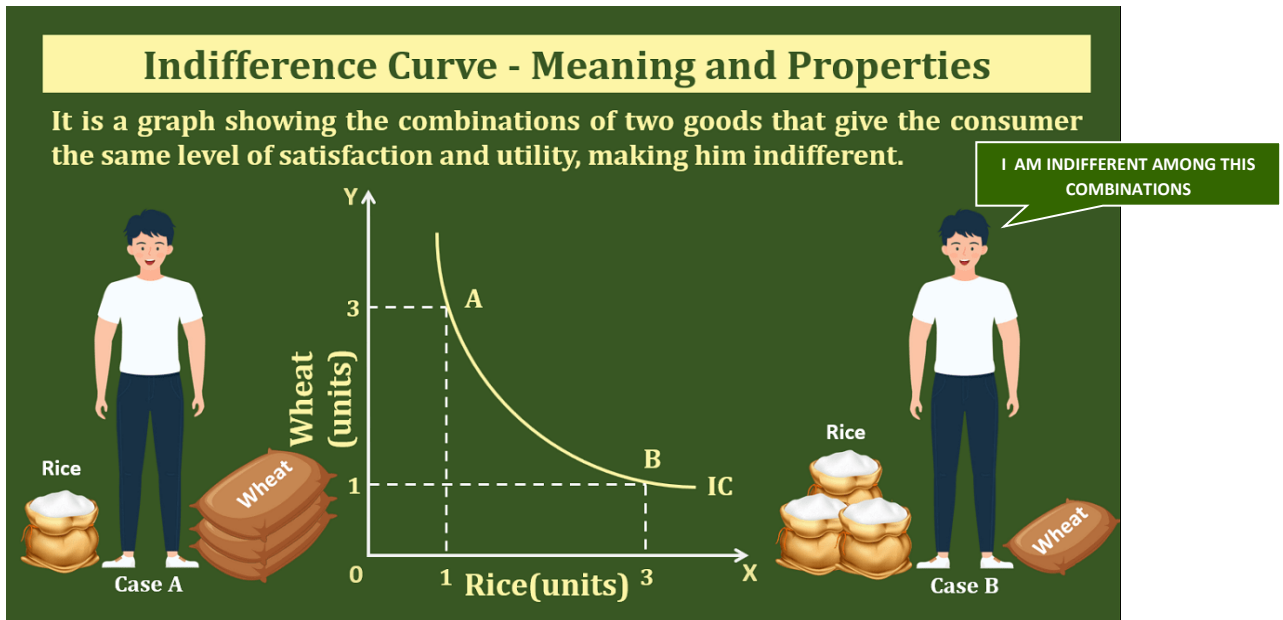
The difference between what a consumer is ready to pay and what he actually pays is:

- | | |
|---------------------|---------|
| a) Consumer Surplus | b) Both |
| c) Consumer deficit | d) None |

Answer: 1(a), 2(c), 3(a)

INDIFFERENCE CURVE ANALYSIS-

A very popular alternative and a more realistic method of explaining consumer's demand is the ordinal utility approach used a different tool namely indifference curve to analyse consumer behaviour. This approach to consumer behaviour is based on consumer preferences.



ASSUMPTIONS UNDERLYING INDIFFERENCE CURVE APPROACH

1. The consumer is rational and possesses full information about all the relevant aspects of economic environment in which he lives.
2. The indifference curve analysis assumes that utility is only ordinally expressible. The consumer is capable of ranking all conceivable combinations of goods according to the satisfaction they yield.
3. Consumer's choices are assumed to be transitive. If the consumer prefers combination A to B, and B to C, then he must prefer combination A to C. In other words, he has a consistent consumption pattern.
4. If combination A has more commodities than combination B, then A must be preferred to B.

INDIFFERENCE CURVES:

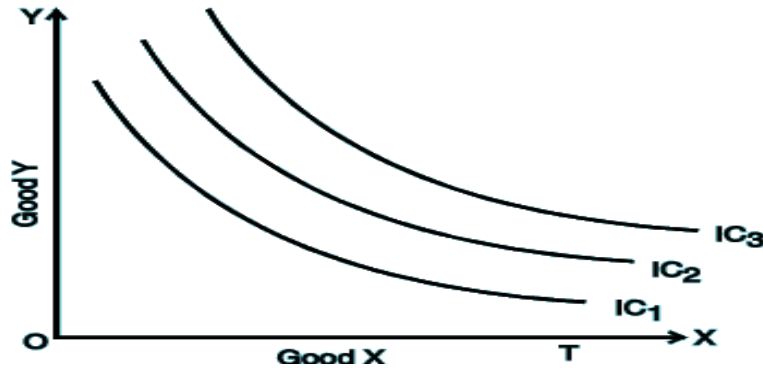
An indifference curve is a curve which represents all those combinations of two goods which give same satisfaction to the consumer. Since all the combinations on an indifference curve give equal satisfaction to the consumer, the consumer is indifferent among them. In other words, since all the combinations provide the same level of satisfaction the consumer prefers them equally and does not mind which combination he gets.

Combination	Food	Clothing	MRS
A	1	12	
B	2	6	6
C	3	4	2
D	4	3	1



INDIFFERENCE MAP:

An Indifference map represents a collection of many indifference curves where each curve represents a certain level of satisfaction. In short, a set of indifference curves is called an indifference map.

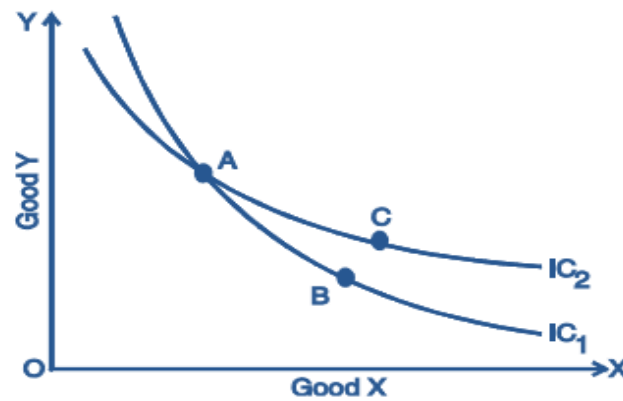
**MARGINAL RATE OF SUBSTITUTION**

The marginal rate of substitution of X for Y (MRS_{xy}) is equal to $\frac{MU_x}{MU_y}$ there are two reasons for this.

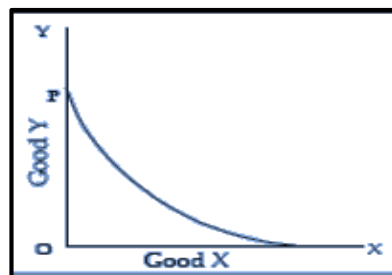
- The want for a particular good is satiable so that when a consumer has more of it, his intensity of want for it decreases. Thus, in our example, when the consumer has more units of food, his intensity of desire for additional units of food decreases.
- Most goods are imperfect substitutes of one another. MRS would remain constant if they could substitute one another perfectly.

PROPERTIES OF INDIFFERENCE CURVES-

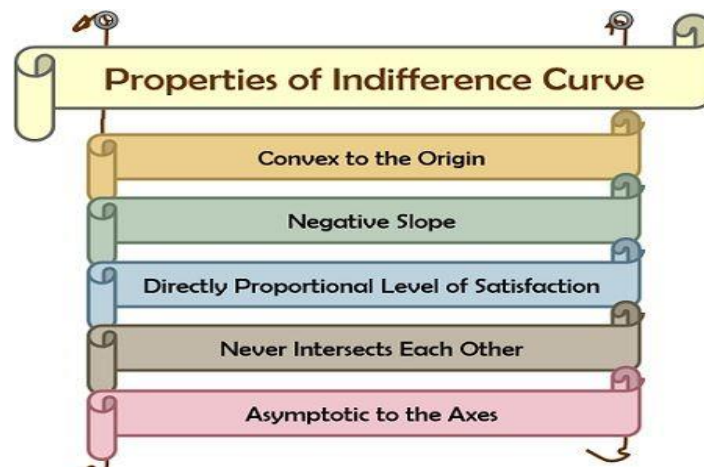
1. Indifference curves slope downward to the right: This property implies that the two commodities can be substituted for each other and when the amount of one good in the combination is increased, the amount of the other good is reduced. This is essential if the level of satisfaction is to remain the same on an indifference curve.
2. Indifference curves are always convex to the origin: It has been observed that as more and more of one commodity (X) is substituted for another (Y), the consumer is willing to part with less and less of the commodity being substituted (i.e. Y). This is called diminishing marginal rate of substitution.
3. Indifference curves can never intersect each other: No two indifference curves will intersect each other although it is not necessary that they are parallel to each other. In case of intersection the relationship becomes logically absurd because it would show that higher and lower levels are equal, which is not possible.



4. A higher indifference curve represents a higher level of satisfaction than the lower indifference curve: This is because combinations lying on a higher indifference curve contain more of either one or both goods and more goods are preferred to less of them.
5. Indifference curve will not touch either axes: Another characteristic feature of indifference curve is that it will not touch the X axis or Y axis. This is born out of our assumption that the consumer is considering different combination of two commodities.



6. Higher the indifference Curve higher is the Satisfaction: A higher indifference curve shows a higher level of satisfaction than a lower one. Therefore, a consumer, in his attempt to maximise satisfaction will try to reach the highest possible indifference curve.



TOPIC – 4
INDIFFERENCE CURVE ANALYSIS

QUESTION 1

Indifference curve between income and Leisure for an individual are generally:

- a) Concave to the origin
- b) Convex to the origin
- c) Negatively sloped straight lines
- d) Positively sloped straight lines

QUESTION 2

Indifference curves never intersect each other due to:

- a) Different levels of satisfaction
- b) Same level of satisfaction
- c) Convex to origin
- d) Concave to the origin

QUESTION 3

The slop of I. C is always

- a) Downward
- b) Upward
- c) Straight line
- d) All above

QUESTION 4

On which approach, indifferent curve analysis is based?

- a) Cardinal approach
- b) Ordinal approach
- c) Cardinal and ordinal approach
- d) None

QUESTION 5

When indifference curve is L shaped then two goods will be:

- a) Complimentary goods
- b) Perfect substitute goods
- c) Perfect Compliments goods
- d) Substitute goods

QUESTION 6

An IC shows MRs between the commodities?

- a) Increasing
- b) Decreasing
- c) Constant
- d) Zero

QUESTION 7

Which of the following statements about indifference curve is not true?

- a) Indifference curve shows price of 2 commodities
- b) Indifference curve is convex to origin
- c) Indifference curve can't touch either of the axis
- d) Two indifference curve can't touch each other.

QUESTION 8

An in difference curve slopes down towards right since more of one commodity and of another commodity result in

- a) Same level of satisfaction
- b) Maximum satisfaction
- c) Greater satisfaction
- d) Less satisfaction

QUESTION 9

Show various combinations of two products that give same amount of satisfaction:

- a) ISO curve
 b) Indifference curve
 c) Marginal utility curve
 d) ISO quant

Answer: 1(d), 2(a), 3(a), 4(b), 5(c), 6(b), 7(a), 8(a),9(b)

THE BUDGET LINE

From the ordinal utility analysis discussed above, we have understood one part of a person's consumption behavior namely, consumer preference. A higher indifference curve shows a higher level of satisfaction than a lower one. Therefore, a consumer, in his attempt to maximise satisfaction will try to reach the highest possible indifference curve. But in his pursuit of buying more and more goods and thus obtaining more and more satisfaction, he has to work under two constraints: first, he has to pay the prices for the goods and, second, he has a limited money income with which to purchase the goods. Consumers maximize their well-being subject to constraints. The most important constraint all of us face in deciding what to consume is the budget constraint. In other words, consumers almost always have limited income, which constrains how much they can consume. A consumer's choices are limited by the budget available to him. As we know, his total expenditure for goods and services can fall short of the budget constraint, but may not exceed it.

Algebraically, we can write the budget constraint for two goods X and Y as:

$$P_x Q_x + P_y Q_y \leq B$$

Where

P_x and P_y are the prices of goods X and Y and Q_x and Q_y are the quantities of goods X and Y chosen and B is the total money available to the consumer.

The requirement illustrated by the equation above that a consumer must choose a consumption bundle that costs no more than his or her income is known as the consumer's budget constraint. A consumer's consumption possibilities are the set of all consumption bundles that can be consumed given the consumer's income and prevailing prices.

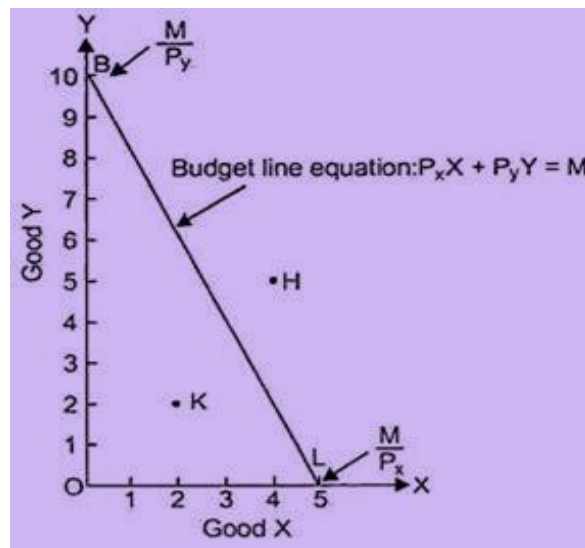
We assume that the consumer in our analysis uses up his entire nominal money income to purchase the commodities. So that his budget constraint is

$$P_x Q_x + P_y Q_y = B$$

The following table shows the combinations of Ice cream and chocolates a consumer can buy spending the entire fixed money income of Rs. 100. With the prices Rs. 20 and Rs. 10 respectively.

	Ice Cream	Chocolate
A	0	10
B	1	8
C	2	6
D	3	4
E	4	2
F	5	0

The budget constraint can be explained by the budget line or price line. In simple words, a budget line shows all those combinations of two goods which the consumer can buy spending his given money income on the two goods at their given prices. All those combinations which are within the reach of the consumer (assuming that he spends all his money income) will lie on the budget line. The consumer could, of course, buy any bundle that cost less than Rs 100. (e.g. Point K)

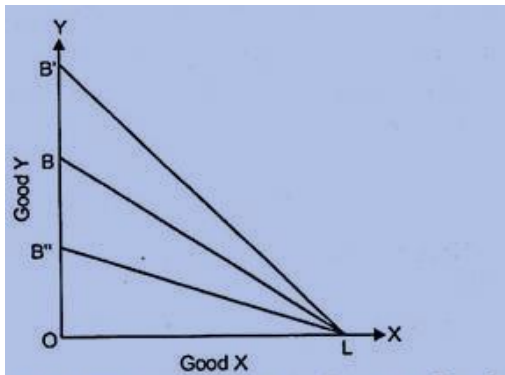


It should be noted that any point outside the given price line, say H, will be beyond the reach of the consumer and any combination lying within the line, say K, shows under spending by the consumer.

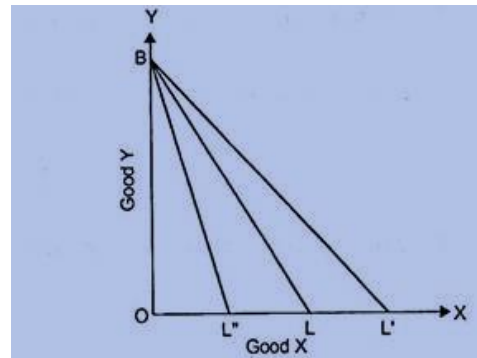
The slope of the budget line is determined by the relative prices of the two goods. It is equal to 'Price Ratio' of two goods. I.e. P_X / P_Y i.e. It measures the rate at which the consumer can trade one good for the other.

The budget line will shift when there is:

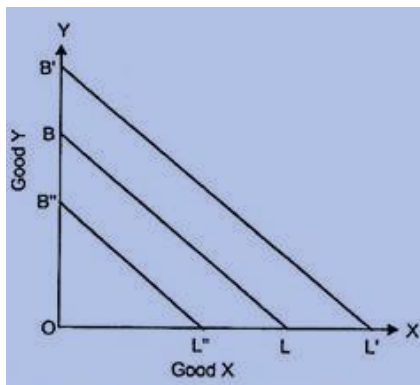
- A change in the prices of one or both products with the nominal income of the buyer (budget) remaining the same.
- A change in the level of nominal income of the consumer with the relative prices of the two goods remaining the same.
- A change in both income and relative prices



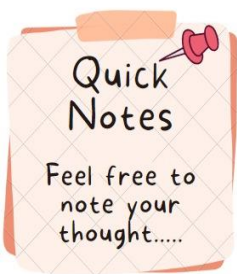
Changes in Price Line as a Result of Changes in Price Good Y



Changes in Budget Line as a Result of Changes in Price Good X



Shifts in Budget Line as a Result of Changes in Income



TOPIC – 5 BUDGET LINE



Question 1

Budget line is also called:-

- | | |
|---------------|------------------|
| a) Price line | b) Iso cost line |
| c) Iso-quant | d) None |

Question 2

A budget constraint line is a result of:

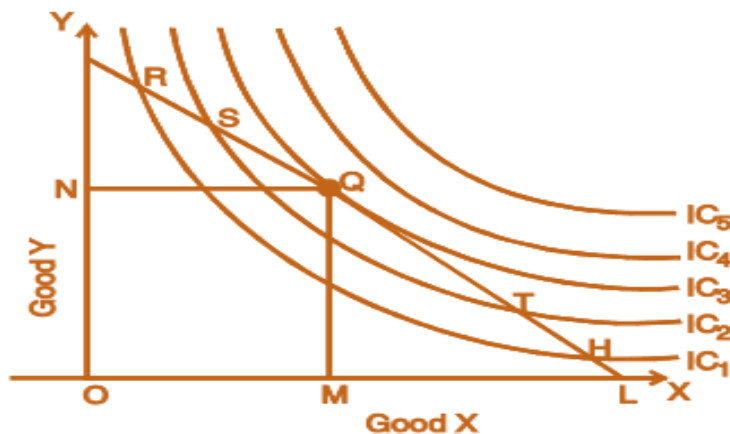
- | | |
|---------------------------|--------------------------------|
| a) Concave to origin | b) Market price of commodity Y |
| c) Income of the consumer | d) All of these |

Answer: 1(a), 2(c)

CONSUMER'S EQUILIBRIUM

A consumer is in equilibrium when he is deriving maximum possible satisfaction from the goods and therefore is in no position to rearrange his purchases of goods. We assume that:

- (i) The consumer has a given indifference map which shows his scale of preferences for various combinations of two goods X and Y.
- (ii) He has a fixed money income which he has to spend wholly on goods X and Y.
- (iii) Prices of goods X and Y are given and are fixed.
- (iv) All goods are homogeneous and divisible, and
- (v) The consumer acts 'rationally' and maximizes his satisfaction.



- the consumer attains equilibrium at the point where the budget line is tangent to the indifference curve and $MU_x / P_x = MU_y / P_y$.

TOPIC – 6

CONSUMER EQUILIBRIUM



Question 1

At equilibrium the slope of the indifference curve is:

- | | |
|--------------------------------------|--|
| a) Equal to the slope of budget line | b) Greater than the slope of budget line |
| c) Smaller than the slope of budget | d) None |

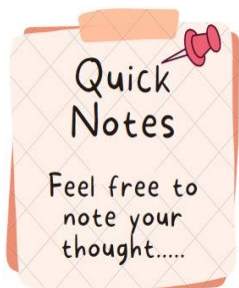
Question 2

The slope of the indifference curve shows consumer equilibrium at point where

$$\frac{MU_x}{MU_y} - \frac{p_x}{p_y} \text{ (Price line)}$$

- | | |
|--------------|----------------------|
| a) Less than | b) More than |
| c) Equal to | d) None of the above |

Answer: 1(a), 2(c)



UNIT – 3

Supply

MEANING OF SUPPLY -

Sellers of products and services constitute the supply side. The sellers may include individuals, firms and governments. As the term 'demand' refers to the quantity of a good or service that the consumers are willing and able to purchase at various prices during a given period of time, the term 'supply' refers to the amount of a good or service that the producers are willing and able to offer to the market at various prices during a given period of time.

Three important points apply to supply:

- Supply refers to what a firm offers for sale in the market, not necessarily to what they succeed in selling. What is offered may not get sold.
- Supply requires both willingness and ability to supply. Production cost is often the primary influence on ability.
- Supply is a flow. Supply is identified for a specified time period. The quantity supplied is 'so much' per unit of time, per day, per week, or per year.

DETERMINANTS OF SUPPLY -

Although price is an important consideration in determining the willingness and desire to part with commodities

- **Price of the good** - Other things being equal, the higher the relative price of a good the greater the quantity of it that will be supplied
- **Prices of related goods** - If the prices of other goods rise, they become relatively more profitable to the firm to produce and sell than the good in question. When a seller can get a higher price for a good, producing and selling it becomes more profitable. Producers will allocate more resources towards its production even by drawing resources from other goods they produce
- **Prices of factors of production** - Cost of production is a significant factor that affects supply. If the firm's cost exceeds what it can earn from selling the good, the firm sells nothing. A rise in the price of an input causes a decrease in supply
- **State of technology** - The supply of a particular product depends upon the state of technology also. The use of new technology in an industry (such as automation) increases production efficiency and reduces production costs. Inventions and innovations tend to make it possible to produce more or better goods with the same resources.
- **Government Policy** - Government rules and regulations affect how much firms want to sell or are allowed to sell. The production of a good may be subject to the imposition of commodity taxes such as excise duty, sales tax and import duties. These taxes raise the cost of production and so the quantity supplied of a good would increase only when its price in the market rises.

- **Nature of competition and size of industry** - Under competitive conditions, supply will be more than that under monopolized conditions.
- **Expectations** - Choices of firms in respect of selling the product now or later depends on expectations of future prices. Sellers compare current prices with future prices
- **Number of sellers** - If there are large number of firms in the market, supply will be more. Besides, entry of new firms, either domestic or foreign, causes the industry supply curve to shift rightwards.
- **Other Factors** - The quantity supplied of a good also depends upon government's industrial and foreign policies, goals of the firm, infrastructural facilities, natural factors such as weather, floods, earthquake and man-made factors such as war, labour, etc.

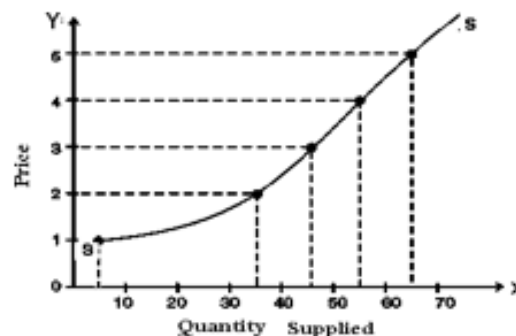
LAW OF SUPPLY -

Producers are prepared to sell their product for a price if that price is at least as high as the cost to produce an additional unit of the product

Supply refers to the relationship of quantity supplied of a good with one or more related variables which have an influence on the supply of the good. Normally, supply is related with price, but it can also be related with other factors

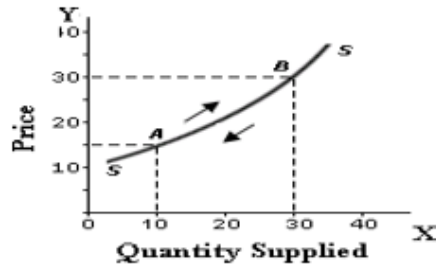
The law of supply can be stated as: Other things remaining constant, the quantity of a good produced and offered for sale will increase as the price of the good rises and decrease as the price falls.

This law is based upon common sense, because the higher the price of the good, the greater the profits that can be earned and thus greater the incentive to produce the good and offer it for sale.



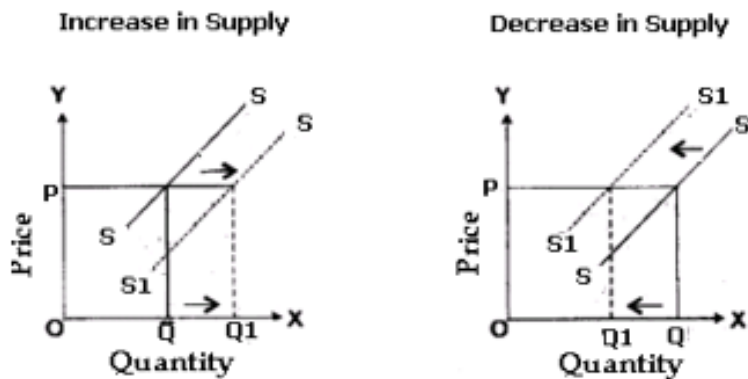
MOVEMENTS ON THE SUPPLY CURVE-INCREASE OR DECREASE IN THE QUANTITY SUPPLIED

When the supply of a good increases as a result of an increase in its price, we say that there is an increase in the quantity supplied and there is an upward movement on the supply curve. A rise in market price causes an expansion of supply; there is an upward movement on the supply curve and producers offer more for sale. When market price falls, there is contraction of supply as producers have less incentive to offer products for sale in the market.



SHIFT IN THE SUPPLY CURVE-INCREASE OR DECREASE IN SUPPLY.

While a change in quantity supplied is a movement along a given supply curve, a change in supply is a shift of the supply curve. When the supply curve bodily shifts towards the right as a result of a change in one of the factors that influence the quantity supplied other than the commodity's own price, we say there is an increase in supply. When the supply curve shifts to the right, more is offered for sale at each price.



ELASTICITY OF SUPPLY

The elasticity of supply is defined as the responsiveness of the quantity supplied of a good to a change in its price. Elasticity of supply is measured by dividing the percentage change in quantity supplied of a good by the percentage change in its price.

$$E_s = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in Price}}$$

Or

$$\frac{\frac{\text{Change in quantity supplied}}{\text{quantity supplied}}}{\frac{\text{Change in price}}{\text{Price}}}$$

or

$$\frac{\frac{\Delta q}{q}}{\frac{\Delta p}{p}} = \frac{q}{p} \times \frac{p}{q}$$

Where

q - denotes original quantity supplied

Δq - denotes change in quantity supplied.

P - denotes original price.

Δp - denotes change in price.

Illustration

Suppose the price of commodity X increases from ₹ 2,000 per unit to ₹ 2,100 per unit and consequently the quantity supplied rises from 2,500 units to 3,000 units. Calculate the elasticity of supply.

Solution -

$$\text{Here } \Delta q = 500 \text{ units}$$

$$\Delta p = ₹100$$

$$p = ₹ 2000$$

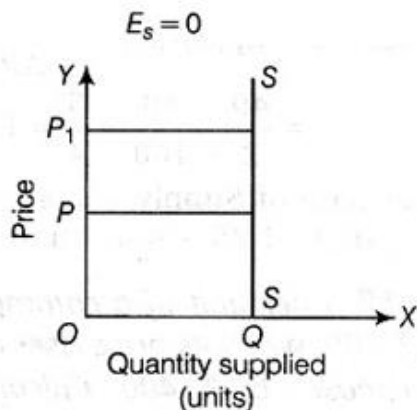
$$q = 2500 \text{ units}$$

$$\therefore E_s = \frac{500}{100} \times \frac{2000}{2500} = 4$$

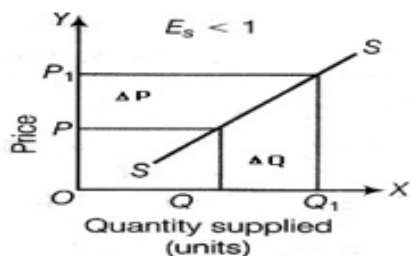
Elasticity of Supply = 4.

Types of Supply Elasticity.

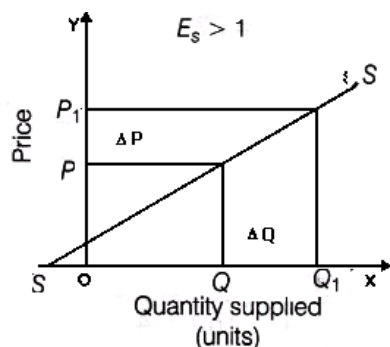
- **Perfectly inelastic supply** - If as a result of a change in price, the quantity supplied of a good remains unchanged, we say that the elasticity of supply is zero or the good has perfectly inelastic supply ($E_s = 0$.)



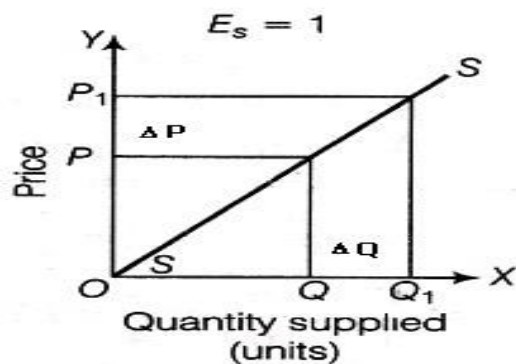
- **Relatively less-elastic supply** - If as a result of a change in the price of a good its supply changes less than proportionately, we say that the supply of the good is relatively less elastic or elasticity of supply is less than one. In this case, the coefficient of elasticity falls in the range $0 < E_s < 1$



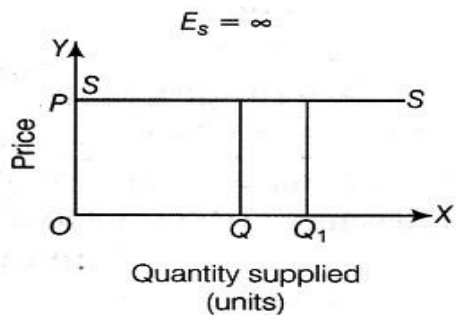
- **Relatively greater-elastic supply** - If elasticity of supply is greater than one i.e., when the quantity supplied of a good changes substantially in response to a small change in the price of the good we say that supply is relatively elastic. The percentage change in quantity is greater than the percentage change in price. The coefficient of elasticity falls in the range $1 < E < \infty$



- **Unit Elastic** - In this case, the coefficient of elasticity is one ($E_s = 1$). If the relative change in the quantity supplied is exactly equal to the relative change in the price, the supply is said to be unitary elastic. The percentage change in quantity is equal to the percentage change in price. Unit elasticity is essentially a dividing line or boundary between the elastic and inelastic ranges.



- **Perfectly elastic supply** - At the opposite extreme of zero elasticity supply is perfectly elastic. This occurs as the price elasticity of supply approaches infinity and the supply curve becomes horizontal. Elasticity of supply is said to be infinite ($E = \infty$) or perfectly elastic when nothing is supplied at a lower price and an infinitesimally small change in price results in an infinitely large change in quantity supplied indicating that producers will supply any quantity demanded at that price



Measurement of Supply-Elasticity.

The elasticity of supply can be considered with reference to a given point on the supply curve or between two points on the supply curve. When elasticity is measured at a given point on the supply curve, it is called point elasticity. Just as in demand, point-elasticity of supply can be measured with the help of the following formula:

$$E_s = \frac{dp}{dq} \times \frac{p}{q}$$

Arc-Elasticity- Arc-elasticity i.e. elasticity of supply between two prices can be found out with the help of the following formula:

$$E_s = \frac{Q_2 - Q_1}{Q_2 + Q_1} \times \frac{P_2 + P_1}{P_2 - P_1}$$

Determinants of Elasticity of Supply.

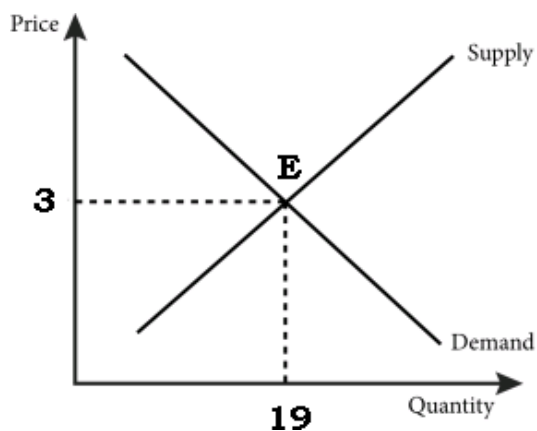
- If increase in production causes substantial increase in costs, producers will have less incentive to increase quantity supplied in response to increase in price and therefore, price elasticity of supply would be less
- The longer the period of time, the more responsive the quantity supplied to changes in price and the greater the supply elasticity.
- Supply is more elastic when there is large number of producers and there is high degree of competition among them
- Supply will be elastic if firms are not working to full capacity.
- If key raw materials and inputs are easily and cheaply available, then supply will be elastic. If drawing productive resources into the industry is easier, the supply curve is more elastic.
- If firms have adequate stocks of raw materials, components and finished products, they will be able to respond with higher supply as price rises.
- The ease with which factor substitution can be made and the costs of such factor substitution also determine price elasticity of supply.

- If both capital and labour are occupationally mobile, then the elasticity of supply for a product is higher than if capital and labour cannot be easily switched.
- Expectations about future prices also affect elasticity of supply.

Equilibrium Price.

In the previous sections, we have discussed both demand and supply theories. We shall now use demand and supply to determine equilibrium market price. The equilibrium price in a market is determined by the intersection between demand and supply. It is also called the market equilibrium. At this price, the amount that the buyers want to buy is equal to the amount that sellers want to sell. The competitive market equilibrium represents the 'unique' point at which both consumers and suppliers are satisfied with price and quantity. Equilibrium price is also called market clearing price.

Price (rs.)	Quantity Demanded	Quantity Supplied	Impact on price
5	6	31	Downward
4	12	25	Downward
3	19	19	Equilibrium
2	25	12	Upward
1	31	6	Upward



Market Equilibrium and social Efficiency.

Social efficiency represents the net gains to society from all exchanges that are made in a particular market. It consists of two components: consumer surplus and producer surplus. We have already learned that consumer surplus is a measure of consumer welfare. There is welfare gain to producers as well when they participate in the market, namely producer surplus.

