Theory of Demand and Supply

UNIT

1

Law of Demand and Elasticity of Demand

MEANING OF DEMAND

- The term 'demand' refers to the quantity of a good or service that buyers are willing and able to purchase at various prices during a given period of time.
- The 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.

MEANING OF QUANTITY DEMANDED

- Quantity demanded is the quantity of a commodity that people are willing to buy at a particular price at a particular point of time.
- Two things are to be noted about the quantity demanded.
  - (i) The quantity demanded is always expressed at a given price. At different prices different quantities of a commodity are generally demanded.
  - (ii) 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'.

WHAT DETERMINES DEMAND?

Demand for a commodity increases or decreases due to a number of factors. The various factors affecting demand are discussed below:

(a) Price of the commodity:

- The good's own price is a key determinant of its demand.
- 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.

(b) Price of related commodities:

- **Related commodities are of two types:**

(i) complementary goods and

(ii) competing goods or substitutes.

- **Complementary goods**
  - Complementary goods and services are those that are bought or consumed together or simultaneously. Examples are: tea and sugar, automobile and petrol and pen and ink.
  - When two commodities are complements, a fall in the price of one (other things being equal) will cause the demand for the other to rise and vice versa.
  - There is an inverse relation between the demand for a good and the price of its complement.
  - For example, a fall in the price of petrol-driven cars would lead to a rise in the demand for petrol. There is an inverse relation between the demand for a good and the price of its complement
- **Substitute goods**
  - 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. For example, tea and coffee, ink pen and ball pen, different brands of toothpaste etc.
  - When goods are substitutes, a fall in the price of one (ceteris paribus) leads to a fall in the quantity demanded of its substitutes and vice versa.
  - Demand of a commodity is directly related with price of substitute goods.
  - For example, if price of a substitute good (say, coffee) increases, then demand for given commodity (say, tea) will rise as tea will become relatively cheaper in comparison to coffee.

(c) 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.
- Normal Goods: Normal goods are those that are demanded in increasing quantities as consumers' income increases. Most goods and services fall under the category of normal goods. Household furniture, clothing, automobiles, consumer durables and semi durables etc. fall in this category. When income is reduced (for example due to recession), demand for normal goods falls.
- Inferior Goods (Also called as Giffen goods) : If any commodity is purchased by a consumer just because of his low income level, then this commodity is termed as an inferior commodity for that person. With Increase in income, demand for inferior goods fall and vice versa.
- As the income level increase and people become richer, there is a relative decline in the importance of food and other non durable goods in the overall consumption basket and a rise in the importance of durable goods such as a TV, car, house etc.

(d) Tastes and preferences of buyers:

- Tastes and preferences of the consumer directly influence the demand for a commodity.
- Goods which are modern or more in fashion command higher demand than goods which are of old design or are out of fashion.
- Consumers may perceive a product as obsolete and discard it before it is fully utilised and then prefer another good which is currently in fashion.
- External effects such as' demonstration effect',' bandwagon effect', Veblen effect and 'snob effect' do play important roles in determining the demand for a product.
- Demonstration effect, a term coined by James Duesenberry, refers to the desire of people to emulate the consumption behaviour of others. In other words, people buy or have things because they see that other people are able to have them.
- Bandwagon effect refers to the extent to which the demand for a commodity is increased due to the fact that others are also consuming the same commodity. It represents the desire of people to purchase a commodity in order to be fashionable or stylish or to conform to the people they wish to be associated with.
- Snob effect – refers to the 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." For example, when a product becomes common among all, some people decrease or altogether stop its consumption.
- 'Veblen effect' (named after the American economist Thorstein Veblen) states that Highly priced goods are consumed by status seeking rich people to satisfy their need for conspicuous noticeable consumption.

(e) Consumers' 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.

(f) Other factors: Apart from the above factors, the demand for a commodity depends upon the following factors:

i. Size of population: Generally, larger the size of population of a country or a region, larger would be the number of buyers and the quantity demanded in the market would be higher at every price. The opposite is the case when population is less.

ii. Age Distribution of population:

- If a larger proportion of people belong to older age groups relative to younger age groups, there will be increased demand for geriatric old and weak care services, spectacles, walking sticks, etc and less demand for children's books.
- Similarly, if the population consists of more of children, demand for toys, baby foods, toffees, etc. will be more.

iii. 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.
- If the national income is unevenly distributed [few very rich people while the majority are very poor], the propensity to consume of the country will be relatively less and consequently, the demand for consumer goods will be comparatively less.
- However, if the distribution of income is more equal, then the propensity to consume of the country as a whole will be relatively high indicating higher demand for goods.

iv. Consumer-credit facility and interest rates:

- Availability of credit facilities induces people to purchase more than what their current incomes permit them.
- Low rates of interest encourage people to borrow and therefore demand will be more and vice versa.

v. Government policies and regulations:

- The governments influence demand through its taxation and subsidy policies.
- While taxes increase prices and decrease the quantity demanded, subsidies decrease the prices and increase the quantity demanded. For example taxes on luxurious goods and subsidies for solar panels.
- Similarly total bans, restrictions and higher taxes may be used by government to restrict the demand for socially undesirable goods and services.
- Government's policy on international trade also will affect the domestic demand for goods and services.

TRY YOUR UNDERSTANDING 1.1

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
2. Demand is a
   (a) flow concept (b) stock concept
   (c) none of these (d) partially a flow concept
3. In economics, demand refers to
   (a) quantity demanded at a particular time
   (b) quantity demanded backed by ability to pay
   (c) quantity demanded for normal & inferior goods
   (d) quantity demanded at a specific price during a particular period of time

4. When price of z rises it causes an increase in demand for goods X then X & Z are

(a) complementary goods (b) inferior goods

(c) substitute goods (d) necessities

5. When price of z rises then the quantity in demand of goods X reduces. what is the relationship between X & Z

(a) complementary goods (b) inferior goods

(c) substitute goods (d) necessities

6. The consumer demand those goods which gave

(a) Both positive & negative utility (b) Positive utility

(c) Negative utility (d) None of these

ANSWER

1. (d) 2. (a) 3. (d) 4. (c) 5. (a) 6. (c)

DEMAND FUNCTION

Demand function shows the relationship between quantity demanded for a particular commodity and the factors influencing it.

It is expressed as: $D_x = f(Px, Pr, Y, T, F)$

Where,

D_x = Demand for Commodity x; P_x = Price of the given Commodity x;

P_r = Prices of Related Goods; Y = Income of the Consumer;

T = Tastes and Preferences; F = Expectation of Change in Price in future.

THE LAW OF DEMAND

- As per Prof. Alfred Marshall: "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".
- The law of demand states that other things being equal, when the price of a good rises the quantity demanded of the good will fall.
- Thus, there is an inverse relationship between price and quantity demanded, other things remains constant (i.e. ceteris paribus).
- If these factors which determine demand also undergo a change, then the inverse price-demand relationship may not hold good.
- For example, if incomes of consumers increases, then an increase in the price of a commodity, may not result in a decrease in the quantity demanded of it.

Hypothetical Demand Schedule

Price	Quantity Demanded
5	1
4	2
3	3
2	4
1	5

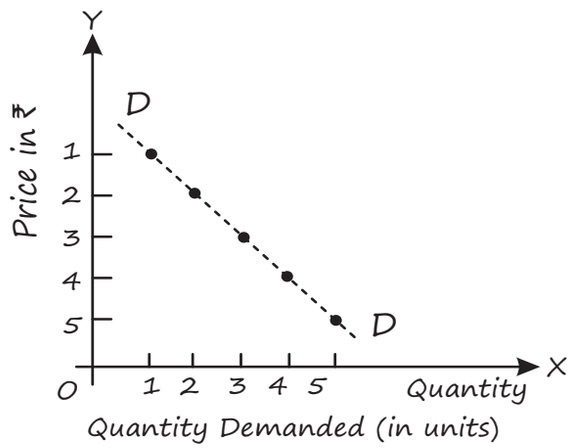
THE DEMAND SCHEDULE

- 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.
- A demand schedule is drawn upon the assumption that all the other influences remain unchanged.

	Price	Quantity Demanded
A	5	1
B	4	2
C	3	3
D	2	4
E	1	5

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.
- It shows the relationship between the quantities of a good that buyers are willing to buy and the price of the good.
- The negative or downward slope indicates that the quantity demanded increases as the price falls (depicting Law Of Demand)
- The slope of a demand curve is - $\Delta P/\Delta Q$ (i.e the change along the vertical axis divided by the change along the horizontal axis). The negative sign of this slope is consistent with the law of demand.
- The demand curve for a good does not have to be linear or a straight line; it can be curvilinear- meaning its slope may vary along the curve. If the change in quantity demanded does not follow a constant proportion, then the demand curve will be non linear.



MARKET DEMAND SCHEDULE

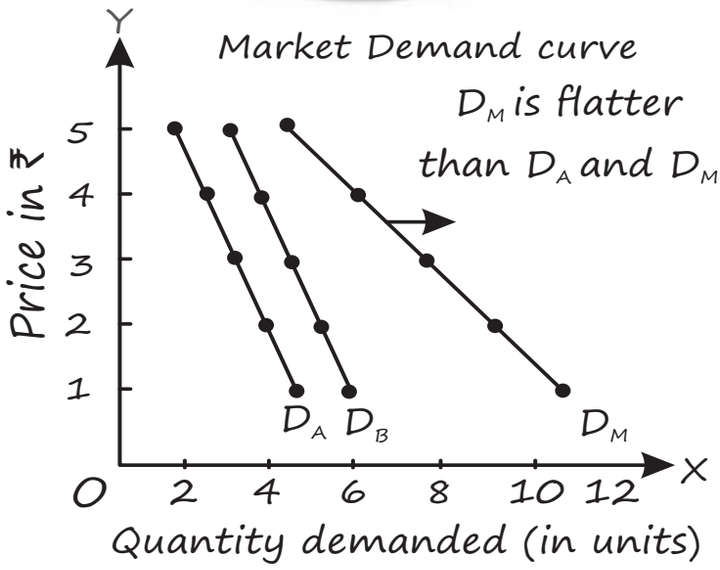
- Market demand schedule refers to a tabular statement showing various quantities of a commodity that all the consumers are willing to buy at various levels of price, during a given period of time.
- It is the sum of all individual demand schedules at each and every price.
- Market demand schedule can be expressed as: $D_m = D_A + D_B + ...$
  Where Dm is the market demand and $D_A + D_B +$ are the individual demands of Household A, Household B and so on.

Market Demand Schedule

Price (Rs.)	Individual Demand (in units)		Market Demand (in units) {Da + DB)
	Household A (DA)	Household B (DB)	
5	1	2	1+2 = 3
4	2	3	2 + 3 = 5
3	3	4	3 + 4 = 7
2	4	5	4 + 5 = 9
1	5	6	5 + 6 = 11

MARKET DEMAND CURVE

- Market demand curve refers to a graphical representation of market demand schedule. It is obtained by horizontal summation of individual demand curves.
- Market demand curve 'DM' also slope downwards due to inverse relationship between price and quantity demanded.
- Market Demand Curve is Flatter than individual demand curve, as when price changes then proportionate change in market demand is more than proportionate change in individual demand.



Rationale of the Law of Demand (Why Demand Curve Slopes Downward)

The various reasons for operation of Law of Demand are:

1. **Substitution Effect:**
   - It refers to substituting one commodity in place of other when it becomes relatively cheaper.
   - When price of the given commodity falls (say ball pen), it becomes relatively cheaper as compared to its substitute (say ink pen) (assuming no change in price of ink pen). As a result, demand for the given commodity (i.e. ball pen) rises
2. **Income Effect:**
   - It refers to effect on demand when real income of the consumer changes due to change in price of the given commodity.
   - When price of the given commodity falls, it increases the purchasing power (real income) of the consumer. Due to which, he can purchase more of the given commodity with the same money income.
   - For example, Chandu buys 2 ice-creams @ Rs.10 each with his pocket money of Rs.20. If price of ice cream falls to Rs.5 each, then with the same pocket money, chandu can buy 4 ice-creams due to an increase in real income.
3. **Utility maximising behaviour of Consumers (Law Of Diminishing Marginal Utility):**
   - 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.
4. **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. This raises the number of consumers of a commodity at a lower price and hence the demand for the commodity in question increases.
5. **Different uses:** Many commodities have multiple uses. When the price of such commodities are high (or rises) they will be put to limited uses only. If the prices of such commodities fall, they will be put to more number of uses and therefore their demand will increase. Example Milk.

EXCEPTIONS TO THE LAW OF DEMAND

The following are the important exceptions to the law of demand:

(a) Conspicuous goods (Veblen Effect):

- 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 such as diamond, paintings, antiques etc.
- There demand is high at higher prices and if their prices fall, then their demand will decrease as they are not considered as status symbol goods anymore.

- 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 consider that if the commodity is expensive then it has more utility.

(b) Giffen goods:

- **Background:** 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.
- Those goods which are inferior, with no close substitutes easily available and which occupy a substantial place in consumer's budget are called 'Giffen goods'.
- Such goods exhibit direct price-demand relationship.
- All Giffen goods are inferior goods; but all inferior goods are not Giffen goods.
  - All Giffen goods are inferior goods because all Giffen goods have negative income effect.
  - But all inferior goods are not Giffen goods, as all inferior goods do not have dominating negative income effect, i.e. negative income effect is not stronger than positive substitution effect in case of all inferior goods.

(c) 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.
- Due to their constant usage these goods have become necessities of life.
- For example, TVs, refrigerators, coolers, cooking gas etc.

(d) Future expectations about prices:

- When the prices show increasing trend, consumers tend to buy larger quantities of such commodities, expecting that the prices in the future will be still higher and vice versa.
- 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 at the higher price.

(e) Incomplete information and irrational behaviour:

- Consumers have incomplete information and therefore make inconsistent decisions regarding purchases.
- 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.
- 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.

(f) **Demand for necessaries:**

- The law of demand does not apply much in the case of necessaries of life.
- Irrespective of price changes, people have to consume the minimum quantities of necessary commodities.

(g) **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.

TRY YOUR UNDERSTANDING 1.2

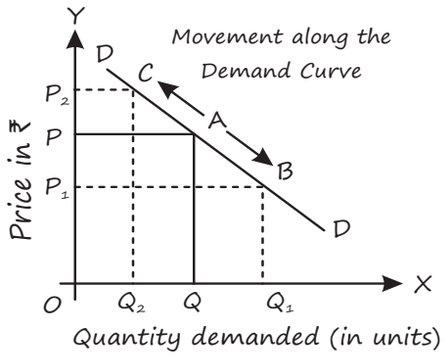
1. The law of demand refers to relationship between
   (a) price of a good & quantity demanded
   (b) income & quantity demanded
   (c) price of a good & quantity demanded of its substitute
   (d) price of a good & quantity demanded of its complementary goods
2. The law of demand assumes that the following is constant
   (a) price of related goods (b) income of the consumer
   (c) tastes & preferences (d) All the above
3. Market demand is derived from individual demand curve by
   (a) vertical summation (b) horizontal summation
   (c) Both (a) & (b) (d) None of these

ANSWER

1. (a) 2. (d) 3. (b)

EXPANSION AND CONTRACTION OF DEMAND (MOVEMENT ALONG THE DEMAND CURVE OR CHANGE IN QUANTITY DEMANDED)

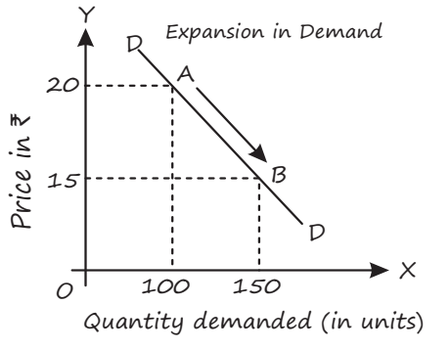
- When quantity demanded of a commodity changes due to change in price of a commodity (other factors remain constant) then it is termed as change in quantity demanded.
- Its graphical presentation is expressed as movement along the demand curve.
- Downward movement represents expansion of demand whereas upward movement represents contraction of demand.



Expansion in Demand

It refers to increase in the quantity demanded due to reduction in the price of commodity, other factors remains constant.

- It leads to a downward movement along the same demand curve.
- Also known as 'Extension in Demand' or 'Increase in Quantity Demanded'.



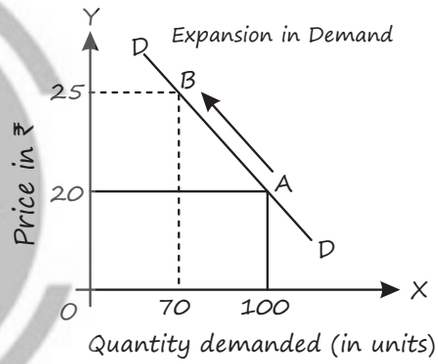
Expansion in Demand

Price (Rs.)	Demand (units)
20	100
15	150

CONTRACTION IN DEMAND

It refers to a fall in the quantity demanded due to increase in the price of commodity, other factors remaining constant.

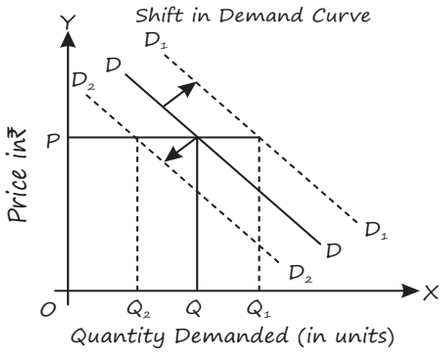
- It leads to an upward movement along the same demand curve.
- Also known as 'Decrease in Quantity Demanded'.



Price (Rs.)	Demand (units)
20	100
25	70

INCREASE AND DECREASE IN DEMAND (SHIFT IN DEMAND CURVE OR CHANGE IN DEMAND)

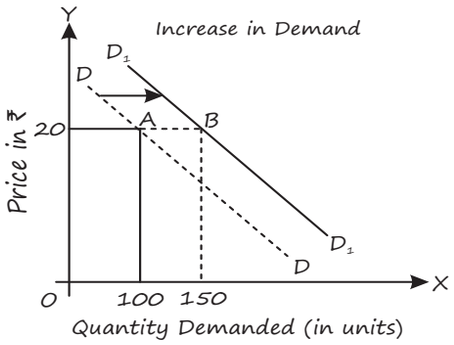
- When the demand of a commodity changes due to change in any factor other than the own price of the commodity, it is known as change in demand.
- It is graphically expressed as a shift in the demand curve.
- Rightward Shift Indicated Increase in demand whereas leftward shift indicates decrease in demand.



Increase in Demand

- When demand of a commodity increases due to any factor other than price of a commodity then it is termed as increase in demand.
- It leads to a rightward shift of demand curve.

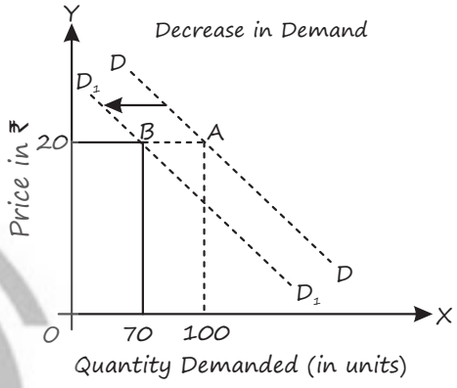
Price (Rs.)	Demand (units)
20	100
20	150



Decrease in Demand

- When demand of a commodity decreases due to any factor other than price of a commodity then it is termed as decrease in demand.
- It leads to a leftward shift of demand curve.

Price (Rs.)	Demand (units)
20	100
20	70



Reasons for Increase in Demand	Reasons for Decrease in Demand
❑ Rise in income, ❑ Rise in the price of a substitute, ❑ Fall in the price of a complement, ❑ Change in tastes in favour of this commodity, ❑ An increase in population, and ❑ Redistribution of income to groups who favour this commodity	❑ Fall in income ❑ Fall in the price of a substitute, ❑ Rise in the price of a complement, ❑ Change in tastes against this commodity, ❑ Decrease in population, and ❑ Redistribution of income away from groups who favour this commodity.

TRY YOUR UNDERSTANDING 1.3

1. When price of a related good or income or taste changes, it brings about
   (a) change in quantity demanded (b) change in demand
   (c) increase in demand (d) decrease in demand
2. Rise in demand at original price is called
   (a) expansion in demand (b) contraction in demand
   (c) increase in demand (d) decrease in demand

3. When price of a good changes, it brings about

(a) change in quantity demanded (b) change in demand

(c) expansion in demand (d) contraction in demand

ANSWER

1. (b) 2. (c) 3. (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.
- In simple words, elasticity of demand is the percentage change in quantity demanded divided by the percentage change in one of the variables on which demand depends.
- different measures of elasticity are price elasticity, cross elasticity, income elasticity, advertisement elasticity and elasticity of substitution.

Note: Unless otherwise mentioned, it is price elasticity of demand which is usually referred to as elasticity of demand.

PRICE ELASTICITY OF DEMAND

- Price elasticity of demand measures the sensitivity of quantity demanded to 'own price' or the price of the own commodity.
- Price elasticity of demand measure the responsiveness of quantity demanded of a commodity, to a change in Price, assuming all the other factors as constant.
- The price elasticity of demand (also referred to as PED) tells us the percentage change in quantity demanded for each one percent (1%) change in price.

$$\text{Price Elasticity} = Ep = \frac{\Delta Q}{\Delta P}$$

Or

$$Ep = \frac{\text{Change in quantity / Original Quantity}}{\text{Change in Price / Original Price}} \times 100$$

Or

$$Ep = \frac{\text{Change in quantity}}{\text{Original Quantity}} \times \frac{\text{Original Price}}{\text{Change in Price}}$$

Or

$$Ep = \frac{\Delta Q}{Q} \times \frac{P}{\Delta P}$$

Where

Ep = Price Elasticity

Q = Original Quantity

P = Original Price

ΔQ = Change In Quantity

ΔP = Change In Price

- The greater the value of elasticity, the more sensitive quantity demanded is to price.
- The value of price elasticity varies from minus infinity to approach zero.
- Since price and quantity are inversely related (with a few exceptions) price elasticity is negative, but we ignore the negative sign and consider only the numerical value of the elasticity.

  Example: The price of a commodity decreases from Rs 6 to Rs 4 and quantity demanded of the good increases from 10 units to 15 units. Find the coefficient of price elasticity.

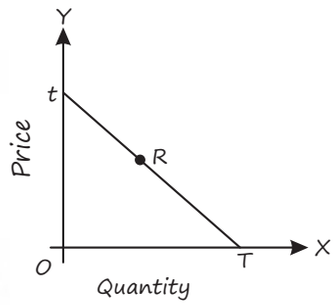
$$Ep = \frac{\Delta Q}{Q} \times \frac{P}{\Delta P}$$

Ep = (–) 5/10 x 6/2

Ep = (–)1.5

POINT ELASTICITY

- The point elasticity of demand is the price elasticity of demand at a particular point on the demand curve.
- The concept of point elasticity is used for measuring price elasticity where the change in price is infinitesimal (extremely small).
- Price elasticity is a key element in applying marginal analysis to determine optimal prices.
- Marginal analysis works by evaluating "small" changes taken with respect to an initial decision, it is useful to measure elasticity with respect to an infinitesimally small change in price.
- Point elasticity makes use of derivative rather than finite changes in price and quantity.



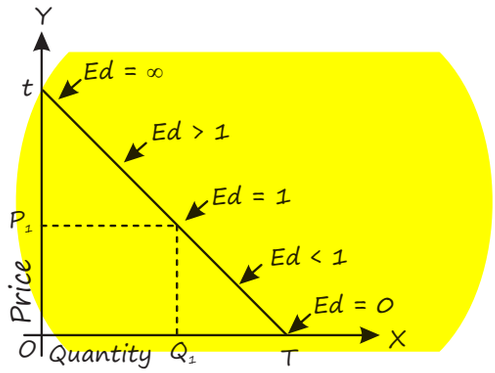
$$Ep = \frac{dq}{dp} \times \frac{p}{q}$$

- Where dq /dp is the derivative of quantity with respect to price at a point on the demand curve, and p and q are the price and quantity at that point.

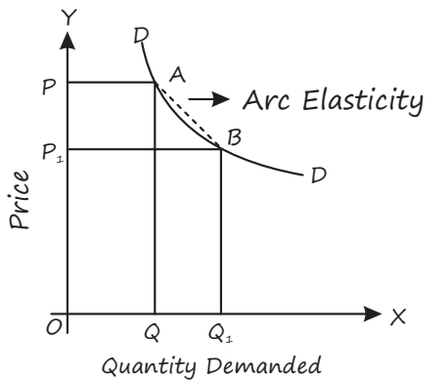
GEOMETRIC METHOD (MEASUREMENT OF ELASTICITY ON A LINEAR DEMAND CURVE)

- Elasticity varies along the curve as price and quantity change.
- The slope of a linear demand curve is constant. However, the elasticity at different points on a linear demand curve would be different.
- When price is high and quantity is small, the elasticity is high. The elasticity becomes smaller as we move down the curve.

$$Ep = \frac{\text{Lower Segment}}{\text{Upper Segment}}$$



ARC-ELASTICITY



- When price elasticity is to be found between two prices or two points on the demand curve, the question arises as to which price and quantity should be taken as base.
- in order to avoid confusion, the averages of the two prices and quantities are taken as (i.e. original and new) base.
- The arc elasticity can be found out by using the formula: We drop the minus sign and use the absolute value.

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

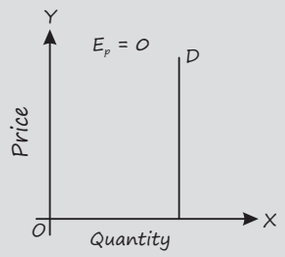
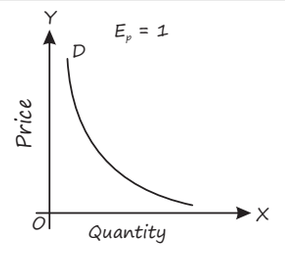
$$Ep = \frac{Q_2 - Q_1}{Q_2 + Q_1} \times \frac{P_2 + P_1}{P_2 - P_1}$$

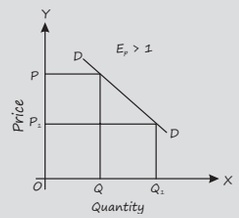
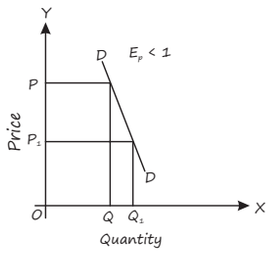
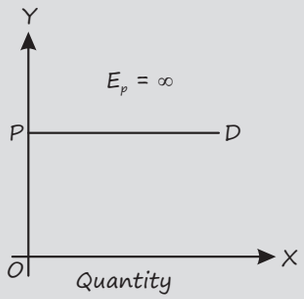
Where P1, Q1are the original price and quantity and P2, Q2are the new ones.

- The arc elasticity will always lie somewhere (but not necessarily in the middle) between the point elasticities calculated at the lower and the higher prices.

INTERPRETATION OF THE NUMERICAL VALUES OF ELASTICITY OF DEMAND

The numerical value of elasticity of demand can assume any value between zero and infinity.

$E_p = 0$	❑ If there is no change at all in the quantity demanded when price changes i.e. Perfectly Inelastic ❑ Perfectly inelastic demand is as an extreme case of price insensitivity and is therefore only a theoretical category with less practical significance. ❑ The vertical demand curve represents perfectly or completely inelastic demand	
$E_p = 1$	❑ If the percentage change in quantity demanded is equal to the percentage change in price. ❑ The demand curve is a rectangular hyperbola. ❑ Also known as Unitary Elastic.	

$E_p > 1$	❑ When the percentage change in quantity demanded is greater than the percentage change in price. ❑ Demand is said to be elastic. ❑ The elastic demand line (demand curve) is fairly flat.	
$E_p < 1$	❑ When the percentage change in quantity demanded is less than the percentage change in price. ❑ Demand is said to be inelastic. ❑ The quantity demanded is relatively insensitive to price changes. ❑ The inelastic demand line (demand curve) is fairly steep.	
$E_p = \infty$	❑ When a 'small price reduction raises the demand from zero to infinity. ❑ Perfectly or infinitely elastic demand. ❑ As long as the price stays at one particular level any quantity might be demanded. ❑ If there is a slight increase in price, quantity demanded fall to zero. ❑ This type of demand curve is found in a perfectly competitive market. ❑ The demand curve is horizontal at the price level.	

TOTAL OUTLAY METHOD OF CALCULATING PRICE ELASTICITY

The price elasticity of demand for a commodity and the total expenditure or outlay made on it are significantly related to each other.

As the total expenditure made on a commodity is the total revenue received by the seller, we can say that the price elasticity and total revenue received are closely related to each other.

By analysing the changes in total expenditure (or total revenue) in response to a change in the price of the commodity, we can know the price elasticity of demand for it.

$E_p = 1$	❑ When, as a result of the change in price of a good, the total expenditure on the good or the total revenue received from that good remains the same, the price elasticity for the good is equal to unity. ❑ This is because the total expenditure made on the good can remain the same only if the proportional change in quantity demanded is equal to the proportional change in price.

$E_p > 1$	❑ When, as a result of increase in the price of a good, the total expenditure made on the good or the total revenue received from that good falls or ❑ When as a result of decrease in price, the total expenditure made on the good or total revenue received from that good increases, we say that price elasticity of demand is greater than unity.
$E_p < 1$	❑ When, as a result of increase in the price of a good, the total expenditure made on the good or the total revenue received from that good increases or ❑ when as a result of decrease in its price, the total expenditure made on the good or the total revenue received from that good falls, we say that the price elasticity of demand is less than unity.

The main drawback of this method is that by using this we can only say whether the demand for a good is elastic or inelastic; we cannot find out the exact coefficient of price elasticity.

Why should a business firm be concerned about elasticity of demand?

The reason is that the degree of elasticity of demand predicts how changes in the price of a good will affect the total revenue earned by the producers from the sale of that good. The total revenue is defined as the total value of sales of a good or service. It is equal to the price multiplied by the quantity sold.

TOTAL REVENUE

- Total revenue (TR) = Price × Quantity sold
- Except in the rare case of a good with perfectly elastic or perfectly inelastic demand, when a seller raises the price of a good, there are two effects which act in opposite directions on revenue.
  - **Price effect:** After a price increase, each unit sold sells at a higher price, which tends to raise the revenue and vice versa
  - **Quantity effect:** After a price increase, fewer units are sold, which tends to lower the revenue and vice versa.

If the price effect which tends to raise total revenue is the stronger of the two effects, then total revenue goes up. If the quantity effect, which tends to reduce total revenue, is the stronger, then total revenue goes down.

$E_p = 1$	❑ An increase in price or decrease in price does not change total revenue. ❑ The quantity effect and the price effect exactly balance each other.
$E_p > 1$	❑ When, as a result of increase in the price of a good, the total expenditure made on the good or the total revenue received from that good falls or ❑ When as a result of decrease in price, the total expenditure made on the good or total revenue received from that good increases, we say that price elasticity of demand is greater than unity.
$E_p < 1$	❑ An increase in price reduces total revenue and a fall in price increases total revenue. ❑ In this case, the quantity effect is stronger than the price effect.

The Relationship between Price elasticity and Total Revenue (TR)

	Elastic	Unitary Elastic	Inelastic
Price Increase	TR Decreases	TR remains same	TR Increases
Price Decrease	TR Increases	TR remains same	TR Decreases

Determinants of Price Elasticity of Demand

Following are important determinants of price elasticity:

(a) Availability of substitutes:

- The demand for a commodity with a wide range of substitute products tends to be more elastic. This is because even a slight increase in its price can prompt buyers to switch to available substitutes.
- For instance, if the price of Pepsi rises, consumers may choose to purchase Coke as an alternative, and vice versa.
- As a result, the presence of close substitutes makes the demand for a commodity more responsive to changes in prices
- On the contrary, commodities that have limited or no substitutes, such as wheat and salt, generally exhibit less price elasticity of demand. This means that changes in price have a comparatively smaller impact on the quantity demanded by consumers.

(b) Position of a commodity in the consumer's budget:

- The greater the proportion of income spent on a commodity; generally the greater will be its elasticity of demand and vice- versa.
- The demand for goods like common salt, matches, buttons, etc. tend to be highly inelastic because a household spends only a fraction of their income on each of them.
- On the other hand, demand for goods like rental apartments and clothing tends to be elastic since households generally spend a good part of their income on them.
- When the good absorbs a significant share of consumers' income, it is worth their time and effort to find a way to reduce their demand when the price goes up.

(c) Nature of the need that a commodity satisfies:

- In general, luxury goods are price elastic because one can easily live without a luxury. In contrast, necessities are price inelastic.
- If it is possible to postpone the consumption of a particular good, such good will have elastic demand.
- Consumption of necessary goods cannot be postponed and therefore, their demand is inelastic.

(d) Number of uses to which a commodity can be put:

- The more the possible uses of a commodity, the greater will be its price elasticity and vice versa.
- When the price of a commodity which has multiple uses decreases, people tend to extend their consumption to its other uses and vice versa.

(e) Time period:

- The concept of price elasticity of demand is time-dependent, as it is influenced by the period under consideration, which can range from a day to several years.
- The elasticity of demand varies in direct proportion to the time frame examined. In the short term, demand tends to be relatively inelastic because consumers face difficulties in quickly changing their habits or adapting to price changes for a particular commodity.
- However, in the long run, demand becomes more elastic as consumers have more flexibility and time to explore alternative options and switch to substitutes when the price of the given commodity rises.
- In the short term, if the price of petrol increases, consumers may be reluctant to switch to alternative sources, as it requires significant investments in purchasing new car. But over a longer period, they have the opportunity to explore options like EV-Cars, thereby making their demand for petrol more elastic in the long run.

(f) Consumer habits: If a person is a habitual consumer of a commodity, no matter how much its price change, the demand for the commodity will be inelastic. If buyers have rigid preferences demand will be less price elastic.

(g) Tied demand: The demand for those goods which are tied to others is normally inelastic as against those whose demand is of autonomous nature. For example printers and ink cartridges.

(h) Price Range:

- Goods which are in medium range of price level are more elastic to price change.
- Goods which are in very high price range or in very low price range have inelastic demand.

(i) Minor complementary items: The demand for cheap, complementary items to be used together with a costlier product will tend to have an inelastic demand.

TRY YOUR UNDERSTANDING 1.4

1. The minus sign in elasticity of demand indicates
   (a) inverse relationship between price & quantity demands
   (b) inverse relationship between income & quantity demands
   (c) direct relationship between price & quantity demands
   (d) None of these
2. What is elasticity of demand in case of necessities & luxuries ?
   (a) necessities have elastic & luxuries have inelastic
   (b) necessities have inelastic & luxuries have elastic
   (c) necessities have zero & luxuries have one
   (d) necessities have one & luxuries have zero

3. In case of essential goods the elasticity of demand is

(a) infinity (b) high

(c) one (d) zero

4. What is it called when elasticity of demand is one? What shape will the demand curve take?

(a) unitary elastic; rectangular hyperbole

(b) elastic; downward sloping

(c) elastic; vertical

(d) inelastic; horizontal

5. The formula of arc elasticity demand is

(a) $Q_1 + \frac{Q_2}{Q_1} - Q_2 \times Q_1 + \frac{Q_2}{P_1} - P_2$ (b) $Q_1 - \frac{Q_2}{Q_1} + Q_2 . P_1 + \frac{P_2}{P_1} - P_2$

(c) $Q_1 - \frac{Q_2}{Q_1} + Q_2 \times P_1 - \frac{P_2}{P_1} + P_2$ (d) None of these

6. When price & outlay moves in the same direction, it is case of

(a) unitary elastic demand (b) elastic demand

(c) perfectly elastic demand (d) inelastic demand

7. When the price & outlay move in opposite direction it is case of

(a) unitary elastic demand

(b) elastic demand

(c) perfectly elastic demand

(d) inelastic demand

8. If price of burger rises by 20% & demand falls by 25% then demand for burger is

(a) static (b) perfectly elastic

(c) unitary elastic (d) inelastic

9. If there is no change in quantity demanded to any change in price then elasticity of demand is & shape of demand curve is

(a) infinity elastic; horizontal demand curve

(b) zero, vertical demand curve

(c) less than one, downward sloping demand curve

(d) zero than one horizontal downward sloping demand curve

10. As the prices of a commodity rises from Rs.10 to Rs.12, its demand falls from 100 units to 50 units calculate elasticity of demand

(a) 4 (b) 3

(c) 1 (d) 2

11. In a straight line downward sloping demand curve, the elasticity of demand becomes greater as price

(a) rises (b) zero

(c) falls (d) is unchanged

12. When more substitutes are available elasticity of demand is

(a) more (b) less

(c) infinity (d) None of these

ANSWER

1. (a)	2. (b)	3. (d)	4. (a)	5. (b)	6. (d)	7. (b)
8. (a)	9. (b)	10. (a)	11. (a)	12. (a)		

INCOME ELASTICITY OF DEMAND

- The income elasticity of demand is a measure of how much the demand for a good is affected by changes in consumers' incomes.
- Estimates of income elasticity of demand are useful for businesses to predict the possible growth in sales as the average incomes of consumers grow over time.
- Income elasticity of demand is the degree of responsiveness of the quantity demanded of a good to changes in the income of consumers.

$$E_p = \frac{\% \text{ change in quantity}}{\% \text{ Change in Income}}$$

Or

$$E_p = \frac{\Delta Q}{Q} \times \frac{Y}{\Delta Y}$$

$E_p = 1$	If the proportion of income spent on a good remains the same as income increases, then income elasticity for that good is equal to one.
$E_p > 1$	❑ If the proportion of income spent on a good increase as income increases, then the income elasticity for that good is greater than one. ❑ The demand for such goods increase faster than the rate of increase in income. ❑ If the income elasticity for a good is greater than one, it shows that the good bulks larger in consumer's expenditure as he becomes richer. Such goods are called luxury goods.
$E_p < 1$	❑ If the proportion of income spent on a good decrease as income rises, then income elasticity for the good is positive but less than one. ❑ The demand for income-inelastic goods rises, but substantially slowly compared to the rate of increase in income. ❑ Necessities such as food and medicines tend to be income- inelastic. ❑ It shows that the good is either relatively less important in the consumer's eye or, it is a good which is a necessity.

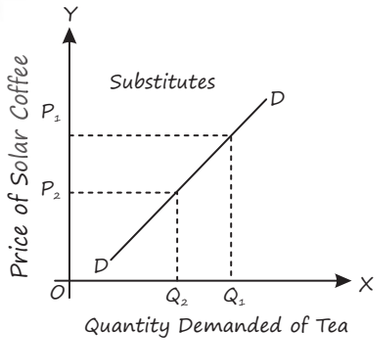
- Income elasticity of goods reveals a few very important features of demand for the goods in question.
  - If income elasticity is zero, it signifies that the demand for the good is quite unresponsive to changes in income.
  - When income elasticity is greater than zero or positive, then an increase in income leads to an increase in the demand for the good. This happens in the case of most of the goods and such goods are called normal goods. For all normal goods, income elasticity is positive. However, the degree of elasticity varies according to the nature of commodities.
  - When the income elasticity of demand is negative, the good is an inferior good. In this case, the quantity demanded at any given price decreases as income increases. The reason is that when income increases, consumers choose to consume superior substitutes.

CROSS - PRICE ELASTICITY OF DEMAND

- The demand for a particular commodity may change due to changes in the prices of related goods (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.
- Example: if price of pen decreases, then demand for ink rises (Pen and ink are complimentary goods)

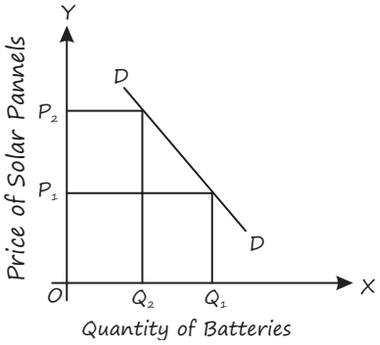
(a) Substitute Goods:

- 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.
- Example: When the price of coffee increases, due to the operation of the law of demand, the demand for coffee falls. The consumers will substitute tea in the place of coffee. The price of tea is assumed to be constant.



(b) Complementary Goods

- 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.
- Demand Curve of complimentary good is downward sloping.
- For instance, an increase in demand for solar panels due to reduction in price of panels, it will necessarily increase the demand for batteries and vice versa.



- The cross-price elasticity of demand between two goods measures the effect of the change in one good's price on the quantity demanded of the other good.
- It is equal to the percentage change in the quantity demanded of one good divided by the percentage change in the other good's price.

$$E_c = \frac{\%\text{ change in quantity of Good X}}{\%\text{ Change in Price of Good Y}}$$

Or

$$E_c = \frac{\Delta Qx}{Qx} \times \frac{Py}{\Delta Py}$$

- In the case of the cross-price elasticity of demand, the sign (plus or minus) is very important: it tells us whether the two goods are complements or substitutes.
- Cross Price Elasticity Of Substitute Goods:
  - When two goods X and Y are substitutes, the cross-price elasticity of demand is positive: a rise in the price of Y increases the demand for X and causes a rightward shift of the demand curve.
  - Value of cross elasticity is a measure of how closely substitutable the two goods are. Greater the cross elasticity, the closer is the substitute.
    (a) If two goods are perfect substitutes for each other, the cross elasticity between them is infinite.
    (b) If two goods are close substitutes, the cross-price elasticity will be positive and large.
    (c) If two goods are not close substitutes, the cross-price elasticity will be positive and small.
    (d) If two goods are totally unrelated, the cross-price elasticity between them is zero.
- Cross Price Elasticity Of Complimentary Goods:
  - 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 causing a leftward shift of the demand curve.
  - The size of the cross-price elasticity of demand between two complements tells us how strongly complementary they are:
    (a) if the cross-price elasticity is only slightly below zero, they are weak complements;
    (b) if it is negative and very high, they are strong complements.

If cross elasticity to change in the price of substitutes is greater than one, the firm may lose by increasing the prices and gain by reducing the prices of his products. With proper knowledge of cross elasticity, the firm can plan policies to safeguard against fluctuating prices of substitutes and complements.

ADVERTISEMENT ELASTICITY

- The advertising elasticity of demand measures the percentage change in demand that occurs given a one percent change in advertising expenditure.
- Advertising elasticity measures the effectiveness of an advertisement campaign in bringing about new sales.
- 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.

$$E_c = \frac{\text{\% change in quantity}}{\text{\% Change in Spending on Advertisement}}$$

Or

$$E_c = \frac{\Delta Qx}{Qx} \times \frac{A}{\Delta A}$$

$E_a = 0$	Demand does not respond at all to increase in advertisement expenditure
$E_a > 0$ but < 1	Increase in demand is less than proportionate to the increase in advertisement expenditure
$E_a = 1$	Demand increase in the same proportion in which advertisement expenditure increase
$E_a > 1$	Demand increase at a higher rate than increase in advertisement expenditure

As far as a business firm is concerned, the measure of advertisement elasticity is useful in understanding the effectiveness of advertising and in determining the optimum level of advertisement expenditure.

TRY YOUR UNDERSTANDING 1.5

1. If income of a household rises by 30% and demand falls by 10% then value of income elasticity of demand is

   (a) −0.33 (b) 0.33

   (c) 3 (d) 1

2. What is the relationship between two goods when cross elasticity is positive & when it is negative ?

   (a) substitutes when positive & complements when negative

   (b) complements when positive & substitutes when negative

   (c) substitutes when positive & no relation when negative

   (d) perfect substitutes when positive & perfect complements when negative

3. Cross elasticity of demand denotes a change in demand for one good due to change in whose aspects of the other good

(a) quantity (b) Price

(c) quality (d) None of these

4. When elasticity of demand is measured in terms of its substitutes & complements, it is called

(a) cross elasticity (b) price elasticity

(c) income clasticity (d) elasticity of supply

5. Advertisement elasticity of sales or promotional elasticity of demand is the responsive of a good demanded to changes in

(a) Price of Commodity

(b) Per Unit advertisement budget

(c) Firms spending on advertising

(d) Firms spending on distribution.

6. Calculate elasticity when price of ball pen falls by 10% then demanded of a ink falls by 10%

(a) 1 (b) –1

(c) 10 (d) cannot calculate

7. As a consumers' income rises from Rs.3,000 to Rs.3,600, demand rises from 25 units to 30 units .calculate elasticity of demand

(a) 2.6 (b) 1.5

(c) 2.8 (d) 1

8. Usually, higher the value of advertising elasticity, greater will be the responsiveness of demand to change in advertisement. Therefore, usually advertising elasticity of demand is typically

(a) Positive (b) Unitary

(c) Negative (d) Zero

9. Advertisement elasticity of demand values between _____ and _____.

(a) One, infinity

(b) Zero, infinity

(c) Zero, one

(d) (–) Infinity to (+) Infinity

ANSWER

1. (a) 2. (a) 3. (b) 4. (a) 5. (c) 6. (a) 7. (d)
8. (a) 9. (b)

DEMAND FORECASTING

- 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 at present.
- It should be kept in mind that demand forecasting is not simple guessing, but it refers to estimating demand scientifically and objectively on the basis of certain facts and events relevant to forecasting.

Usefulness

Demand forecasting plays a crucial role in managerial functions as it reduces uncertainty in the decision-making process and aids in planning for future production levels. Its significance can be outlined as follows:

1. **Production Planning:** Effective demand forecasting is essential for efficient production planning within an organization. The expansion of production capacity should be aligned with the anticipated demand for the company's output. Failing to do so may result in either overproduction or underproduction, leading to financial losses.
2. **Sales Forecasting:** Accurate sales forecasting relies heavily on demand forecasting. The firm's promotional efforts, such as advertising strategies and pricing decisions, should be based on a thorough understanding of the expected demand.
3. **Business Control:** Demand forecasts provide valuable information for budgetary planning and cost control across various functional areas, including finance and accounting. They enable businesses to make informed decisions about resource allocation and financial management.
4. **Inventory Control:** Demand forecasting plays a vital role in maintaining optimal inventory levels. By estimating future inventory requirements, such as raw materials, intermediate goods, semi-finished products, and spare parts, organizations can exercise effective control over their inventory management, minimizing carrying costs and stockouts.
5. **Capital Investments:** Capital investments have long-term implications and require careful consideration. By incorporating demand forecasting, decision-makers can evaluate the potential returns on capital investments and compare them with current interest rates. This aids in making informed decisions about allocating resources to profitable investment opportunities.

In summary, demand forecasting serves as a critical tool for managers, facilitating production planning, sales forecasting, business control, inventory management, and capital investment decisions. Its accurate application helps businesses navigate the uncertain environment and optimize their operations for sustained success

Scope of Forecasting

- Demand forecasting can be conducted at the national or international level, depending on the economic institution's area of operation.
- It can also be focused on a specific product or service provided by a small firm in a local area.

- The scope of the forecasting task is determined by the firm's current and future area of operation.
- The cost and time required for the forecasting process must be considered in relation to the benefits gained from the information obtained.
- There is a trade-off between the cost of forecasting and the benefits derived from it.

TYPES OF FORECASTS

(i) **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.

(ii) **Industry**- level forecasting is concerned with the demand for the industry's products as a whole. For example, demand for cement in India.

(iii) **Firm**- level forecasting refers to forecasting the demand for a particular firm's product, say, the demand for ACC cement.

Based on time period, demand forecasts may be short term demand forecasting and long term demand forecasting.

(i) **Short term demand forecasting**: It 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 forecasting**: Long term forecast 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

(a) 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. Examples of such goods are machines, plant and equipments.
- Consumer's goods are those which are used for final consumption. Examples of consumer's goods are readymade clothes, prepared food, residential houses, etc.

(b) Demand for Durable goods and Non-durable goods:

i. Non-Durable Goods:

- Non-durable goods are goods that cannot be consumed more than once.
- Examples of non-durable producer goods include raw materials, fuel and power, and packing items.
- Examples of non-durable consumer goods include beverages, bread, and milk.
- These goods meet only the current demand and are not meant for long-term use.

ii. Durable Goods:

- Durable goods are goods that do not quickly wear out, can be consumed multiple times, and provide utility over a period of time.

- Examples of durable consumer goods include cars, refrigerators, and mobile phones.
- Examples of durable producer goods include buildings, plants and machinery, and office furniture.
- The demand for durable goods is often derived from other factors or needs.

iii. **Semi-Durable Goods:** There are also semi-durable goods, such as clothes and umbrellas, which fall between non-durable and durable goods in terms of their durability and lifespan.

(c) Derived demand and Autonomous demand

i. Derived Demand:

- Derived demand refers to the demand for a commodity that arises because of the demand for another commodity, known as the "parent product."
- Examples of derived demand include the demand for cement, which is directly related to building activity.
- In general, the demand for producer goods or industrial inputs is considered derived demand.
- Complementary goods also exhibit derived demand, as the demand for one product is dependent on the demand for another.

ii. Autonomous Demand:

- Autonomous demand refers to the demand for a product that is independent of the demand for other goods.
- It arises from the consumer's innate desire to consume or possess the commodity.
- However, determining which products have entirely independent demand is challenging, as many goods have interdependencies with other products.

(d) Demand for firm's product and industry demand

i. **Industry Demand:**

- Industry demand refers to the total demand for the products of a specific industry.
- It represents the aggregate demand for a particular product across all firms operating within that industry.
- For example, it can refer to the total demand for steel in a country.

ii. Firm's Product Demand:

- Firm's product demand refers to the demand for the products of a specific firm.
- It represents the quantity of products that a firm can sell at a given price over a specific period of time.
- For example, it can refer to the demand for steel produced by the Tata Iron and Steel Company.

The demand for a firm's product when expressed as a percentage of industry demand signifies the market share of the firm.

(e) Short - run demand and Long-run demand

i. Short-Run Demand:

- Short-run demand refers to the immediate reaction of demand to changes in product price, related commodity prices, income fluctuations, consumer behavior, and advertising.
- It is influenced by the ability of consumers to adjust their consumption patterns and their susceptibility to new product advertisements.
- Short-run demand is characterized by its relatively short time horizon and immediate responsiveness to various factors affecting demand.

ii. Long-Run Demand:

- Long-run demand refers to demand that exists over a more extended period of time.
- Generic goods typically exhibit long-term demand patterns.
- Long-term demand is influenced by factors such as long-term income trends, availability of substitutes, and credit facilities.
- It takes into account the adjustments made by the market to changes in pricing, promotion, or product improvement over time.
- For example, if electricity rates are reduced, in the short run, existing users may increase their use of electric appliances. However, in the long run, more people may be motivated to purchase and use electric appliances.

FACTORS AFFECTING DEMAND FOR NON-DURABLE CONSUMER GOODS

There are three basic factors which influence the demand for these goods:

(i) **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.

(ii) **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.

(iii) **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. From a business firm's point of view, demand for non durable goods gets repeated depending on the nature of the non durable goods. Usually, non durable goods come in wide varieties and there is competition among the sellers to acquire and retain customer loyalty.

FACTORS AFFECTING THE DEMAND FOR DURABLE-CONSUMER GOODS

Demand for durable goods has certain special characteristics. Following are the important factors that affect the demand for durable goods.

- **Postponement of Replacement:** Consumers have the option to delay replacing durable goods, depending on factors like social status, income level, obsolescence rate, and personal preferences.
- **Special Facilities:** Durable goods often require specific facilities for their use, such as roads for automobiles and electricity for appliances like refrigerators and radios. The availability and growth of these supporting factors impact the demand for durable goods.
- **Family Characteristics:** Since consumer durables are often shared among family members, purchasing decisions can be influenced by factors such as family income, size, age distribution, and gender composition. Changes in the number of households should also be considered when estimating the market size for durable goods.
- **Replacement Demand:** The demand for durable goods includes a significant component of replacement demand. The more existing durable goods a consumer owns, the greater the need for replacements. Therefore, factors affecting replacement demand should be considered when analyzing the demand for durable goods.
- **Price and Credit Facilities:** The demand for consumer durables is influenced by their prices and the availability of credit facilities that make purchasing them more accessible.

FACTORS AFFECTING THE DEMAND FOR PRODUCER GOODS

- **Price of Substitutable Factor:** An increase in the price of a substitutable factor of production, like labor, can increase the demand for capital goods.
- **Price of Complementary Factor:** Conversely, an increase in the price of a complementary factor may decrease the demand for capital goods.
- **Profit Prospects and Optimism:** Higher profit prospects and optimistic expectations of selling higher output in the future can incentivize firms to invest in capital goods.
- **Technological Advances:** Technological advancements that enhance efficiency, reduce costs, and increase productivity of capital can positively impact investment in capital goods.
- **Interest Rates:** Lower interest rates can lead to higher investments in capital goods, as firms have lower opportunity costs for investments and lower borrowing costs.

METHODS OF DEMAND FORECASTING

(a) 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:

i. Complete enumeration method where nearly all potential customers are interviewed about their future purchase plans.

ii. Sample survey method under which only a scientifically chosen sample of potential customers are interviewed.

iii. End–use method, especially used in forecasting demand for inputs, involves identification of all final users, fixing suitable technical norms of consumption (i.e. input output ratio) of the product under study, application of the norms to the desired or targeted levels of output and aggregation.

- Under this method the burden of forecasting is put on the customers.
- This method is useful when bulk of sale is made to industrial producers who generally have definite future plans. In the case of household customers, this method may not prove very helpful for several reasons viz. irregularity in customers' buying intentions, their inability to foresee their choice when faced with multiple alternatives, and the possibility that the buyers' plans may not be real, but only wishful thinking.

(b) Collective Opinion Method:

- Also known as the sales force opinion method or grass roots approach.
- Utilizes the knowledge, experience, and skills of the sales force to forecast future demand.
- Sales personnel estimate expected sales in their respective territories.
- Salesmen, being close to customers, are believed to have a good understanding of market reactions.
- Sales estimates from individual salesmen are consolidated to determine the total estimated sales.
- Estimates are reviewed to eliminate bias and discrepancies.
- Factors like proposed changes in prices, product designs, advertising, competition, and broader economic changes are considered.
- The final sales forecast is derived after accounting for all relevant factors.
- Strengths and Limitations:
  - The method is simple and utilizes first-hand information from those directly involved in sales.
  - However, it is subjective and susceptible to personal opinions influencing the forecast.
  - Salesmen may lack awareness of broader economic changes that can impact future demand.
  - The method is more suitable for short-term forecasting rather than long-term analysis.

(c) Expert Opinion Method

- Also known as the Delphi Method, this demand forecasting technique involves soliciting the views and opinions of specialists, experts, and consultants to estimate future demand. These experts can be internal, such as executives and sales managers, or external consultants with expertise in demand forecasting.

- **Key points about the Delphi Method:**
  1. The Delphi technique, originally developed by Olaf Helmer at the Rand Corporation in the United States, is employed to gather the opinions of multiple experts regarding future demand.
  2. Experts are provided with relevant information and feedback from other experts in iterative rounds, and their opinions and comments are solicited until a consensus or convergence of views is reached.
  3. The Delphi Method is considered a time-saving approach to demand forecasting.

(d) 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:

i. Trend Projection method:

- This method, also known classical method, is considered as a 'naive' approach to demand forecasting.
- A firm that has been operating for a significant period of time would have collected extensive sales data over different time periods.
- Arranging this data chronologically creates a "time series" representing the past pattern of effective demand for a specific product.
- Time series data can be analyzed to identify trends and project future demand patterns.
- By examining historical sales patterns, firms can gain insights into the behavior and potential growth of demand for their product.
- The trend projection method assumes that factors responsible for the past trend in demand will continue to operate.
- The popular techniques of trend projection based on time series data are:

A. 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 free-hand curve to it passing through as many points as possible. The direction of the curve shows the trend.
- 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.

B. Fitting trend equation (Least Square Method):

- 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.
- 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 minimised.

- This technique is used to find a trend line which best fit the available data.
- This trend is then used to project the dependant variable in the future.
- This method is very popular because it is simpl, in-expensive and provide fairly reliable estimates of future demand.
- The major limitation of this method is that it cannot be used where trend is cyclical with sharp turning points of troughs and peaks. Also, this method cannot be used for short term forecasts.

ii. Regression analysis:

- 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.
- Once the relationship is established, we derive regression equation assuming the relationship to be linear. The equation will be of the form $Y = a + bX$.
- Once the regression equation is derived, the value of Y i.e. quantity demanded can be estimated for any given value of X.

(e) Controlled Experiments (market experiment method):

- The experimental method involves manipulating specific determinants of demand, such as price, advertising, etc., while assuming other factors remain constant.
- Experiments can be conducted by varying these determinants across different markets or over different time periods within the same market.
- The objective is to assess the impact of factors like price, advertising, packaging, etc., on sales and record the responses of demand over time.
- The recorded data on the relationship between these determinants and sales can be used to estimate future demand for the product.
- For example, different prices are associated with different sales levels, and a price-quantity relationship can be estimated using regression analysis for forecasting purposes.
- It is important to note that market divisions used in experiments should be homogeneous in terms of income, tastes, and other relevant factors.
- Disadvantages
  - The method of controlled experiments is used relatively less because this method of demand forecasting is expensive as well as time consuming.
  - It is also difficult to determine what conditions should be taken as constant and what factors should be regarded as variable so as to segregate and measure their influence on demand.
  - controlled experiments are risky too because they may lead to unfavourable reactions from dealers, consumers and competitors.
  - it is practically difficult to satisfy the condition of homogeneity of markets.

- Market experiments can also be replaced by 'controlled laboratory experiments' or 'consumer clinics' under which consumers are given a specified sum of money and asked to spend in a store on goods with varying prices , packages, displays etc. The responses of the consumers are studied and used for demand forecasting.

(f) Barometric method of forecasting:

- Just as meteorologists use the barometer to forecast weather, the economists use economic indicators to forecast trends in business activities.
- These indicators help in forecasting the demand prospects of a product, although not the actual quantity demanded.
- An index of relevant economic indicators is constructed to forecast the likely economic environment in the near future.
- **Types of Economic Indicators:**

1. **Leading Indicators:** These indicators move ahead of other series, providing early signals of economic trends. Examples include heavy advance orders for capital goods and an increase in construction permits for new houses, which indicate future economic prosperity.
2. **Coincidental Indicators:** Coincidental indicators move up and down simultaneously with the changes they represent. They offer a snapshot of the current scenario. Examples include figures on retail sales, the rate of unemployment, and the Index of Industrial Production (IIP).
3. **Lagging Indicators:** Lagging indicators follow a change after some time lag. They confirm past events. For instance, heavy household electrical connections confirm that heavy construction work was undertaken in the past, but with a time lag.

TRY YOUR UNDERSTANDING 1.6

1. Method of demand forecasting does not include?
   (a) Mathematical method (b) Barometric method
   (c) Expert opinion method (d) Statistical method
2. Forecasting of demand is the Art and Science of predicting?
   (a) Actual demand of a product at same future date
   (b) Probable demand in future
   (c) Total demand in future
   (d) None of these
3. The demand for a commodity that arises because of the demand for same other commodity (prevent product) is called as
   (a) Demand (b) Direct Demand
   (c) Derived Demand (d) Implied Demand
4. If the demand for a product is independent of the demand for other goods, then it is called as
   (a) Derived Demand (b) Autonomous Demand
   (c) Industry Demand (d) Implied Demand.

5. Identify Producer's goods out of following :
   (a) Plant and Equipment (b) Readymade clothes
   (c) Residential Houses (d) All of the above
6. Which of the following factors affects demand for non-durable con-sumer goods?
   (a) Disposable income (b) Price
   (c) Demography (d) All of the above.
7. _____ method of fore-casting includes the methods:
   (a) Collective opinion (b) Survey of Buyer's intentions
   (c) Expert Opinion (d) Barometric
8. Which one of the following is the statistical method of demand forecasting?
   (a) Trend Projection Method (b) Fitting Equation Method
   (c) Regression Analysis (d) All of the above.

ANSWER

1. (a) 2. (b) 3. (c) 4. (b) 5. (a) 6. (d) 7. (b)
8. (d)

❑❑❑

CHAPTER

2

Theory of Demand and Supply

- **Unit 1:** Law of Demand and Elasticity of Demand
- **Unit 2:** Theory of Consumer's Behaviour –Indifference Curve Approach.
- **Unit 3:** Supply and Elasticity of Supply

UNIT

1

Law of Demand and Elasticity of Demand

MEANING OF DEMAND

- The term 'demand' refers to the quantity of a good or service that buyers are willing and able to purchase at various prices during a given period of time.
- The effective demand for a thing depends on
  (a) desire
  (b) means to purchase and
  (c) 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.

MEANING OF QUANTITY DEMANDED

- Quantity demanded is the quantity of a commodity that people are willing to buy at a particular price at a particular point of time.
- Two things are to be noted about the quantity demanded.
  (a) The quantity demanded is always expressed at a given price. At different prices different quantities of a commodity are generally demanded.
  (b) 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'.

WHAT DETERMINES DEMAND?

Demand for a commodity increases or decreases due to a number of factors. The various factors affecting demand are discussed below:

1. **Price of the commodity:**
   - The good's own price is a key determinant of its demand.
   - 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 leads 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.
- **Complementary goods**
  - Complementary goods and services are those that are bought or consumed together or simultaneously. Examples are: tea and sugar, automobile and petrol and pen and ink.
  - When two commodities are complements, a fall in the price of one (other things being equal) will cause the demand for the other to rise and vice versa.
  - There is an inverse relation between the demand for a good and the price of its complement.
  - For example, a fall in the price of petrol-driven cars would lead to a rise in the demand for petrol. There is an inverse relation between the demand for a good and the price of its complement
- **Substitute goods**
  - 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. For example, tea and coffee, ink pen and ball pen, different brands of toothpaste etc.
  - When goods are substitutes, a fall in the price of one (ceteris paribus) leads to a fall in the quantity demanded of its substitutes and vice-versa.
  - Demand of a commodity is directly related with price of substitute goods.
  - For example, if price of a substitute good (say, coffee) increases, then demand for given commodity (say, tea) will rise as tea will become relatively cheaper in comparison to coffee.

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.
- Normal Goods: Normal goods are those that are demanded in increasing quantities as consumers' income increases. Most goods and services fall under the category of normal goods. Household furniture, clothing, automobiles, consumer durables and semi durables etc. fall in this category. When income is reduced (for example due to recession), demand for normal goods falls.
- Inferior Goods (Also called as Giffen goods) : If any commodity is purchased by a consumer just because of his low income level, then this commodity is termed as an inferior commodity for that person. With Increase in income, demand for inferior goods fall and vice versa.
- As the income level increase and people become richer, there is a relative decline in the importance of food and other non durable goods in the overall consumption basket and a rise in the importance of durable goods such as a TV, car, house etc.

4. **Tastes and preferences of buyers:**
   - Tastes and preferences of the consumer directly influence the demand for a commodity.
   - Goods which are modern or more in fashion command higher demand than goods which are of old design or are out of fashion.
   - Consumers may perceive a product as obsolete and discard it before it is fully utilised and then prefer another good which is currently in fashion.
   - External effects such as' demonstration effect',' bandwagon effect', Veblen effect and 'snob effect' do play important roles in determining the demand for a product.
   - **Demonstration effect,** a term coined by James Duesenberry, refers to the desire of people to emulate the consumption behaviour of others. In other words, people buy or have things because they see that other people are able to have them.
   - **Bandwagon effect** refers to the extent to which the demand for a commodity is increased due to the fact that others are also consuming the same commodity. It represents the desire of people to purchase a commodity in order to be fashionable or stylish or to conform to the people they wish to be associated with.
   - **Snob effect** refers to the 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." For example, when a product becomes common among all, some people decrease or altogether stop its consumption.
   - **'Veblen effect'** (named after the American economist Thorstein Veblen) states that Highly priced goods are consumed by status seeking rich people to satisfy their need for conspicuous noticeable consumption.

5. **Consumers' 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, larger would be the number of buyers and the quantity demanded in the market would be higher at every price. The opposite is the case when population is less.

   (b) Age Distribution of population:
   - If a larger proportion of people belong to older age groups relative to younger age groups, there will be increased demand for geriatric old and weak care services, spectacles, walking sticks, etc and less demand for children's books.
   - 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.
- If the national income is unevenly distributed [few very rich people while the majority are very poor], the propensity to consume of the country will be relatively less and consequently, the demand for consumer goods will be comparatively less.
- However, if the distribution of income is more equal, then the propensity to consume of the country as a whole will be relatively high indicating higher demand for goods.

(d) Consumer-credit facility and interest rates:

- Availability of credit facilities induces people to purchase more than what their current incomes permit them.
- Low rates of interest encourage people to borrow and therefore demand will be more and vice versa.

(e) Government policies and regulations:

- The governments influence demand through its taxation and subsidy policies.
- While taxes increase prices and decrease the quantity demanded, subsidies decrease the prices and increase the quantity demanded. For example taxes on luxurious goods and subsidies for solar panels.
- Similarly total bans, restrictions and higher taxes may be used by government to restrict the demand for socially undesirable goods and services.
- Government's policy on international trade also will affect the domestic demand for goods and services.

TRY YOUR UNDERSTANDING 2.1.1

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
2. Demand is a
   (a) flow concept (b) stock concept
   (c) none of these (d) partially a flow concept
3. In economics, demand refers to
   (a) quantity demanded at a particular time
   (b) quantity demanded backed by ability to pay
   (c) quantity demanded for normal & inferior goods
   (d) quantity demanded at a specific price during a particular period of time

4. When price of z rises it causes an increase in demand for goods X then X & Z are
   (a) complementary goods (b) inferior goods
   (c) substitute goods (d) necessities
5. When price of z rises then the quantity in demand of goods X reduces. what is the relationship between X & Z
   (a) complementary goods (b) inferior goods
   (c) substitute goods (d) necessities
6. The consumer demand those goods which gave
   (a) Both positive & negative utility (b) Positive utility
   (c) Negative utility (d) None of these

Answer Key

1. (d) 2. (a) 3. (d) 4. (c) 5. (a) 6. (b)

DEMAND FUNCTION

Demand function shows the relationship between quantity demanded for a particular commodity and the factors influencing it.

It is expressed as: $D_x = f(Px, Pr, Y, T, F)$

Where,

D_x = Demand for Commodity x; P_x = Price of the given Commodity x;

P_r = Prices of Related Goods; Y = Income of the Consumer;

T = Tastes and Preferences; F = Expectation of Change in Price in future.

THE LAW OF DEMAND

- As per Prof. Alfred Marshall: "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".
- The law of demand states that other things being equal, when the price of a good rises the quantity demanded of the good will fall.
- Thus, there is an inverse relationship between price and quantity demanded, other things remains constant (i.e. ceteris paribus).
- If these factors which determine demand also undergo a change, then the inverse price-demand relationship may not hold good.
- For example, if incomes of consumers increases, then an increase in the price of a commodity, may not result in a decrease in the quantity demanded of it.

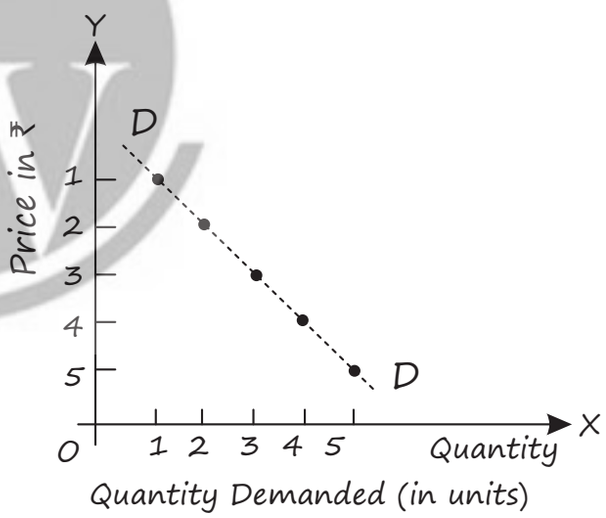
THE DEMAND SCHEDULE

- 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.
- A demand schedule is drawn upon the assumption that all the other influences remain unchanged.

	Price	Quantity Demanded
A	5	1
B	4	2
C	3	3
D	2	4
E	1	5

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.
- It shows the relationship between the quantities of a good that buyers are willing to buy and the price of the good.
- The negative or downward slope indicates that the quantity demanded increases as the price falls (depicting Law Of Demand)
- The slope of a demand curve is – $\Delta P/\Delta Q$ (i.e the change along the vertical axis divided by the change along the horizontal axis). The negative sign of this slope is consistent with the law of demand.
- The demand curve for a good does not have to be linear or a straight line; it can be curvilinear– meaning its slope may vary along the curve. If the change in quantity demanded does not follow a constant proportion, then the demand curve will be non linear.



MARKET DEMAND SCHEDULE

- Market demand schedule refers to a tabular statement showing various quantities of a commodity that all the consumers are willing to buy at various levels of price, during a given period of time.
- It is the sum of all individual demand schedules at each and every price.
- Market demand schedule can be expressed as: $D_m - D_A + D_B + ...$

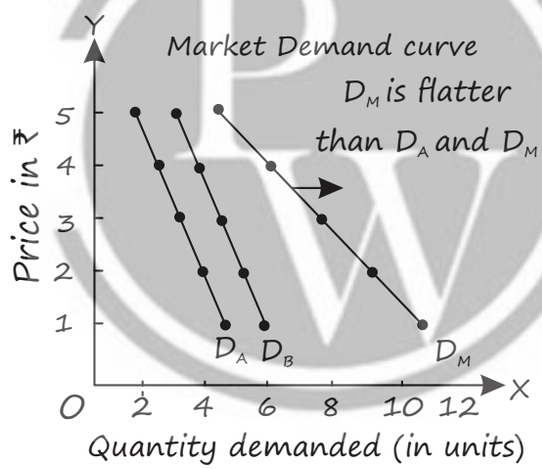
  Where Dm is the market demand and $D_A + D_B +$ are the individual demands of Household A, Household B and so on.

Market Demand Schedule

Price (Rs.)	Individual Demand (in units)		Market Demand (in units) {Da + DB)
	Household A (DA)	Household B (DB)	
5	1	2	1+2 = 3
4	2	3	2 + 3 = 5
3	3	4	3 + 4 = 7
2	4	5	4 + 5 = 9
1	5	6	5 + 6 = 11

MARKET DEMAND CURVE

- Market demand curve refers to a graphical representation of market demand schedule. It is obtained by horizontal summation of individual demand curves.
- Market demand curve 'DM' also slope downwards due to inverse relationship between price and quantity demanded.
- Market Demand Curve is Flatter than individual demand curve, as when price changes then proportionate change in market demand is more than proportionate change in individual demand.



RATIONALE OF THE LAW OF DEMAND (WHY DEMAND CURVE SLOPES DOWNWARD)

The various reasons for operation of Law of Demand are:

1. **Substitution Effect:**
   - It refers to substituting one commodity in place of other when it becomes relatively cheaper.
   - When price of the given commodity falls (say ball pen), it becomes relatively cheaper as compared to its substitute (say ink pen) (assuming no change in price of ink pen). As a result, demand for the given commodity (i.e. ball pen) rises
2. **Income Effect:**
   - It refers to effect on demand when real income of the consumer changes due to change in price of the given commodity.

- When price of the given commodity falls, it increases the purchasing power (real income) of the consumer. Due to which, he can purchase more of the given commodity with the same money income.
- For example, Chandu buys 2 ice-creams @ Rs.10 each with his pocket money of Rs.20. If price of ice cream falls to Rs.5 each, then with the same pocket money, chandu can buy 4 ice-creams due to an increase in real income.

3. **Utility maximising behaviour of Consumers (Law Of Diminishing Marginal Utility):**
   - 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.
4. **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. This raises the number of consumers of a commodity at a lower price and hence the demand for the commodity in question increases.
5. **Different uses:** Many commodities have multiple uses. When the price of such commodities are high (or rises) they will be put to limited uses only. If the prices of such commodities fall, they will be put to more number of uses and therefore their demand will increase. Example Milk.

EXCEPTIONS TO THE LAW OF DEMAND

The following are the important exceptions to the law of demand:

1. **Conspicuous goods (Veblen Effect):**
   - 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 such as diamond, paintings, antiques etc.
   - There demand is high at higher prices and if their prices fall, then their demand will decrease as they are not considered as status symbol goods anymore.
   - 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 consider that if the commodity is expensive then it has more utility.
2. **Giffen goods:**
   - **Background:** 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.

- Those goods which are inferior, with no close substitutes easily available and which occupy a substantial place in consumer's budget are called 'Giffen goods'.
- Such goods exhibit direct price-demand relationship.
- All Giffen goods are inferior goods; but all inferior goods are not Giffen goods.
  - All Giffen goods are inferior goods because all Giffen goods have negative income effect.
  - But all inferior goods are not Giffen goods, as all inferior goods do not have dominating negative income effect, i.e. negative income effect is not stronger than positive substitution effect in case of all inferior goods.

3. **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.
   - Due to their constant usage these goods have become necessities of life.
   - For example, TVs, refrigerators, coolers, cooking gas etc.
4. **Future expectations about prices:**
   - When the prices show increasing trend, consumers tend to buy larger quantities of such commodities, expecting that the prices in the future will be still higher and vice versa.
   - 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 at the higher price.
5. **Incomplete information and irrational behaviour:**
   - Consumers have incomplete information and therefore make inconsistent decisions regarding purchases.
   - 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.
   - 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.
6. **Demand for necessaries:**
   - The law of demand does not apply much in the case of necessaries of life.
   - Irrespective of price changes, people have to consume the minimum quantities of necessary commodities.
7. **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.

TRY YOUR UNDERSTANDING 2.1.2

1. The law of demand refers to relationship between
   (a) price of a good & quantity demanded
   (b) income & quantity demanded

(c) price of a good & quantity demanded of its substitute
(d) price of a good & quantity demanded of its complementary goods

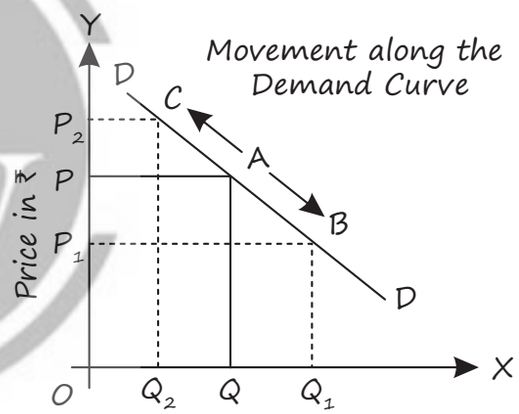
2. The law of demand assumes that the following is constant
   (a) price of related goods (b) income of the consumer
   (c) tastes & preferences (d) All the above
3. Market demand is derived from individual demand curve by
   (a) vertical summation (b) horizontal summation
   (c) Both (a) & (b) (d) None of these

Answer Key

1. (a) 2. (d) 3. (b)

EXPANSION AND CONTRACTION OF DEMAND (MOVEMENT ALONG THE DEMAND CURVE OR CHANGE IN QUANTITY DEMANDED)

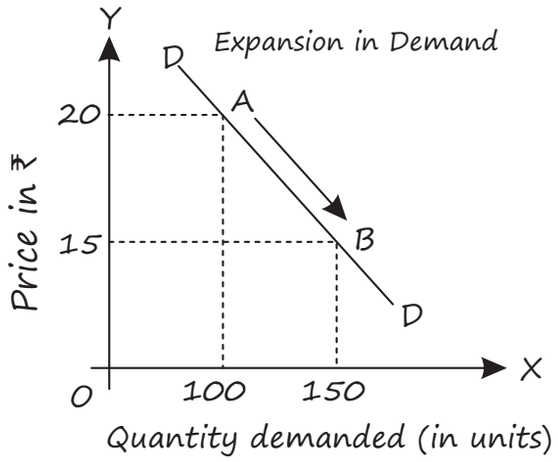
- When quantity demanded of a commodity changes due to change in price of a commodity (other factors remain constant) then it is termed as change in quantity demanded.
- Its graphical presentation is expressed as movement along the demand curve.
- Downward movement represents expansion of demand whereas upward movement represents contraction of demand.



EXPANSION IN DEMAND

It refers to increase in the quantity demanded due to reduction in the price of commodity, other factors remains constant.

- It leads to a downward movement along the same demand curve.
- Also known as 'Extension in Demand' or 'Increase in Quantity Demanded'.



EXPANSION IN DEMAND

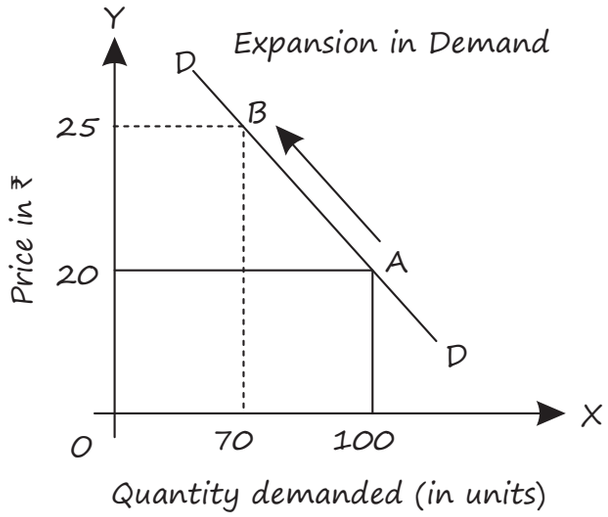
Price (Rs.)	Demand (units)
20	100
15	150

CONTRACTION IN DEMAND

It refers to a fall in the quantity demanded due to increase in the price of commodity, other factors remaining constant.

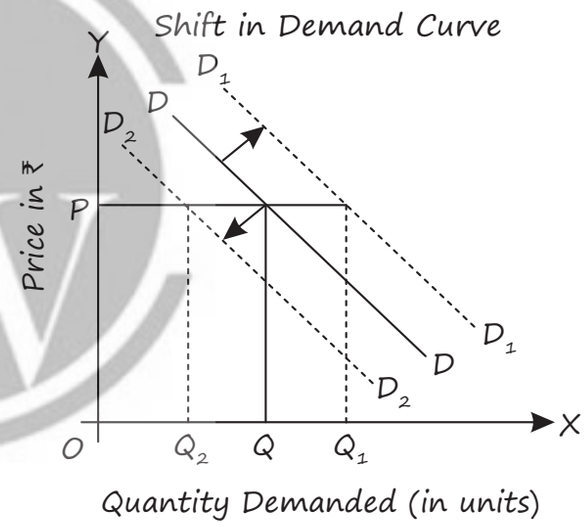
- It leads to an upward movement along the same demand curve.
- Also known as 'Decrease in Quantity Demanded'.

Price (Rs.)	Demand (units)
20	100
25	70



INCREASE AND DECREASE IN DEMAND (SHIFT IN DEMAND CURVE OR CHANGE IN DEMAND)

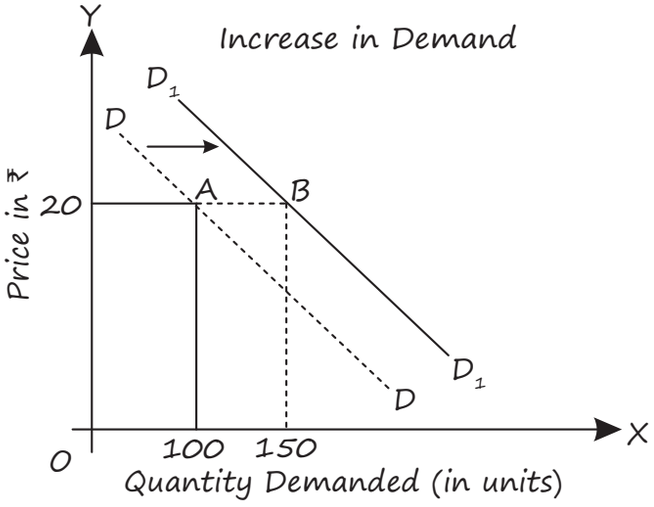
- When the demand of a commodity changes due to change in any factor other than the own price of the commodity, it is known as change in demand.
- It is graphically expressed as a shift in the demand curve.
- Rightward Shift Indicated Increase in demand whereas leftward shift indicates decrease in demand.



INCREASE IN DEMAND

- When demand of a commodity increases due to any factor other than price of a commodity then it is termed as increase in demand.
- It leads to a rightward shift of demand curve.

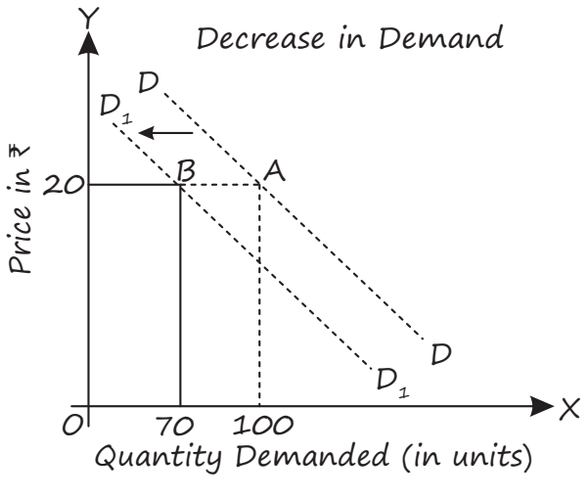
Price (Rs.)	Demand (units)
20	100
20	150



DECREASE IN DEMAND

- When demand of a commodity decreases due to any factor other than price of a commodity then it is termed as decrease in demand.
- It leads to a leftward shift of demand curve.

Price (Rs.)	Demand (units)
20	100
20	70



Reasons for Increase in Demand	Reasons for Decrease in Demand
❑ Rise in income,	❑ Fall in income
❑ Rise in the price of a substitute,	❑ Fall in the price of a substitute,
❑ Fall in the price of a complement,	❑ Rise in the price of a complement,
❑ Change in tastes in favour of this commodity,	❑ Change in tastes against this commodity,
❑ An increase in population, and	❑ Decrease in population, and
❑ Redistribution of income to groups who favour this commodity	❑ Redistribution of income away from groups who favour this commodity.

TRY YOUR UNDERSTANDING 2.1.3

1. When price of a related good or income or taste changes, it brings about
   (a) change in quantity demanded (b) change in demand
   (c) increase in demand (d) decrease in demand
2. Rise in demand at original price is called
   (a) expansion in demand (b) contraction in demand
   (c) increase in demand (d)decrease in demand
3. When price of a good changes, it brings about
   (a) change in quantity demanded (b) change in demand
   (c) expansion in demand (d) contraction in demand

Answer Key

1. (b) 2. (c) 3. (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.

- In simple words, elasticity of demand is the percentage change in quantity demanded divided by the percentage change in one of the variables on which demand depends.
- different measures of elasticity are price elasticity, cross elasticity, income elasticity, advertisement elasticity and elasticity of substitution.

> **Note:** Unless otherwise mentioned, it is price elasticity of demand which is usually referred to as elasticity of demand.

PRICE ELASTICITY OF DEMAND

- Price elasticity of demand measures the sensitivity of quantity demanded to 'own price' or the price of the own commodity.
- Price elasticity of demand measure the responsiveness of quantity demanded of a commodity, to a change in Price, assuming all the other factors as constant.
- The price elasticity of demand (also referred to as PED) tells us the percentage change in quantity demanded for each one percent (1%) change in price.

$$\text{Price Elasticity} = Ep = \frac{\%\ \text{change in in quantity demanded}}{\%\ \text{change in price}}$$

Or

$$Ep = \frac{\text{Change in quantity / Original Quantity}}{\text{Change in Price / Original Price}} \times 100$$

Or

$$Ep = \frac{\text{Change in quantity}}{\text{Original Quantity}} \times \frac{\text{Original Price}}{\text{Change in Price}}$$

Or

$$Ep = \frac{\Delta Q}{Q} \times \frac{P}{\Delta P}$$

Where

Ep = Price Elasticity

Q = Original Quantity

P = Original Price

ΔQ = Change In Quantity

ΔP = Change In Price

- The greater the value of elasticity, the more sensitive quantity demanded is to price.
- The value of price elasticity varies from minus infinity to approach zero.
- Since price and quantity are inversely related (with a few exceptions) price elasticity is negative, but we ignore the negative sign and consider only the numerical value of the elasticity.

Example: The price of a commodity decreases from Rs 6 to Rs 4 and quantity demanded of the good increases from 10 units to 15 units. Find the coefficient of price elasticity.

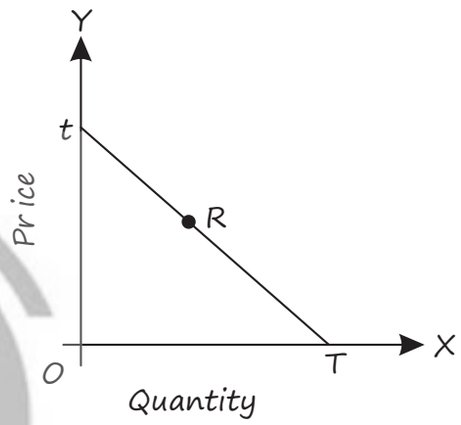
$$Ep = \frac{\Delta Q}{Q} \times \frac{P}{\Delta P}$$

$Ep = (-)\ 5/10 \times 6/2$

$Ep = (-)1.5$

POINT ELASTICITY

- The point elasticity of demand is the price elasticity of demand at a particular point on the demand curve.
- The concept of point elasticity is used for measuring price elasticity where the change in price is infinitesimal (extremely small).
- Price elasticity is a key element in applying marginal analysis to determine optimal prices.
- Marginal analysis works by evaluating "small" changes taken with respect to an initial decision, it is useful to measure elasticity with respect to an infinitesimally small change in price.
- Point elasticity makes use of derivative rather than finite changes in price and quantity.



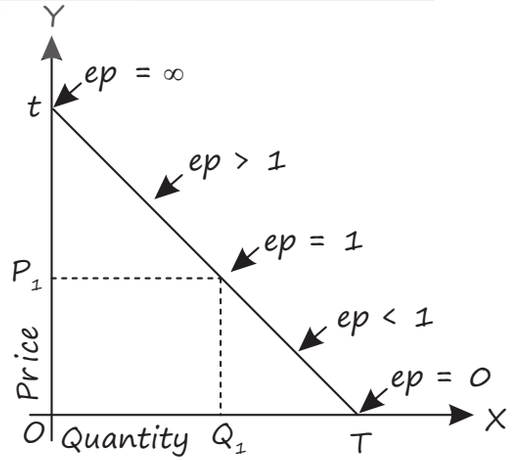
$$Ep = \frac{dq}{dp} \times \frac{p}{q}$$

- Where dq /dp is the derivative of quantity with respect to price at a point on the demand curve, and p and q are the price and quantity at that point.

GEOMETRIC METHOD (MEASUREMENT OF ELASTICITY ON A LINEAR DEMAND CURVE)

- Elasticity varies along the curve as price and quantity change.
- The slope of a linear demand curve is constant. However, the elasticity at different points on a linear demand curve would be different.
- When price is high and quantity is small, the elasticity is high. The elasticity becomes smaller as we move down the curve.

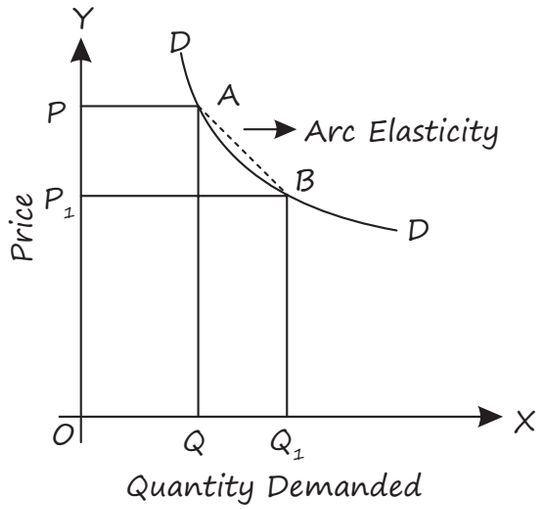
$$Ep = \frac{\text{Lower Segment}}{\text{Upper Segment}}$$



ARC-ELASTICITY

- When price elasticity is to be found between two prices or two points on the demand curve, the question arises as to which price and quantity should be taken as base.

- in order to avoid confusion, the averages of the two prices and quantities are taken as (i.e. original and new) base.
- The arc elasticity can be found out by using the formula: We drop the minus sign and use the absolute value.



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

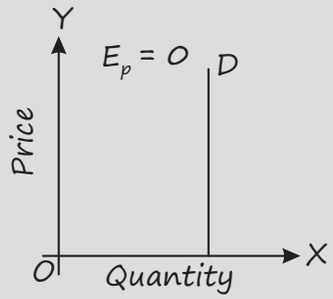
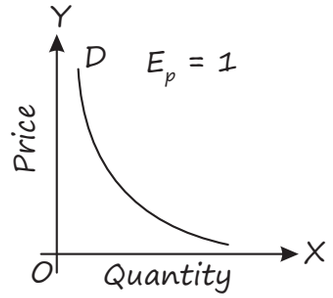
$$Ep = \frac{Q_2 - Q_1}{Q_2 + Q_1} \times \frac{P_2 + P_1}{P_2 - P_1}$$

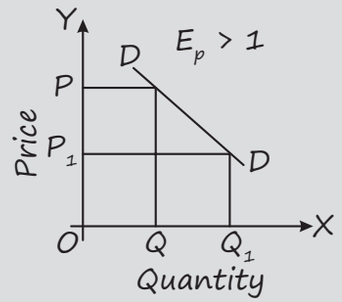
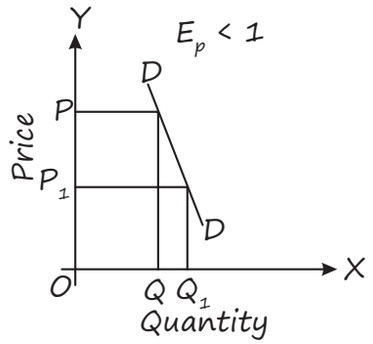
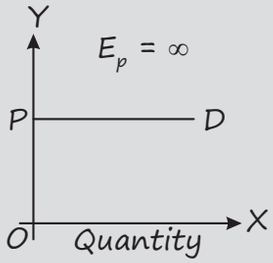
Where P1, Q1are the original price and quantity and P2, Q2are the new ones.

- The arc elasticity will always lie somewhere (but not necessarily in the middle) between the point elasticities calculated at the lower and the higher prices.

INTERPRETATION OF THE NUMERICAL VALUES OF ELASTICITY OF DEMAND

The numerical value of elasticity of demand can assume any value between zero and infinity.

$E_p = 0$	❑ If there is no change at all in the quantity demanded when price changes i.e. Perfectly Inelastic ❑ Perfectly inelastic demand is as an extreme case of price insensitivity and is therefore only a theoretical category with less practical significance. ❑ The vertical demand curve represents perfectly or completely inelastic demand	
$E_p = 1$	❑ If the percentage change in quantity demanded is equal to the percentage change in price. ❑ The demand curve is a rectangular hyperbola. ❑ Also known as Unitary Elastic.	

$E_p > 1$	❑ When the percentage change in quantity demanded is greater than the percentage change in price. ❑ Demand is said to be elastic. ❑ The elastic demand line (demand curve) is fairly flat.	
$E_p < 1$	❑ When the percentage change in quantity demanded is less than the percentage change in price. ❑ Demand is said to be inelastic. ❑ The quantity demanded is relatively insensitive to price changes. ❑ The inelastic demand line (demand curve) is fairly steep.	
$E_p = \infty$	❑ When a 'small price reduction raises the demand from zero to infinity. ❑ Perfectly or infinitely elastic demand. ❑ As long as the price stays at one particular level any quantity might be demanded. ❑ If there is a slight increase in price, quantity demanded fall to zero. ❑ This type of demand curve is found in a perfectly competitive market. ❑ The demand curve is horizontal at the price level.	

TOTAL OUTLAY METHOD OF CALCULATING PRICE ELASTICITY

The price elasticity of demand for a commodity and the total expenditure or outlay made on it are significantly related to each other.

As the total expenditure made on a commodity is the total revenue received by the seller, we can say that the price elasticity and total revenue received are closely related to each other.

By analysing the changes in total expenditure (or total revenue) in response to a change in the price of the commodity, we can know the price elasticity of demand for it.

$E_p = 1$	❑ When, as a result of the change in price of a good, the total expenditure on the good or the total revenue received from that good remains the same, the price elasticity for the good is equal to unity. ❑ This is because the total expenditure made on the good can remain the same only if the proportional change in quantity demanded is equal to the proportional change in price.

$E_p > 1$	❑ When, as a result of increase in the price of a good, the total expenditure made on the good or the total revenue received from that good falls or ❑ When as a result of decrease in price, the total expenditure made on the good or total revenue received from that good increases, we say that price elasticity of demand is greater than unity.
$E_p < 1$	❑ When, as a result of increase in the price of a good, the total expenditure made on the good or the total revenue received from that good increases or ❑ when as a result of decrease in its price, the total expenditure made on the good or the total revenue received from that good falls, we say that the price elasticity of demand is less than unity.

The main drawback of this method is that by using this we can only say whether the demand for a good is elastic or inelastic; we cannot find out the exact coefficient of price elasticity.

Why should a business firm be concerned about elasticity of demand?

The reason is that the degree of elasticity of demand predicts how changes in the price of a good will affect the total revenue earned by the producers from the sale of that good. The total revenue is defined as the total value of sales of a good or service. It is equal to the price multiplied by the quantity sold.

TOTAL REVENUE

- Total revenue (TR) = Price × Quantity sold
- Except in the rare case of a good with perfectly elastic or perfectly inelastic demand, when a seller raises the price of a good, there are two effects which act in opposite directions on revenue.
  - **Price effect:** After a price increase, each unit sold sells at a higher price, which tends to raise the revenue and vice versa
  - **Quantity effect:** After a price increase, fewer units are sold, which tends to lower the revenue and vice versa.

If the price effect which tends to raise total revenue is the stronger of the two effects, then total revenue goes up. If the quantity effect, which tends to reduce total revenue, is the stronger, then total revenue goes down.

$E_p = 1$	❑ An increase in price or decrease in price does not change total revenue. ❑ The quantity effect and the price effect exactly balance each other.
$E_p > 1$	❑ When, as a result of increase in the price of a good, the total expenditure made on the good or the total revenue received from that good falls or ❑ When as a result of decrease in price, the total expenditure made on the good or total revenue received from that good increases, we say that price elasticity of demand is greater than unity.
$E_p < 1$	❑ An increase in price reduces total revenue and a fall in price increases total revenue. ❑ In this case, the quantity effect is stronger than the price effect.

The Relationship between Price elasticity and Total Revenue (TR)

	Elastic	Unitary Elastic	Inelastic
Price Increase	TR Decreases	TR remains same	TR Increases
Price Decrease	TR Increases	TR remains same	TR Decreases

DETERMINANTS OF PRICE ELASTICITY OF DEMAND

Following are important determinants of price elasticity:

1. **Availability of substitutes:**
   - The demand for a commodity with a wide range of substitute products tends to be more elastic. This is because even a slight increase in its price can prompt buyers to switch to available substitutes.
   - For instance, if the price of Pepsi rises, consumers may choose to purchase Coke as an alternative, and vice versa.
   - As a result, the presence of close substitutes makes the demand for a commodity more responsive to changes in prices
   - On the contrary, commodities that have limited or no substitutes, such as wheat and salt, generally exhibit less price elasticity of demand. This means that changes in price have a comparatively smaller impact on the quantity demanded by consumers.
2. **Position of a commodity in the consumer's budget:**
   - The greater the proportion of income spent on a commodity; generally the greater will be its elasticity of demand and vice- versa.
   - The demand for goods like common salt, matches, buttons, etc. tend to be highly inelastic because a household spends only a fraction of their income on each of them.
   - On the other hand, demand for goods like rental apartments and clothing tends to be elastic since households generally spend a good part of their income on them.
   - When the good absorbs a significant share of consumers' income, it is worth their time and effort to find a way to reduce their demand when the price goes up.
3. **Nature of the need that a commodity satisfies:**
   - In general, luxury goods are price elastic because one can easily live without a luxury. In contrast, necessities are price inelastic.
   - If it is possible to postpone the consumption of a particular good, such good will have elastic demand.
   - Consumption of necessary goods cannot be postponed and therefore, their demand is inelastic.
4. **Number of uses to which a commodity can be put:**
   - The more the possible uses of a commodity, the greater will be its price elasticity and vice versa.
   - When the price of a commodity which has multiple uses decreases, people tend to extend their consumption to its other uses and vice versa.

5. **Time period:**
   - The concept of price elasticity of demand is time-dependent, as it is influenced by the period under consideration, which can range from a day to several years.
   - The elasticity of demand varies in direct proportion to the time frame examined. In the short term, demand tends to be relatively inelastic because consumers face difficulties in quickly changing their habits or adapting to price changes for a particular commodity.
   - However, in the long run, demand becomes more elastic as consumers have more flexibility and time to explore alternative options and switch to substitutes when the price of the given commodity rises.
   - In the short term, if the price of petrol increases, consumers may be reluctant to switch to alternative sources, as it requires significant investments in purchasing new car. But over a longer period, they have the opportunity to explore options like EV-Cars, thereby making their demand for petrol more elastic in the long run.
6. **Consumer habits:** If a person is a habitual consumer of a commodity, no matter how much its price change, the demand for the commodity will be inelastic. If buyers have rigid preferences demand will be less price elastic.
7. **Tied demand:** The demand for those goods which are tied to others is normally inelastic as against those whose demand is of autonomous nature. For example printers and ink cartridges.
8. **Price Range:**
   - Goods which are in medium range of price level are more elastic to price change.
   - Goods which are in very high price range or in very low price range have inelastic demand.
9. **Minor complementary items:** The demand for cheap, complementary items to be used together with a costlier product will tend to have an inelastic demand.

TRY YOUR UNDERSTANDING 2.1.4

1. The minus sign in elasticity of demand indicates
   (a) inverse relationship between price & quantity demands
   (b) inverse relationship between income & quantity demands
   (c) direct relationship between price & quantity demands
   (d) None of these
2. What is elasticity of demand in case of necessities & luxuries ?
   (a) necessities have elastic & luxuries have inelastic
   (b) necessities have inelastic & luxuries have elastic
   (c) necessities have zero & luxuries have one
   (d) necessities have one & luxuries have zero
3. In case of essential goods the elasticity of demand is
   (a) infinity (b) high (c) one (d) zero

4. What is it called when elasticity of demand is one? What shape will the demand curve take?
   (a) unitary elastic; rectangular hyperbole
   (b) elastic; downward sloping
   (c) elastic; vertical
   (d) inelastic; horizontal

5. The formula of arc elasticity demand is

   (a) $Q_1+\frac{Q_2}{Q_1}-Q_2\times Q_1+\frac{Q_2}{P_1}-P_2$ (b) $Q_1-\frac{Q_2}{Q_1}+Q_2.P_1+\frac{P_2}{P_1}-P_2$

   (c) $Q_1-\frac{Q_2}{Q_1}+Q_2\times P_1-\frac{P_2}{P_1}+P_2$ (d) None of these

6. When price & outlay moves in the same direction, it is case of
   (a) unitary elastic demand (b) elastic demand
   (c) perfectly elastic demand (d) inelastic demand

7. When the price & outlay move in opposite direction it is case of
   (a) unitary elastic demand (b) elastic demand
   (c) perfectly elastic demand (d) inelastic demand

8. If price of burger rises by 20% & demand falls by 25% then demand for burger is
   (a) static (b) perfectly elastic
   (c) unitary elastic (d) inelastic

9. If there is no change in quantity demanded to any change in price then elasticity of demand is & shape of demand curve is
   (a) infinity elastic; horizontal demand curve
   (b) zero, vertical demand curve
   (c) less than one, downward sloping demand curve
   (d) zero than one horizontal downward sloping demand curve

10. As the prices of a commodity rises from Rs.10 to Rs.12, its demand falls from 100 units to 50 units calculate elasticity of demand
   (a) 4 (b) 3 (c) 1 (d) 2

11. In a straight line downward sloping demand curve, the elasticity of demand becomes greater as price
   (a) rises (b) zero (c) falls (d) is unchanged

12. When more substitutes are available elasticity of demand is
   (a) more (b) less (c) infinity (d) None of these

Answer Key

1. (a) **2.** (b) **3.** (d) **4.** (a) **5.** (b) **6.** (d) **7.** (b) **8.** (a) **9.** (b) **10.** (a)
11. (a) **12.** (a)

INCOME ELASTICITY OF DEMAND

- The income elasticity of demand is a measure of how much the demand for a good is affected by changes in consumers' incomes.
- Estimates of income elasticity of demand are useful for businesses to predict the possible growth in sales as the average incomes of consumers grow over time.
- Income elasticity of demand is the degree of responsiveness of the quantity demanded of a good to changes in the income of consumers.

$$E_i = \frac{\% \text{ Change in Quantity}}{\% \text{ Change in Income}}$$

Or

$$E_i = \frac{\Delta Q}{Q} \times \frac{Y}{\Delta Y}$$

$E_i = 1$	If the proportion of income spent on a good remains the same as income increases, then income elasticity for that good is equal to one.
$E_i > 1$	❑ If the proportion of income spent on a good increase as income increases, then the income elasticity for that good is greater than one. ❑ The demand for such goods increase faster than the rate of increase in income. ❑ If the income elasticity for a good is greater than one, it shows that the good bulks larger in consumer's expenditure as he becomes richer. Such goods are called luxury goods.
$E_i < 1$	❑ If the proportion of income spent on a good decrease as income rises, then income elasticity for the good is positive but less than one. ❑ The demand for income-inelastic goods rises, but substantially slowly compared to the rate of increase in income. ❑ Necessities such as food and medicines tend to be income- inelastic. ❑ It shows that the good is either relatively less important in the consumer's eye or, it is a good which is a necessity.

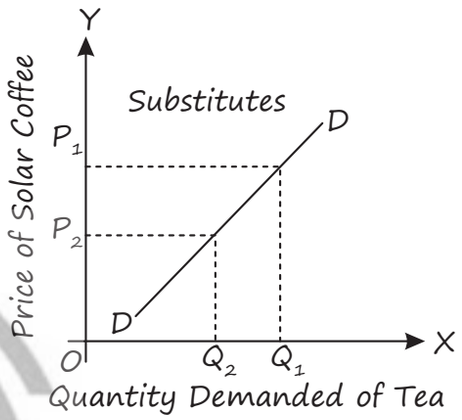
- Income elasticity of goods reveals a few very important features of demand for the goods in question.
  - If income elasticity is zero, it signifies that the demand for the good is quite unresponsive to changes in income.
  - When income elasticity is greater than zero or positive, then an increase in income leads to an increase in the demand for the good. This happens in the case of most of the goods and such goods are called normal goods. For all normal goods, income elasticity is positive. However, the degree of elasticity varies according to the nature of commodities.
  - When the income elasticity of demand is negative, the good is an inferior good. In this case, the quantity demanded at any given price decreases as income increases. The reason is that when income increases, consumers choose to consume superior substitutes.

CROSS - PRICE ELASTICITY OF DEMAND

- The demand for a particular commodity may change due to changes in the prices of related goods (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.
- Example: if price of pen decreases, then demand for ink rises (Pen and ink are complimentary goods)

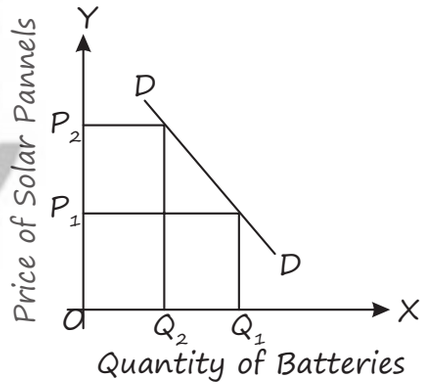
(a) Substitute Goods:

- 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.
- Example: When the price of coffee increases, due to the operation of the law of demand, the demand for coffee falls. The consumers will substitute tea in the place of coffee. The price of tea is assumed to be constant.



(b) Complementary Goods

- 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.
- Demand Curve of complimentary good is downward sloping.
- For instance, an increase in demand for solar panels due to reduction in price of panels, it will necessarily increase the demand for batteries and vice versa.



- The cross-price elasticity of demand between two goods measures the effect of the change in one good's price on the quantity demanded of the other good.
- It is equal to the percentage change in the quantity demanded of one good divided by the percentage change in the other good's price.

$$E_c = \frac{\%\text{ change in quantity of Good X}}{\%\text{ Change in Price of Good Y}}$$

Or

$$E_c = \frac{\Delta Qx}{Qx} \times \frac{Py}{\Delta Py}$$

- In the case of the cross-price elasticity of demand, the sign (plus or minus) is very important: it tells us whether the two goods are complements or substitutes.

- Cross Price Elasticity Of Substitute Goods:
  - When two goods X and Y are substitutes, the cross-price elasticity of demand is positive: a rise in the price of Y increases the demand for X and causes a rightward shift of the demand curve.
  - Value of cross elasticity is a measure of how closely substitutable the two goods are. Greater the cross elasticity, the closer is the substitute.
    (a) If two goods are perfect substitutes for each other, the cross elasticity between them is infinite.
    (b) If two goods are close substitutes, the cross-price elasticity will be positive and large.
    (c) If two goods are not close substitutes, the cross-price elasticity will be positive and small.
    (d) If two goods are totally unrelated, the cross-price elasticity between them is zero.
- Cross Price Elasticity Of Complimentary Goods:
  - 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 causing a leftward shift of the demand curve.
  - The size of the cross-price elasticity of demand between two complements tells us how strongly complementary they are:
    (a) if the cross-price elasticity is only slightly below zero, they are weak complements;
    (b) if it is negative and very high, they are strong complements.

If cross elasticity to change in the price of substitutes is greater than one, the firm may lose by increasing the prices and gain by reducing the prices of his products. With proper knowledge of cross elasticity, the firm can plan policies to safeguard against fluctuating prices of substitutes and complements.

ADVERTISEMENT ELASTICITY

- The advertising elasticity of demand measures the percentage change in demand that occurs given a one percent change in advertising expenditure.
- Advertising elasticity measures the effectiveness of an advertisement campaign in bringing about new sales.
- 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.

$$E_c = \frac{\text{\% change in quantity}}{\text{\% Change in Spending on Advertisement}}$$

Or

$$E_a = \frac{\Delta Qx}{Qx} \times \frac{A}{\Delta A}$$

$E_a = 0$	Demand does not respond at all to increase in advertisement expenditure
$E_a > 0$ but < 1	Increase in demand is less than proportionate to the increase in advertisement expenditure
$E_a = 1$	Demand increase in the same proportion in which advertisement expenditure increase
$E_a > 1$	Demand increase at a higher rate than increase in advertisement expenditure

As far as a business firm is concerned, the measure of advertisement elasticity is useful in understanding the effectiveness of advertising and in determining the optimum level of advertisement expenditure.

TRY YOUR UNDERSTANDING 2.1.5

1. If income of a household rises by 30% and demand falls by 10% then value of income elasticity of demand is
   (a) −0.33 (b) 0.33 (c) 3 (d) 1
2. What is the relationship between two goods when cross elasticity is positive & when it is negative ?
   (a) substitutes when positive & complements when negative
   (b) complements when positive & substitutes when negative
   (c) substitutes when positive & no relation when negative
   (d) perfect substitutes when positive & perfect complements when negative
3. Cross elasticity of demand denotes a change in demand for one good due to change in whose aspects of the other good
   (a) quantity (b) Price (c) quality (d) None of these
4. When elasticity of demand is measured in terms of its substitutes & complements, it is called
   (a) cross elasticity (b) price elasticity
   (c) income clasticity (d) elasticity of supply
5. Advertisement elasticity of sales or promotional elasticity of demand is the responsive of a good demanded to changes in
   (a) Price of Commodity (b) Per Unit advertisement budget
   (c) Firms spending on advertising (d) Firms spending on distribution.
6. Calculate elasticity when price of ball pen falls by 10% then demanded of a ink falls by 10%
   (a) 1 (b) −1 (c) 10 (d) cannot calculate

7. As a consumers' income rises from Rs.3,000 to Rs.3,600, demand rises from 25 units to 30 units .calculate elasticity of demand

   (a) 2.6 (b) 1.5 (c) 2.8 (d) 1

8. Usually, higher the value of advertising elasticity, greater will be the responsiveness of demand to change in advertisement. Therefore, usually advertising elasticity of demand is typically

   (a) Positive (b) Unitary (c) Negative (d) Zero

9. Advertisement elasticity of demand values between _____ and _____.

   (a) One, infinity (b) Zero, infinity

   (c) Zero, one (d) (–) Infinity to (+) Infinity

Answer Key

1. (a) **2.** (a) **3.** (b) **4.** (a) **5.** (c) **6.** (a) **7.** (d) **8.** (a) **9.** (b)

DEMAND FORECASTING

- 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 at present.
- It should be kept in mind that demand forecasting is not simple guessing, but it refers to estimating demand scientifically and objectively on the basis of certain facts and events relevant to forecasting.

USEFULNESS

Demand forecasting plays a crucial role in managerial functions as it reduces uncertainty in the decision-making process and aids in planning for future production levels. Its significance can be outlined as follows:

1. **Production Planning:** Effective demand forecasting is essential for efficient production planning within an organization. The expansion of production capacity should be aligned with the anticipated demand for the company's output. Failing to do so may result in either overproduction or underproduction, leading to financial losses.
2. **Sales Forecasting:** Accurate sales forecasting relies heavily on demand forecasting. The firm's promotional efforts, such as advertising strategies and pricing decisions, should be based on a thorough understanding of the expected demand.
3. **Business Control:** Demand forecasts provide valuable information for budgetary planning and cost control across various functional areas, including finance and accounting. They enable businesses to make informed decisions about resource allocation and financial management.
4. **Inventory Control:** Demand forecasting plays a vital role in maintaining optimal inventory levels. By estimating future inventory requirements, such as raw materials, intermediate goods, semi-finished products, and spare parts, organizations can exercise effective control over their inventory management, minimizing carrying costs and stockouts.

5. **Capital Investments:** Capital investments have long-term implications and require careful consideration. By incorporating demand forecasting, decision-makers can evaluate the potential returns on capital investments and compare them with current interest rates. This aids in making informed decisions about allocating resources to profitable investment opportunities.

In summary, demand forecasting serves as a critical tool for managers, facilitating production planning, sales forecasting, business control, inventory management, and capital investment decisions. Its accurate application helps businesses navigate the uncertain environment and optimize their operations for sustained success

SCOPE OF FORECASTING

- Demand forecasting can be conducted at the national or international level, depending on the economic institution's area of operation.
- It can also be focused on a specific product or service provided by a small firm in a local area.
- The scope of the forecasting task is determined by the firm's current and future area of operation.
- The cost and time required for the forecasting process must be considered in relation to the benefits gained from the information obtained.
- There is a trade-off between the cost of forecasting and the benefits derived from it.

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.
2. **Industry**- level forecasting is concerned with the demand for the industry's products as a whole. For example, demand for cement in India.
3. **Firm**- level forecasting refers to forecasting the demand for a particular firm's product, say, the demand for ACC cement.

Based on time period, demand forecasts may be short term demand forecasting and long term demand forecasting.

1. **Short term demand forecasting:** It 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.
2. **Long term forecasting:** Long term forecast 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. Examples of such goods are machines, plant and equipments.

- Consumer's goods are those which are used for final consumption. Examples of consumer's goods are readymade clothes, prepared food, residential houses, etc.

2. Demand for Durable goods and Non-durable goods:

(a) Non-Durable Goods:

- Non-durable goods are goods that cannot be consumed more than once.
- Examples of non-durable producer goods include raw materials, fuel and power, and packing items.
- Examples of non-durable consumer goods include beverages, bread, and milk.
- These goods meet only the current demand and are not meant for long-term use.

(b) Durable Goods:

- Durable goods are goods that do not quickly wear out, can be consumed multiple times, and provide utility over a period of time.
- Examples of durable consumer goods include cars, refrigerators, and mobile phones.
- Examples of durable producer goods include buildings, plants and machinery, and office furniture.
- The demand for durable goods is often derived from other factors or needs.

(c) Semi-Durable Goods: There are also semi-durable goods, such as clothes and umbrellas, which fall between non-durable and durable goods in terms of their durability and lifespan.

3. Derived demand and Autonomous demand

(a) Derived Demand:

- Derived demand refers to the demand for a commodity that arises because of the demand for another commodity, known as the "parent product."
- Examples of derived demand include the demand for cement, which is directly related to building activity.
- In general, the demand for producer goods or industrial inputs is considered derived demand.
- Complementary goods also exhibit derived demand, as the demand for one product is dependent on the demand for another.

(b) Autonomous Demand:

- Autonomous demand refers to the demand for a product that is independent of the demand for other goods.
- It arises from the consumer's innate desire to consume or possess the commodity.
- However, determining which products have entirely independent demand is challenging, as many goods have interdependencies with other products.

4. **Demand for firm's product and industry demand**

   (a) Industry Demand:

   - Industry demand refers to the total demand for the products of a specific industry.
   - It represents the aggregate demand for a particular product across all firms operating within that industry.
   - For example, it can refer to the total demand for steel in a country.

   (b) Firm's Product Demand:

   - Firm's product demand refers to the demand for the products of a specific firm.
   - It represents the quantity of products that a firm can sell at a given price over a specific period of time.
   - For example, it can refer to the demand for steel produced by the Tata Iron and Steel Company.

   The demand for a firm's product when expressed as a percentage of industry demand signifies the market share of the firm.

5. **Short - run demand and Long-run demand**

   (a) Short-Run Demand:

   - Short-run demand refers to the immediate reaction of demand to changes in product price, related commodity prices, income fluctuations, consumer behavior, and advertising.
   - It is influenced by the ability of consumers to adjust their consumption patterns and their susceptibility to new product advertisements.
   - Short-run demand is characterized by its relatively short time horizon and immediate responsiveness to various factors affecting demand.

   (b) Long-Run Demand:

   - Long-run demand refers to demand that exists over a more extended period of time.
   - Generic goods typically exhibit long-term demand patterns.
   - Long-term demand is influenced by factors such as long-term income trends, availability of substitutes, and credit facilities.
   - It takes into account the adjustments made by the market to changes in pricing, promotion, or product improvement over time.
   - For example, if electricity rates are reduced, in the short run, existing users may increase their use of electric appliances. However, in the long run, more people may be motivated to purchase and use electric appliances.

FACTORS AFFECTING DEMAND FOR NON-DURABLE CONSUMER GOODS

There are three basic factors which influence the demand for these 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. From a business firm's point of view, demand for non durable goods gets repeated depending on the nature of the non durable goods. Usually, non durable goods come in wide varieties and there is competition among the sellers to acquire and retain customer loyalty.

FACTORS AFFECTING THE DEMAND FOR DURABLE-CONSUMER GOODS

Demand for durable goods has certain special characteristics. Following are the important factors that affect the demand for durable goods.

- **Postponement of Replacement:** Consumers have the option to delay replacing durable goods, depending on factors like social status, income level, obsolescence rate, and personal preferences.
- **Special Facilities:** Durable goods often require specific facilities for their use, such as roads for automobiles and electricity for appliances like refrigerators and radios. The availability and growth of these supporting factors impact the demand for durable goods.
- **Family Characteristics:** Since consumer durables are often shared among family members, purchasing decisions can be influenced by factors such as family income, size, age distribution, and gender composition. Changes in the number of households should also be considered when estimating the market size for durable goods.
- **Replacement Demand:** The demand for durable goods includes a significant component of replacement demand. The more existing durable goods a consumer owns, the greater the need for replacements. Therefore, factors affecting replacement demand should be considered when analyzing the demand for durable goods.
- **Price and Credit Facilities:** The demand for consumer durables is influenced by their prices and the availability of credit facilities that make purchasing them more accessible.

FACTORS AFFECTING THE DEMAND FOR PRODUCER GOODS

- **Price of Substitutable Factor:** An increase in the price of a substitutable factor of production, like labor, can increase the demand for capital goods.
- **Price of Complementary Factor:** Conversely, an increase in the price of a complementary factor may decrease the demand for capital goods.
- **Profit Prospects and Optimism:** Higher profit prospects and optimistic expectations of selling higher output in the future can incentivize firms to invest in capital goods.

- **Technological Advances:** Technological advancements that enhance efficiency, reduce costs, and increase productivity of capital can positively impact investment in capital goods.
- **Interest Rates:** Lower interest rates can lead to higher investments in capital goods, as firms have lower opportunity costs for investments and lower borrowing costs.

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 (i.e. input output ratio) of the product under study, application of the norms to the desired or targeted levels of output and aggregation.
   - Under this method the burden of forecasting is put on the customers.
   - This method is useful when bulk of sale is made to industrial producers who generally have definite future plans. In the case of household customers, this method may not prove very helpful for several reasons viz. irregularity in customers' buying intentions, their inability to foresee their choice when faced with multiple alternatives, and the possibility that the buyers' plans may not be real, but only wishful thinking.
2. **Collective Opinion Method:**
   - Also known as the sales force opinion method or grass roots approach.
   - Utilizes the knowledge, experience, and skills of the sales force to forecast future demand.
   - Sales personnel estimate expected sales in their respective territories.
   - Salesmen, being close to customers, are believed to have a good understanding of market reactions.
   - Sales estimates from individual salesmen are consolidated to determine the total estimated sales.
   - Estimates are reviewed to eliminate bias and discrepancies.
   - Factors like proposed changes in prices, product designs, advertising, competition, and broader economic changes are considered.
   - The final sales forecast is derived after accounting for all relevant factors.
   - Strengths and Limitations:
     - The method is simple and utilizes first-hand information from those directly involved in sales.

- However, it is subjective and susceptible to personal opinions influencing the forecast.
- Salesmen may lack awareness of broader economic changes that can impact future demand.
- The method is more suitable for short-term forecasting rather than long-term analysis.

3. Expert Opinion Method

- Also known as the Delphi Method, this demand forecasting technique involves soliciting the views and opinions of specialists, experts, and consultants to estimate future demand. These experts can be internal, such as executives and sales managers, or external consultants with expertise in demand forecasting.
- **Key points about the Delphi Method:**

(a) The Delphi technique, originally developed by Olaf Helmer at the Rand Corporation in the United States, is employed to gather the opinions of multiple experts regarding future demand.

(b) Experts are provided with relevant information and feedback from other experts in iterative rounds, and their opinions and comments are solicited until a consensus or convergence of views is reached.

(c) The Delphi Method is considered a time-saving approach to demand forecasting.

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 that has been operating for a significant period of time would have collected extensive sales data over different time periods.
- Arranging this data chronologically creates a "time series" representing the past pattern of effective demand for a specific product.
- Time series data can be analyzed to identify trends and project future demand patterns.
- By examining historical sales patterns, firms can gain insights into the behavior and potential growth of demand for their product.
- The trend projection method assumes that factors responsible for the past trend in demand will continue to operate.
- 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 free-hand curve to it passing through as many points as possible. The direction of the curve shows the trend.
- 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.

(c) Fitting trend equation (Least Square Method):

- 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.
- 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 minimised.
- This technique is used to find a trend line which best fit the available data.
- This trend is then used to project the dependant variable in the future.
- This method is very popular because it is simpl, in-expensive and provide fairly reliable estimates of future demand.
- The major limitation of this method is that it cannot be used where trend is cyclical with sharp turning points of troughs and peaks. Also, this method cannot be used for short term forecasts.

(d) Regression analysis:

- 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.
- Once the relationship is established, we derive regression equation assuming the relationship to be linear. The equation will be of the form $Y = a + bX$.
- Once the regression equation is derived, the value of Y i.e. quantity demanded can be estimated for any given value of X.

5. Controlled Experiments (market experiment method):

- The experimental method involves manipulating specific determinants of demand, such as price, advertising, etc., while assuming other factors remain constant.
- Experiments can be conducted by varying these determinants across different markets or over different time periods within the same market.
- The objective is to assess the impact of factors like price, advertising, packaging, etc., on sales and record the responses of demand over time.
- The recorded data on the relationship between these determinants and sales can be used to estimate future demand for the product.
- For example, different prices are associated with different sales levels, and a price-quantity relationship can be estimated using regression analysis for forecasting purposes.
- It is important to note that market divisions used in experiments should be homogeneous in terms of income, tastes, and other relevant factors.

- Disadvantages
  - The method of controlled experiments is used relatively less because this method of demand forecasting is expensive as well as time consuming.
  - It is also difficult to determine what conditions should be taken as constant and what factors should be regarded as variable so as to segregate and measure their influence on demand.
  - controlled experiments are risky too because they may lead to unfavourable reactions from dealers, consumers and competitors.
  - it is practically difficult to satisfy the condition of homogeneity of markets.
  - Market experiments can also be replaced by 'controlled laboratory experiments' or 'consumer clinics' under which consumers are given a specified sum of money and asked to spend in a store on goods with varying prices , packages, displays etc. The responses of the consumers are studied and used for demand forecasting.

6. Barometric method of forecasting:

- Just as meteorologists use the barometer to forecast weather, the economists use economic indicators to forecast trends in business activities.
- These indicators help in forecasting the demand prospects of a product, although not the actual quantity demanded.
- An index of relevant economic indicators is constructed to forecast the likely economic environment in the near future.
- **Types of Economic Indicators**:
  - **(a) Leading Indicators:** These indicators move ahead of other series, providing early signals of economic trends. Examples include heavy advance orders for capital goods and an increase in construction permits for new houses, which indicate future economic prosperity.
  - **(b) Coincidental Indicators:** Coincidental indicators move up and down simultaneously with the changes they represent. They offer a snapshot of the current scenario. Examples include figures on retail sales, the rate of unemployment, and the Index of Industrial Production (IIP).
  - **(c) Lagging Indicators:** Lagging indicators follow a change after some time lag. They confirm past events. For instance, heavy household electrical connections confirm that heavy construction work was undertaken in the past, but with a time lag.

TRY YOUR UNDERSTANDING 2.1.6

1. Method of demand forecasting does not include?
   (a) Mathematical method (b) Barometric method
   (c) Expert opinion method (d) Statistical method
2. Forecasting of demand is the Art and Science of predicting?
   (a) Actual demand of a product at same future date
   (b) Probable demand in future
   (c) Total demand in future
   (d) None of these

3. The demand for a commodity that arises because of the demand for some other commodity (prevent product) is called as
   (a) Demand (b) Direct Demand
   (c) Derived Demand (d) Implied Demand
4. If the demand for a product is independent of the demand for other goods, then it is called as
   (a) Derived Demand (b) Autonomous Demand
   (c) Industry Demand (d) Implied Demand.
5. Identify Producer's goods out of following :
   (a) Plant and Equipment (b) Readymade clothes
   (c) Residential Houses (d) All of the above
6. Which of the following factors affects demand for non-durable con sumer goods?
   (a) Disposable income (b) Price
   (c) Demography (d) All of the above.
7. _____ method of fore-casting includes the methods:
   (a) Collective opinion (b) Survey of Buyer's intentions
   (c) Expert Opinion (d) Barometric
8. Which one of the following is the statistical method of demand forecasting?
   (a) Trend Projection Method (b) Fitting Equation Method
   (c) Regression Analysis (d) All of the above.

Answer Key

1. (d) **2.** (a) **3.** (c) **4.** (b) **5.** (a) **6.** (d) **7.** (b) **8.** (d)

❑❑❑

UNIT

2

Theory of Consumer's Behaviour

- In economics, the term 'want' refers to a wish, desire or motive to own or/and 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.

1. All wants of human beings exhibit some characteristic features.
2. Wants are unlimited in number. All wants cannot be satisfied.
3. Wants differ in intensity. Some are urgent ,others are less intensely felt.
4. Each want is satiable (able to be met).
5. Wants are competitive. They compete each other for satisfaction because resources are scarce in relation to wants.
6. Wants are complementary. Some wants can be satisfied only by using more than one good or group of goods.
7. A particular want may be satisfied in alternative ways 8. Wants are subjective and relative. 9. Wants vary with time, place, and person.
8. Some wants recur again whereas others do not occur again and again.
9. Wants may become habits and customs.
10. Wants are affected by income, taste, fashion, advertisements and social norms and customs.

CLASSIFICATION OF WANTS

In Economics, wants are classified into three categories, viz., necessaries, comforts and luxuries.

1. **Necessaries:** Necessaries are those which are essential for living. Necessaries are further sub-divided into
   - **(a) Necessaries for life:** 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.
   - **(b) Necessaries for efficiency:** 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.

(c) **Conventional necessaries:** Conventional necessaries 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.

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

3. **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 vanity etc. fall under this category.

WHAT IS UTILITY?

- Utility refers to want satisfying power of a commodity.
- The utility of a consumer is a measure of the satisfaction that the consumer expects to obtain from consumption of goods and services when he spends money on a stock of commodity which has the capacity to satisfy his want.
- A commodity has utility for a consumer even when it is not consumed.
- Utility is a subjective and relative entity and varies from person to person.
- A commodity has different levels of utility for the same person at different places or at different points of time.
- Utility is not the same thing as usefulness.
- In Economics, the concept of utility is ethically neutral. Even harmful things like liquor may be said to have utility because people want them.

THE MARGINAL UTILITY ANALYSIS

- The marginal utility theory, formulated by Alfred Marshall, a British economist, seeks to explain how a consumer chooses to spend his income on different goods and services so as to maximize his utility (i.e. how consumer reaches the equilibrium).
- **Total Utility**
  - Total utility refers to the total satisfaction obtained from the consumption of all possible units of a commodity.
  - Total utility is the sum of marginal utilities derived from the consumption of different units i.e.

$$TU = MU_1 + MU_2 + \ldots\ldots + MU_n$$

Where

MU_1, MU_2,.....,MU_n etc are marginal utilities of the successive units of a commodity.

- Marginal Utility (MU)

Marginal utility is the additional utility derived from the consumption of one additional unit of the given commodity.

$$MU_n = TUn - TUn-1$$

Where,

MU_n is the marginal utility of the nth unit.

TU_n is the total utility of the nth unit, and

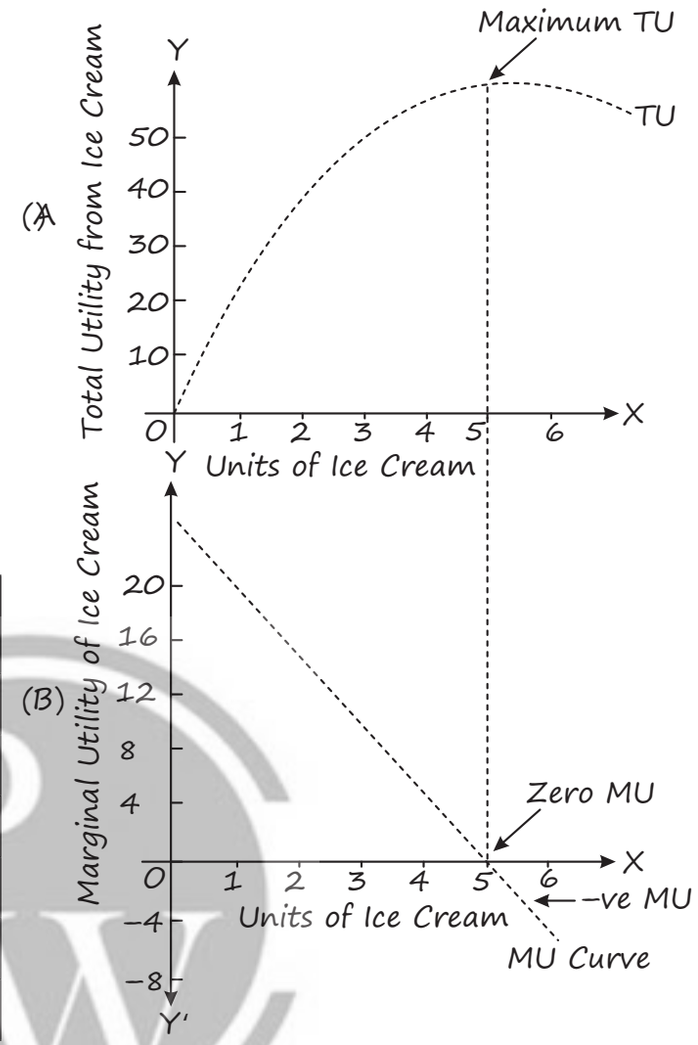
TU_{n-1} is the total utility of the (n-1) th unit.

MU is the change in TU when one more unit is consumed. However, when change in units consumed is more than one, then MU can also be calculated as:

$$MU = \frac{\text{Change in Total Utility}}{\text{Change in number of Units AQ}}$$

$$= \frac{\Delta TU}{\Delta Q}$$

Ice-creams Consumed	Marginal Utility (MU)	Total Utility (TU)
1	20	20
2	16	36
3	10	46
4	4	50
5	0	50
6	-6	44



ASSUMPTIONS OF MARGINAL UTILITY ANALYSIS

Theory of Consumer Behavior (Utility Theory) Assumptions:

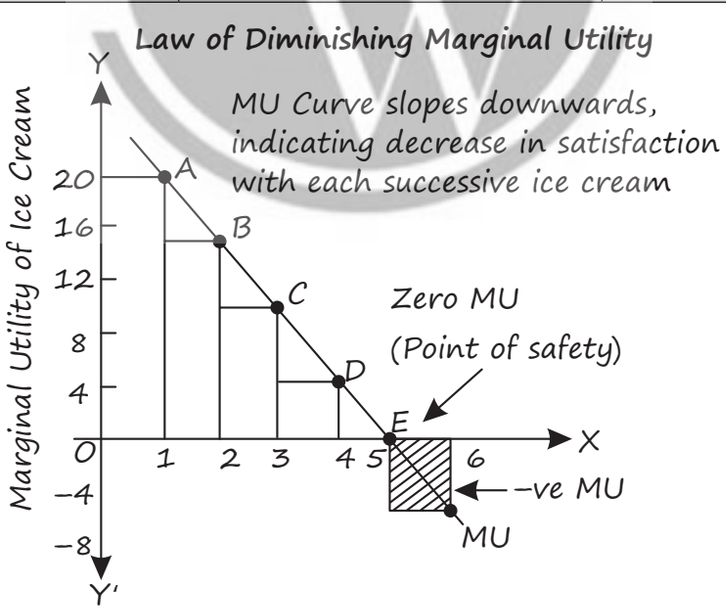
1. **Rationality:** Consumers are rational and seek to maximize satisfaction from their limited income.
2. **Cardinal Measurability of Utility:** Utility is a measurable and quantifiable concept, often expressed in cardinal numbers or units.
3. **Money as a Measuring Rod of Utility:** The amount of money a consumer is willing to pay for a good reflects the utility derived from that good.
4. **Other Factors Constant:** The theory assumes that factors such as price, tastes, preferences, income, habits, temperament, and fashion remain constant.
5. **Continuity in Consumption:** Consumption occurs without time gaps or intervals between units of consumption.
6. **Homogeneity of Units:** The units of the commodity consumed are assumed to be identical or homogeneous in nature.

7. **Standard Units:** Consumption is based on standard units of the commodity, and the commodity should be divisible.
8. **Constancy of Marginal Utility of Money:** The marginal utility of money remains constant when spending on a good, facilitating utility measurement in monetary terms.
9. **Independent Utility:** The theory assumes that the total utility derived from a collection of goods is the sum of the separate utilities of each good, ignoring complementarity between goods.

THE LAW OF DIMINISHING MARGINAL UTILITY

- The law of diminishing marginal utility states that each successive unit of a good or service consumed adds less to total utility than the previous unit.
- As consumer consumes more and more units of a good, the intensity of his want for the good goes on decreasing and a point is reached where the consumer no longer wants it.
- It is to be noted that it is the marginal utility and not the total utility which declines with the increase in the consumption of a good.

Units of Ice Cream	Total Utility (in utils)	Marginal Utility (in utils)
1	20	20
2	36	16
3	46	10
4	50	4
5	50	0 (Point of Satiety)
6	44	– 6



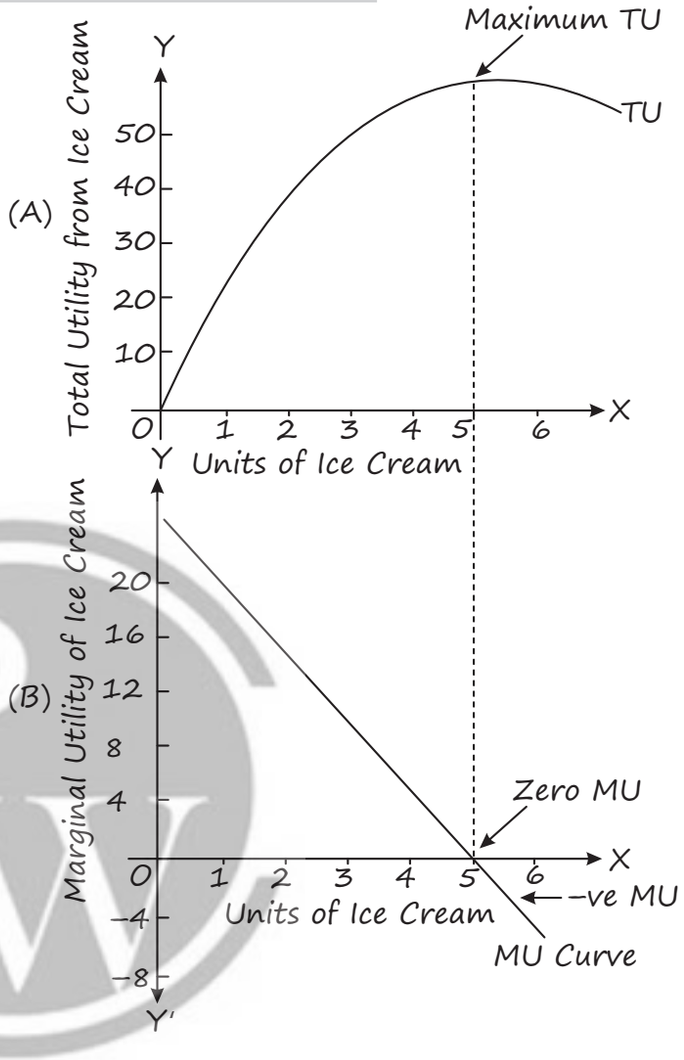
SOME FACTS ABOUT LAW OF DIMINISHING MARGINAL UTILITY

This law was given by prof. Alfred marshall

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, the total utility is maximum. It is the satiation point.
4. When marginal utility is negative, total utility is diminishing.
5. MU is the rate of change of total utility or it is the slope of TU curve.
6. MU can be positive, zero or negative.

Chocolate Consumption	Total Utility	Marginal Utility
1	20	20
2	34	14
3	45	11
4	50	5
5	50	0
6	46	-4



LIMITATIONS AND EXCEPTIONS OF THE LAW OF DIMINISHING MARGINAL UTILITY

1. 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.
2. The law may not apply in the following situations:
   (a) The law may not apply in the case of prestigious goods and articles like gold, cash, diamonds etc. where a greater quantity may increase the utility rather than diminish it.
   (b) The law also may not hold well in the case of hobbies, rare collections etc where, with every addition to the collection, the marginal utility will go on rising. Similarly, people who seek greater knowledge and information will be more satisfied with every additional information secured by them.

(c) The law may not be operating in cases such as creative art, painting, music, poetry etc as more of these would generate greater satisfaction.

(d) The law does not hold good in the case of habit forming commodities like alcohol, cigarettes, and computer games etc. because those who are habituated into these may experience increasing utility with every additional intake.

(e) The law also fails in the case of people with miserly behaviour as accumulation of every additional unit of money would give them greater levels of satisfaction.

TRY YOUR UNDERSTANDING 2.2.1

1. MU is calculated as

(a) $TU_n - TU_{n-1}$ (b) $TU_{n-1} - TU_n$

(c) $\frac{TU_n}{TU_{n-1}}$ (d) $\frac{TU_{n-1}}{TU_n}$

2. When there is no consumption, what value TU & MU takes ?

(a) TU is zero & MU is positive (b) TU is zero & MU is falling

(c) TU is zero & MU is maximum (d) TU is none & MU is above

3. Which of the following is not the characteristic of wants of human beings?

(a) Wants are unlimited

(b) Wants are subjective & relative

(c) Wants are affected by income, taste, fashion, advertisements and social customs

(d) Wants do not vary with time, place & person.

4. Wants arise from multiple causes including

(a) Natural instincts

(b) Social obligations

(c) Individual's economic & social status

(d) All of the above

5. Marginal Utility Analysis has been propounded by:

(a) Marshall (b) Hicks (c) Allen (d) Hicks & Allen

6. Alfred Marshall was a economist.

(a) British (b) American (c) European (d) Asian

7. Which of the following relation is true with MU?

(a) When MU is positive, Total utility rises at a diminishing rate

(b) When marginal utility is zero, total utility is maximum

(c) When marginal utility is negative, total utility is diminishing

(d) All of the above

8. Total utility is maximum when:

(a) Marginal utility is zero. (b) Marginal utility is at its highest point.

(c) Marginal utility is negative. (d) None of the above.

9. _____ is the additional made to total utility by the consumption of an additional unit of a commodity.
   (a) Marginal Utility (b) Average Utility
   (c) Total utility (d) Incremental Marginal Utility

10. When economists speak of the utily of a certain good, they are referring to:
   (a) The demand for the good.
   (b) The usefulness of the good in consumption.
   (c) The expected satisfaction derived from consuming the good.
   (d) The rate at which consumers are willing to exchange one good for another.

Answer Key

1. (a) 2. (c) **3.** (d) 4. (d) **5.** (a) 6. (d) **7.** (d) 8. (a) 9. (a) 10. (c)

CONSUMER EQUILIBRIUM

Consumer's Equilibrium refers to the situation when a consumer is having maximum satisfaction with limited income and has no tendency to change his way of existing expenditure.

- The consumer has to pay a price for each unit of a commodity and cannot consume an unlimited quantity.
- According to the Law of Diminishing Marginal Utility (DMU), the utility derived from each additional unit of a commodity decreases.
- As the consumer purchases more units, their income decreases.
- The rational consumer seeks to balance expenditure to achieve maximum satisfaction with minimum expenditure.
- This balance, known as equilibrium, is reached when the consumer optimizes their consumption to achieve the highest level of satisfaction given their income and the diminishing utility of additional units.
- Once equilibrium is achieved, there is no incentive to change the quantity of the commodity purchased.

CONSUMER EQUILIBRIUM IN SINGLE COMMODITY CASE

- A consumer reaches equilibrium when they purchase the quantity of a commodity that provides maximum satisfaction.
- The number of units consumed depends on two factors: the price of the commodity and the expected utility (marginal utility) from each additional unit.
- To determine the equilibrium point, the consumer compares the price of the commodity with its utility or satisfaction.
- As a rational consumer, equilibrium is achieved when the marginal utility derived from the last unit consumed is equal to the price paid for the commodity.
- Marginal utility is measured in utils, while price is measured in monetary units (money).
- To effectively compare marginal utility and price, it is necessary to express marginal utility in terms of money.

- This allows for a direct comparison between the satisfaction derived from each additional unit (measured in utils) and the cost of the commodity (measured in money units).

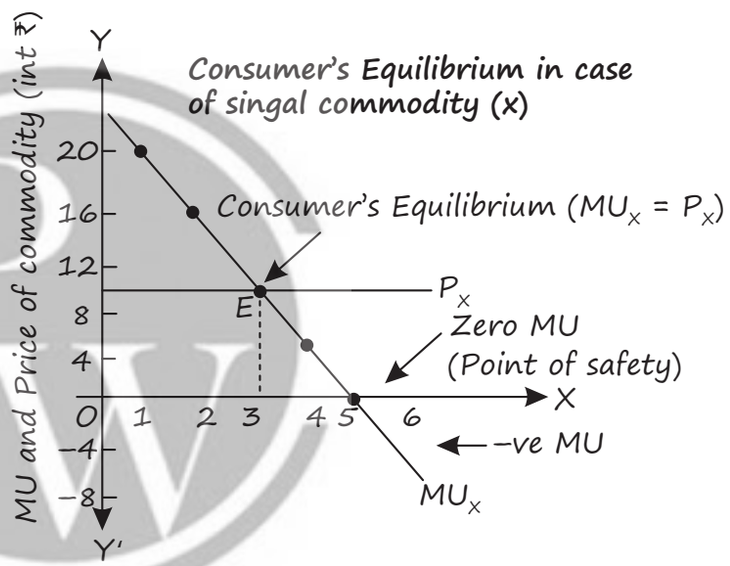
$$\text{Marginal Utility in terms of Money} = \frac{\text{Marginal Utility in utils}}{\text{Marginal Utility of one rupee } (MU_m)}$$

- Since utility is subjective and varies from person to person, it is assumed that each consumer defines their own marginal utility (MU) of one rupee.

EQUILIBRIUM CONDITION

A consumer of a single commodity (let's say commodity X) is in equilibrium when the marginal utility (MUX) derived from consuming one more unit of the commodity is equal to the price (Px) paid for that commodity, i.e., MUX = Px.

- If the marginal utility (MUX) is greater than the price (Px), the consumer is not in equilibrium. In this case, the consumer continues to buy more units of the commodity because the benefits derived from each additional unit exceed the cost. However, as the consumer buys more, the marginal utility falls due to the law of diminishing marginal utility. The consumer reaches equilibrium when the marginal utility becomes equal to the price, achieving maximum benefits.
- Similarly, if the marginal utility (MUX) is less than the price (Px), the consumer is also not in equilibrium. In this situation, the consumer needs to reduce the consumption of commodity X to increase overall satisfaction until the marginal utility becomes equal to the price.



Units of X	Price (P_x)	Marginal utility (utils)	Marginal utility in Rs. (MU_X) 1 util = Rs.1	Difference MU_X and P_x
1	10	20	20 x 1 = 20	20-10= 10
2	10	16	16 x1 = 16	16-10 = 6
3	10	10	10 x 1 = 10	10-10 = 0
4	10	4	4 x 1 = 4	4-10 = -6

- Consumer's Equilibrium in case of Single Commodity

CONSUMER EQUILIBRIUM IN TWO COMMODITY CASE (LAW OF EQUI-MARGINAL UTILITY)

In reality, a consumer spends his income on more than one good. In such cases, consumer equilibrium is explained with the law of Equi-Marginal utility. According to this law, the consumer will be in equilibrium when he is spending his money on different goods and services

in such a way that the marginal utility of each good is proportional to its price and the last rupee spent on each commodity yields him equal marginal utility.

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

$$MU_m = \frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

Or

$$MU_m = \frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

Or

$$\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

TRY YOUR UNDERSTANDING 2.2.2

1. Consumer's equilibrium condition is written as

   (a) $\frac{MU_x}{Px} = \frac{MU_y}{P_y}$ (b) $\frac{MU_x}{Px} < \frac{MU_y}{P_y}$

   (c) $\frac{MU_x}{Px} > \frac{MU_y}{P_y}$ (d) None of these

2. _____ is a situation where a consumer is spending his income in such a way that he is getting maximum satisfaction and has no tendency to change.
   (a) Equilibrium (b) Consumers satisfaction
   (c) Consumers equilibrium (d) None

Answer Key

1. (a) 2. (c)

CONSUMER SURPLUS

The concept of consumer surplus was propounded by Alfred Marshall.

Consumer surplus is defined as the difference between the total amount that consumers are willing and able to pay for a good or service (indicated by the demand curve) and the total amount that they actually do pay (i.e. the market price).

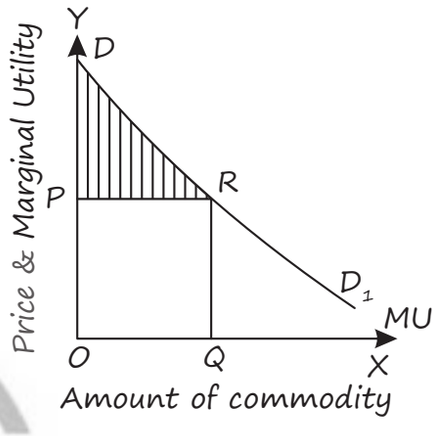
Marshall defined the concept of consumer surplus as the "excess of the price which a consumer would be willing to pay rather than go without a thing over that which he actually does pay", is called consumers surplus."

consumer surplus = what a consumer is ready to pay – what he actually pays.
= Sum of MU – (Price x Units Purchased)
= Total Utility – Total Amount Spent

The concept of consumer surplus is derived from the law of diminishing marginal utility. The price is the same for all units of the good he purchases, he gets extra utility for all units consumed by him except for the one at the margin. This extra utility or extra surplus for the consumer is called consumer surplus.

MEASUREMENT OF CONSUMER SURPLUS

Units Consumed	Marginal Utility	Price	Consumer Surplus
1	30	20	10
2	28	20	8
3	25	20	5
4	22	20	2
5	20	20	0
	125	100	25



Applications of consumer surplus:

1. **Business decision-making:** Understanding consumer surplus helps businesses assess the welfare gained by different customer segments. Consumers perceiving higher surplus are more likely to become repeat customers, impacting business success.
2. **Pricing strategies:** Knowledge of consumer surplus aids managers in setting prices. By identifying consumer groups with different demand elasticity and their willingness to pay higher prices, firms can employ price discrimination for increased profitability.
3. **Cost-benefit analysis:** Large-scale investment decisions consider consumer surplus to assess project benefits. The extent of consumer surplus generated can influence investment choices and resource allocation.
4. **Pricing adjustments:** Consumer surplus informs firms considering price increases. Customers experiencing low surplus may be less willing to purchase products at higher prices, potentially leading to reduced sales.
5. **Taxation decisions:** Consumer surplus guides finance ministers in determining taxable products and tax rates. Commodity taxes are often imposed on products with high consumer surplus, as the impact on citizen welfare is relatively minimal.

LIMITATIONS OF CONSUMER SURPLUS

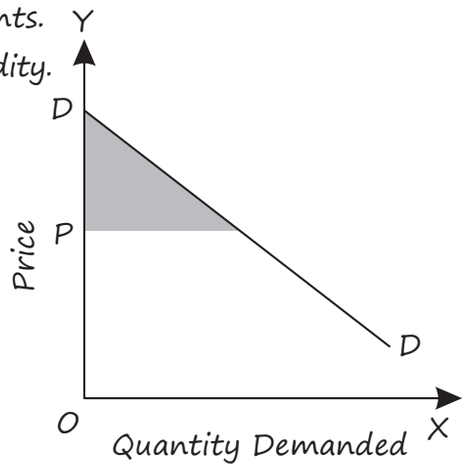
It is often argued that this concept of consumer surplus is hypothetical and illusory. In real life, the surplus satisfaction cannot be measured accurately.

1. Consumer 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 necessaries, the marginal utilities of the earlier units are infinitely large. In such case the consumer surplus is always infinite.
3. The consumer 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 (e.g., diamonds).
5. Consumer 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. (Marshall assumed that the marginal utility of money remains constant. But this assumption is unrealistic).
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.

TRY YOUR UNDERSTANDING 2.2.3

1. The concept of Consumer's Surplus was propounded by
   (a) Alfred Marshall
   (b) Hicks & Allen
   (c) J. B. Say
   (d) None of these
2. If a Consumer gets more utility from a commodity, he would be willing to pay a higher price and vice versa. This extra satisfaction which consumer gets from the purchase of goods is called as
   (a) Producer's Supply
   (b) Consumer's Surplus
   (c) Extra Utility
   (d) Excess Marginal Utility
3. Which of the following statement is incorrect as regards Consumer's Surplus?
   (a) It can be measured in money
   (b) It cannot be measured precisely
   (c) It is affected by a variability of substitutes
   (d) It is ahways infinite for necessaries.
4. By consumer surplus, economists mean
   (a) The area inside the budget line.
   (b) The area between the average revenue and marginal revenue curves
   (c) The difference between the maxi-mum amount a person is willing to pay for a good and its market price.
   (d) None of the above.

5. In the diagram given below, the shaded portion represents.
   (a) Price above which there is no demand for the commodity.
   (b) Monopoly price of the commodity.
   (c) Consumer surplus.
   (d) None of the above.



6. Consumer surplus is more in case of
   (a) Luxury
   (b) Necessity
   (c) Semi luxurious goods
   (d) All the above

Answer Key

1. (a) 2. (b) 3. (a) 4. (c) 5. (c) 6. (b)

INDIFFERENCE CURVE ANALYSIS (ORDINAL UTILITY APPROACH OR HICKSIAN ANALYSIS)

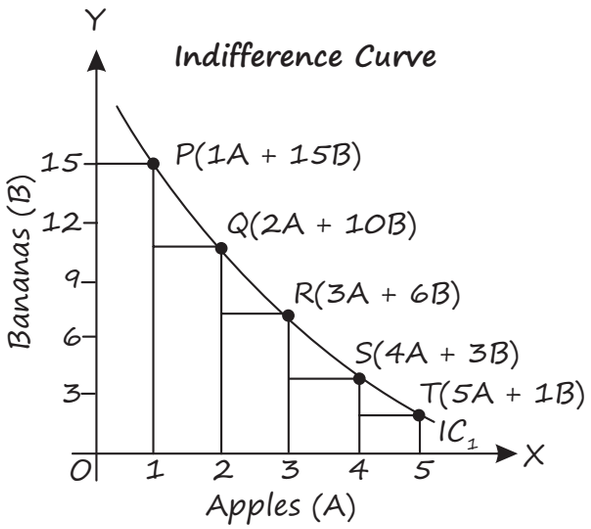
J.R. Hicks and R.G.D. Allen, made significant contributions to the understanding and development of indifference curve analysis.

- Modern economists reject the idea of a "cardinal measure of utility."
- They argue that utility is a psychological concept and cannot be precisely measured in absolute terms.
- Instead, economists believe that consumers can rank different combinations of goods and services based on their preferences.

An indifference curve represents a graphical depiction of different combinations of two goods where a consumer is equally satisfied or indifferent.

INDIFFERENCE SCHEDULE

Combination of Apples and Bananas	Apples (A)	Bananas (B)
P	1	15
Q	2	10
R	3	6
S	4	3
T	5	1



ASSUMPTIONS UNDERLYING INDIFFERENCE CURVE APPROACH

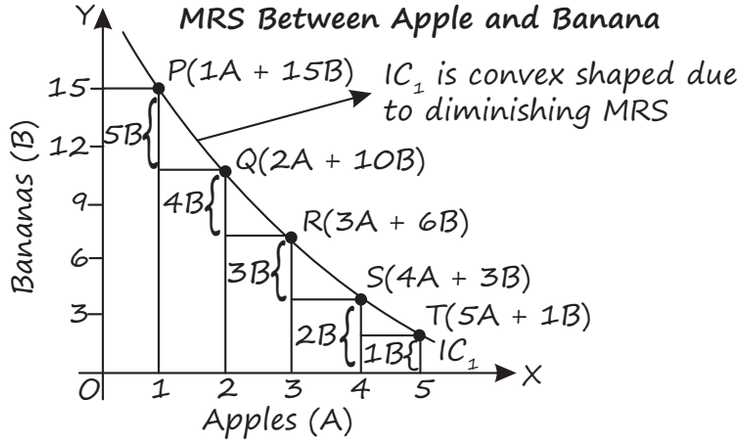
1. **Knowledge of Tastes and Preferences:** Consumers are assumed to possess complete knowledge of their own tastes and preferences, as well as comprehensive information about the economic environment in which they operate.
2. **Rationality:** Consumers are assumed to be rational and tend to make choices that lead to increased satisfaction. They aim to select consumption bundles that are more preferred over those that are less preferred.
3. **Ordinal Utility:** The indifference curve analysis assumes that utility can only be ranked in order of preference. Consumers can compare and rank different combinations of goods based on the satisfaction they provide. However, they cannot express the magnitude of preference quantitatively between different combinations.
4. **Transitivity:** Consumer choices are assumed to be transitive. If a consumer prefers combination A to combination B, and combination B to combination C, then it is implied that the consumer also prefers combination A to combination C. This assumption ensures a consistent consumption pattern.
5. **Non-Satiation:** The assumption of non-satiation suggests that consumers always prefer more of a good to less. If one combination of goods has more of each commodity compared to another combination, the consumer is assumed to prefer the combination with more goods.

MARGINAL RATE OF SUBSTITUTION (MRS)

The Marginal Rate of Substitution (MRS) represents the rate at which two commodities can be exchanged or substituted while maintaining the consumer's overall satisfaction at a constant level.

MRS between Apple and Banana

Combination	Apples (A)	Banana (B)	MRS_{AB}
P	1	15	-
Q	2	10	5B : 1A
R	3	6	4B : 1A
S	4	3	3B : 1A
T	5	1	2B : 1A



The Marginal Rate of Substitution (MRS) diminishes due to the principle of diminishing marginal utility.

As the consumer consumes more of one good and less of the other, the MRS measures the amount of the second good the consumer is willing to give up to obtain an additional unit of the first good while still maintaining the same level of satisfaction.

Initially, when the consumer has a higher quantity of the second good, they are willing to give up more units of it to obtain an extra unit of the first good.

However, as they consume more of the first good and less of the second, the consumer's willingness to trade decreases, resulting in a diminishing MRS.

In other words, the consumer becomes less willing to sacrifice the second good as they already have an increasing quantity of the first good. This decreasing willingness to substitute goods leads to a diminishing Marginal Rate of Substitution.

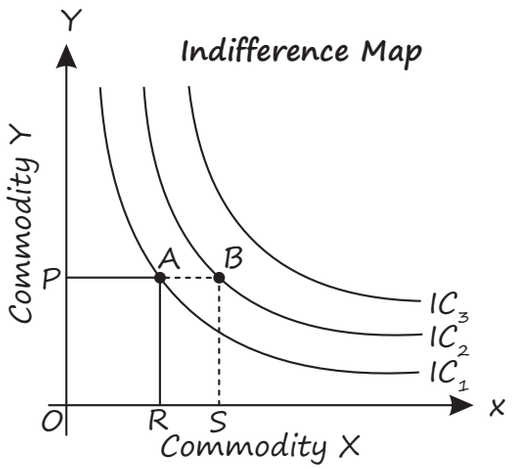
MRS between 2 points is also the slope of indifference curve between these 2 points.

MONOTONIC PREFERENCE

- Monotonic preferences indicate that a rational consumer consistently prefers more of a commodity due to the higher satisfaction it provides.
- It means that as consumption increases, total utility also increases.
- A consumer's preferences are considered monotonic when they prefer a bundle that has more of at least one good and no less of the other good compared to another bundle.
- Monotonic preferences imply a consistent desire for greater quantities of goods and services to maximize utility.

INDIFFERENCE MAP

- An indifference curve map is a collection of indifference curves in which each curve corresponds to a different level of satisfaction.
- Moving upward and to the right from one indifference curve to the next represents an increase in utility, and moving down and to the left represents a decrease.
- An indifference curve map thus depicts the complete picture of consumer tastes and preferences.
- Higher indifference curves indicate higher levels of satisfaction for individuals. This is because a higher indifference curve represents a larger bundle of goods, implying a greater quantity of goods and therefore more utility. This relationship holds true due to the assumption of monotonic preferences, where individuals consistently prefer larger quantities of goods to increase their overall satisfaction.

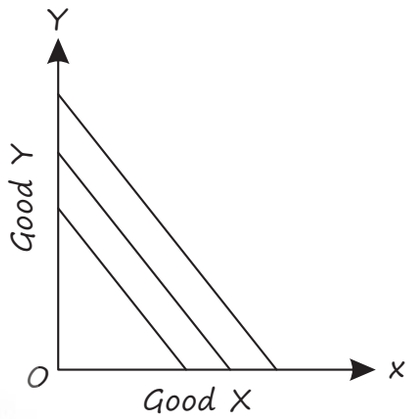


PROPERTIES OF INDIFFERENCE CURVES

The following are the main characteristics or 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:** An indifference curve is convex to the origin because of diminishing MRS. MRS declines continuously because of the law of diminishing marginal utility.

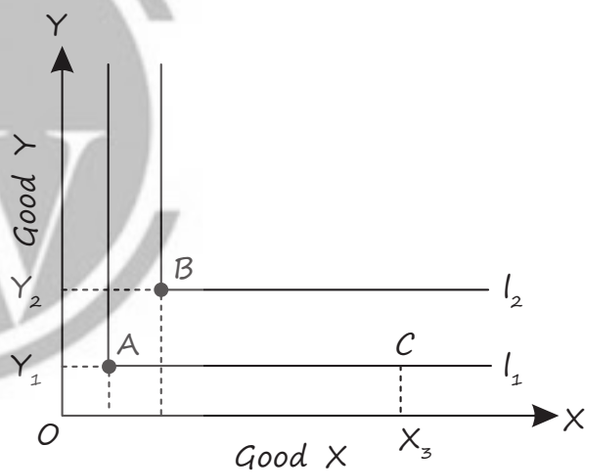


Exception

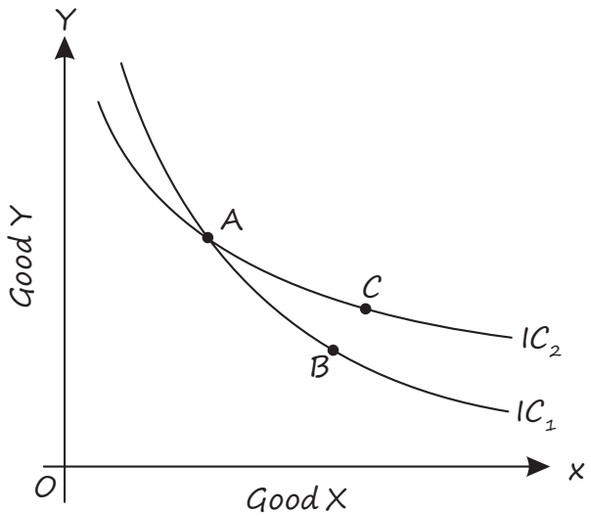
(a) When two goods are perfect substitutes of each other, the consumer is completely indifferent as to which to consume and is willing to exchange one unit of X for one unit of Y. His indifference curves for these two goods are therefore straight, parallel lines with a constant slope along the curve, or the indifference curve has a constant MRS.

(b) When two goods are perfect complementary goods (i.e. Printer & Cartridge), the indifference curve will consist of two straight lines with a right angle bent which is convex to the origin, or in other words, it will be L shaped.

Avery interesting fact about this is that in the case of perfect complements, the marginal rate of substitution is undefined because an individual's preferences do not allow any substitution between goods.



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.

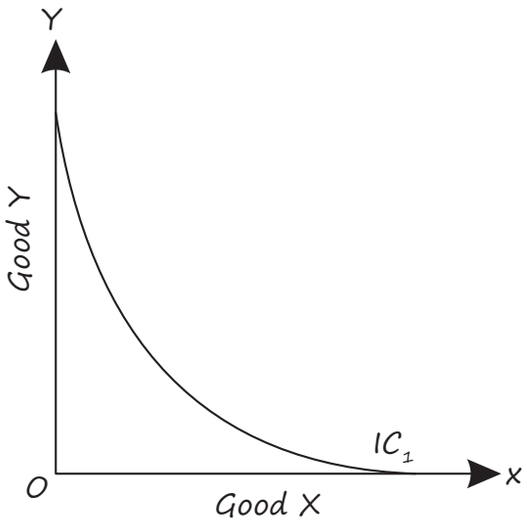


4. A higher indifference curve represents a higher level of satisfaction than the lower indifference curve: This is because combinations lying on a higher indifference curve contain more of either

one or both goods and more goods are preferred to less of them.

5. **Indifference curve will not touch either axes:** As per indifference curve, the consumer is considering different combination of two commodities.
   - if an indifference curve touches the Y-axis, it indicates that the consumption of the commodity on the X-axis is zero.
   - Similarly, if an indifference curve touches the X-axis, it suggests that the consumption of the commodity on the Y-axis is zero.

Therefore, according to this analysis, an indifference curve is never supposed to touch any of the axes.



THE BUDGET LINE

A budget line is a graphical representation that shows the various combinations of two goods that can be purchased by a consumer, given their income and the prices of the goods.

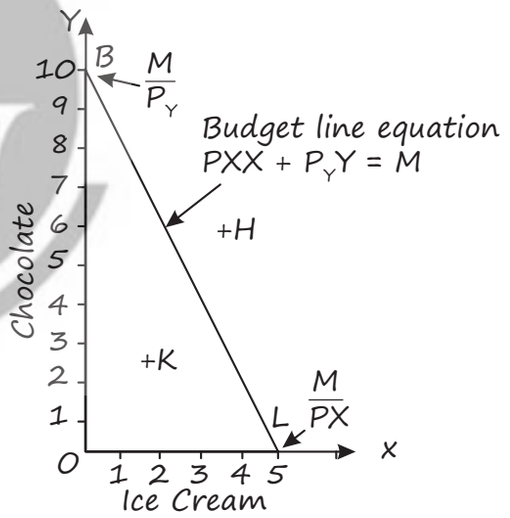
It shows the affordability of different combinations, where the total cost of each combination is equal to the consumer's income.

A consumer can purchase only those combinations (bundles) of goods, which cost less than or equal to his income.

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

$$PXQX + PYQY \leq B$$

Where PX and PY are the prices of goods X and Y and QX and QY are the quantities of goods X and Y chosen and B is the total money available to the consumer.



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

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. PX /PY i.e. It measures the rate at which the consumer can trade one good for the other.

SLOPE OF THE BUDGET LINE

The slope of a curve is calculated as a change in variable on the vertical or Y-axis divided by change in variable on the horizontal or X-axis

$$\text{Slope of Budget Line} = \frac{\text{Units of Chocolate willing to Sacrifice}}{\text{Units of Ice-cream willing to Gain}}$$

Price Ratio or Marginal Rate of Exchange (MRE)

Price Ratio is the price of commodity on the X-axis divided by the price of commodity Y-axis.

$$\text{Price Ratio} = \frac{\text{Price of X}\left(P_X\right)}{\text{Price of Y}\left(P_Y\right)} = \frac{P_X}{P_Y}$$

PROPERTIES OF BUDGET LINE

1. Negative Slope of the Budget Line: The budget line exhibits a downward slope, indicating that an increase in the quantity of one good can be attained by reducing the quantity of the other good. This relationship occurs due to the finite income and the relative prices of the goods.
2. Constant Price Ratio and Straight Budget Line: The slope of the budget line is determined by the price ratio between the two goods. Since the price ratio remains constant, the budget line appears as a straight line in the graph.

SHIFT IN BUDGET LINE

1. **Effect of a Change in the Income of Consumer:** If there is change in income of consumer and prices of goods remain constant then, budget line will shift. When income increases then, budget line will shift rightward as more bundles of goods can be purchased now and vice versa.
2. **Effect of a change in prices of commodities:**
   (a) **Change in prices of both commodities:** when price of both the commodities fall, then budget line will shift to right and vice versa.
   (b) **Change in price of commodity on X-Axis:** In this case budget line on X axis will either shift to right (decrease in price) or to left (increase in price) but the new budget line meets the Y Axis at same point.
   (c) **Change in price of commodity on Y-Axis:** In this case budget line on Y axis will either shift to upward (decrease in price) or to downward (increase in price) but the new budget line meets the X Axis at same point.

CONSUMER 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:

1. The consumer has a given indifference map which shows his scale of preferences for various combinations of two goods X and Y.
2. He has a fixed money income which he has to spend wholly on goods X and Y.
3. Prices of goods X and Y are given and are fixed.
4. All goods are homogeneous and divisible, and
5. The consumer acts 'rationally' and maximizes his satisfaction.

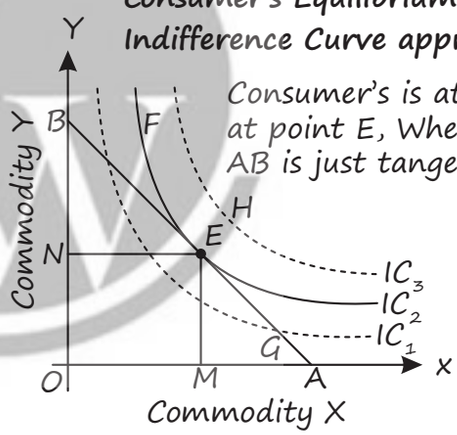
According to an indifference map, a higher indifference curve represents a greater level of satisfaction compared to any lower indifference curve. As a result, consumers always aim to be on the highest attainable indifference curve while considering their budget constraint.

CONDITIONS OF CONSUMER'S EQUILIBRIUM

To be at equilibrium following 2 conditions must be fulfilled:

1. **MRS_{XY} = Ratio of prices**
   - Slope of indifference curve must be equals to slope of budget line.
   - In the context of two goods, X and Y, the first condition states that the Marginal Rate of Substitution (MRS) between X and Y should be equal to the ratio of their prices.
   - If the MRSXY is greater than the price ratio, it indicates that the consumer is willing to give up more units of Y to obtain an additional unit of X compared to the market requirement. This encourages the consumer to purchase more of X. Consequently, the MRS decreases and continues to decrease until it becomes equal to the price ratio, establishing equilibrium.

Consumer's Equilibrium
Indifference Curve approach



Consumer's is at equilibrium at point E, When budget line AB is just tangent to IC_2

   - On the other hand, if the MRSXY is lower than the price ratio, it suggests that the consumer is willing to give up fewer units of Y to obtain an extra unit of X compared to the market requirement. This motivates the consumer to buy less of X and more of Y. As a result, the MRS increases until it becomes equal to the price ratio, leading to the establishment of equilibrium.

2. The indifference curve must be convex to the origin at the point of equilibrium i.e. MRS must be diminishing.

   The indifference curve analysis is superior to utility analysis:

   (a) It dispenses with the assumption of measurability of utility

   (b) It studies more than one commodity at a time

(c) It does not assume constancy of marginal utility of money
(d) It segregates income effect from substitution effect.

TRY YOUR UNDERSTANDING 2.2.4

1. Which assumptions implies the consumer aims at utility maximixation?
   (a) a rationality (b) ordinality
   (c) cardinality (d) None of these
2. When indifferent curve is straight downward sloping line, the two goods are
   (a) substitutes (b) complements
   (c) perfect substitutes (d) perfect complements
3. L-shaped indifference curve exist in case two goods are
   (a) substitutes (b) complements
   (c) perfect substitutes (d) perfect complements
4. If MRS was increasing, what shape will indifference curve take ?
   (a) horizontal (b) vertical
   (c) concave (d) rising
5. At the point of consumer's equilibrium indifference curve & budget curve are
   (a) passing through each other (b) intersecting
   (c) tangent (d) not tangent to each other
6. Which one is not an assumption of the theory of demand based on analysis of indifference curves?
   (a) Given scale of preferences as between different combinations of two goods.
   (b) Diminishing marginal rate of substitution.
   (c) Constant marginal utility of money.
   (d) Consumers would always prefer more of a particular good to less of it, other things remaining the same.
7. Which of the following is not the property of indifference curve?
   (a) Slopes downwards to the right
   (b) Always corrvex to the origin
   (c) Intersects each other
   (d) Will not touch either of the axes
8. A point below the budget line of a consumer
   (a) Represents a combination of goods which costs the whole of consumer's income.
   (b) Represents a combination of goods which costs less than the consumer's income.
   (c) Represents a combination of goods which is unattainable to the consumer given his/her money income.
   (d) Represents a combination of goods which costs more than the consumers income.

9. _____ is a curve which represents all those combinations of two goods which give same satisfaction to the consumer.
   (a) Indifference Curve (b) Iso-utility curve
   (c) Equal-Utility Curve (d) All of the above

10. _____ represents a collection of many indifference curves where each curve represents a certain level of satisfaction.
   (a) Indifference Group (b) Indifference Map
   (c) Indifference Aggregate (d) Market Map

11. When the consumer has more and more unit of food, he is prepared to give up less and less units of clothing. It is due to _____.
   (a) Falling MRS (b) Rising MRS
   (c) Constant MRS (d) None of the above.

12. Which one of the following Statement is incorrect about Indifference Curve?
   (a) Always Convex to the origin
   (b) Never intersects each other
   (c) Higher Curve represents higher level of satisfaction.
   (d) It may touch X axis but never Y axis.

13. A higher indifference curve shows a higher level of satisfaction than a lower one. Therefore, a consumer, in his attempt to mavimize satisfaction will toy to reach the possible indifference curve.
   (a) Highest (b) Lowest
   (c) Any of (a) or (b) (d) None of these

14. The Slope of Indifference curve is
   (a) Marginal Rate of Substitution (b) Minimal Rate of Substitution
   (c) Average Rate of Substitution (d) Total Rate of Substitution

15. The slope of the 'Price line' indicates the ratio between _____ of the two goods.
   (a) Prices (b) Quantities demanded
   (c) Quantities Sold (d) Marginal Utility

Answer Key

1. (a)	2. (c)	3. (d)	4. (c)	5. (c)	6. (c)	7. (c)	8. (b)	9. (d)	10. (b)
11. (a)	12. (d)	13. (a)	14. (a)	15. (a)					

❑❑❑

UNIT

3 Supply and Elasticity of Supply

- 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:
  (a) Supply refers to what a firm offer for sale in the market, not necessarily to what they succeed in selling. What is offered may not get sold.
  (b) Supply requires both willingness and ability to supply. Production cost is often the primary influence on ability.
  (c) 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

Price is an important consideration in determining the willingness and desire to part with commodities, there are many other factors which determine the supply of a product or a service. These are discussed below:

1. **Price of the good:**
   - Other things being equal, the higher the price of own a good the greater the quantity of it that will be supplied. This is because goods and services are produced by the firm in order to earn profits and, ceteris paribus, profits rise if the price of its product rises.
2. **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.
   - For example, a rise in the price of comic books will encourage publishers to shift resources out of the production of other books (such as novels) and use them in the production of comic books.
3. **Prices of factors of production:**
   - The cost of producing a commodity is determined by the prices of the factors of production or inputs involved, such as labor, capital, and raw materials. When the prices of these factors increase, it leads to higher production costs, which in turn reduces profitability for the seller. Consequently, the seller tends to decrease the

supply of the commodity. Conversely, if the prices of factors of production or inputs decrease, the cost of production falls, resulting in higher profit margins and an increase in the supply of the commodity.

- For example, let's consider a clothing manufacturer. If the price of cotton, a key raw material, rises significantly, it directly affects the cost of producing garments. As a result, the manufacturer's profitability decreases. To mitigate this, the manufacturer may reduce the supply of clothing items or increase their prices to maintain profitability.

4. **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, and thus they tend to increase the quantity supplied of some products and to reduce the quantity supplied of products that are displaced.
   - Availability of spare production capacity and the ease with which factor substitution can be made and the cost of such substitution also determine supply.
5. **Government Policy (Taxes & Subsidies)**
   - An increase in taxes raises the overall cost of production, resulting in a decrease in the supply of goods or services due to reduced profit margins. Conversely, tax concessions and subsidies have the opposite effect, increasing the supply of goods as they make it more financially beneficial for firms to engage in production.
   - For instance, if the government imposes higher taxes on a particular industry, such as the automotive sector, the cost of production for automobile manufacturers will rise. This increase in costs reduces the profit margin for these manufacturers, leading them to decrease the supply of vehicles in the market.
6. **Nature of competition and size of industry:** Under competitive conditions, supply will be more than that under monopolized conditions.
7. **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. An increase in the anticipated future price of a good or service reduces its supply today; and if sellers expect a fall in prices in future, more will be supplied now.
8. **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.
9. **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 strikes, communal riots etc.

THE LAW OF SUPPLY

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.

CHANGE IN QUANTITY SUPPLIED VS CHANGE IN SUPPLY

1. Change in Quantity Supplied refers to a change in the supply of a commodity that occurs solely due to a change in its own price. For instance, if the supply of Close-Up toothpaste changes in response to a change in its own price, it is considered a change in quantity supplied.
2. Change in Supply refers to a change in the supply of a commodity that is caused by factors other than its price. These factors may include changes in the price of related goods, advancements in technology, or alterations in taxation policies. For example, if the supply of Close-Up toothpaste changes due to a shift in the price of other goods, advancements in toothpaste manufacturing technology, or a change in taxation policy, it is referred to as a change in supply.

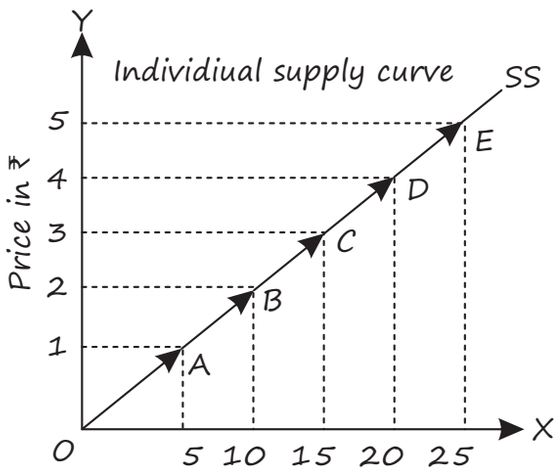
SUPPLY SCHEDULE

A supply schedule is a table or tabular statement that presents the quantities of a commodity that are supplied at different price levels over a specified period of time.

SUPPLY CURVE

It is a graphical representation of the supply schedule, showing the various quantities of a commodity that producers are willing to supply at different price levels, assuming no changes in other factors.

Price (Rs.)	Quantity supplied of good (units)
1	5
2	10
3	15
4	20
5	25



SLOPE OF SUPPLY CURVE

The slope of a curve is determined by calculating the change in the variable on the y-axis divided by the change in the variable on the x-axis. Therefore, the slope of the supply curve is calculated by dividing the change in price (ΔP) by the change in quantity (ΔQ).

MARKET SUPPLY SCHEDULE

In mathematical terms, the slope of the supply curve can be represented as:

Slope of Supply Curve = (ΔP) / (ΔQ)

MARKET SUPPLY SCHEDULE

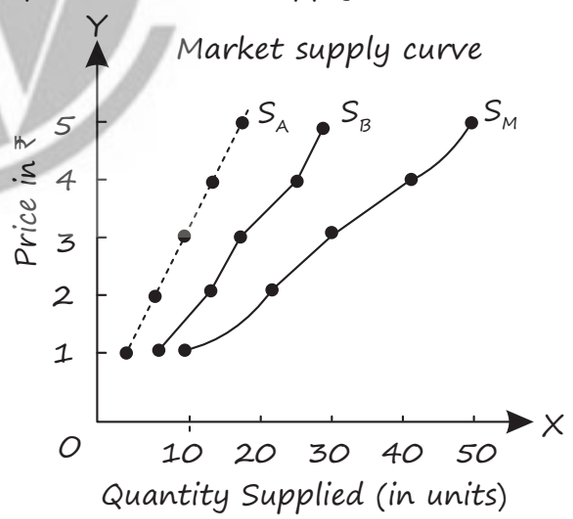
- A market supply schedule is a table that shows the quantities of a commodity that all producers in a market are willing to sell at different price levels during a specific time period.
- It is derived by aggregating the individual supply schedules of all producers in the market.
- The market supply schedule is expressed as: Sm = SA + SB + ... where Sm represents the market supply, and SA, SB, and so on represent the individual supplies of each supplier.

MARKET SUPPLY CURVE

The market supply curve is a graphical representation that shows the relationship between the price of a commodity and the total quantity supplied by all producers in the market.

- It is derived by horizontally adding or summing up the individual supply curves of each producer.

Price (Rs.) Px	Individual Supply (units)		Market Supply (units) (SA + SB}
	SA	SB	
1	5	10	5 + 10 = 15
2	10	20	10 + 20 = 30
3	15	25	15 + 25 = 40
4	20	35	20 + 35 = 55
5	25	40	25 + 40 = 65

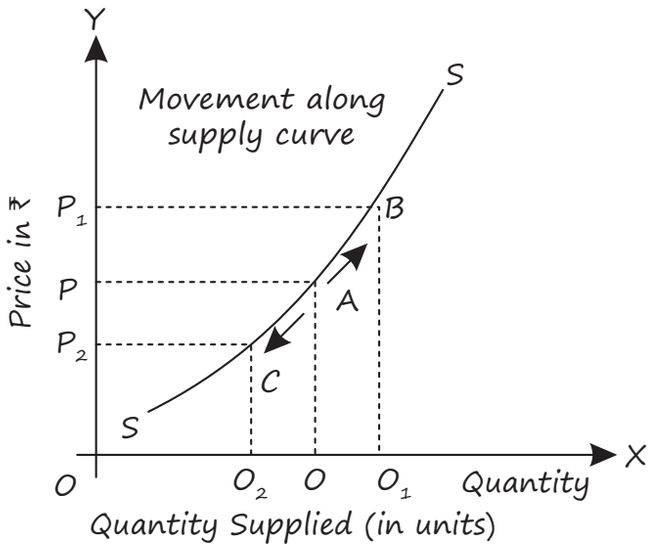


Market Supply Curve is Flatter

The market supply curve is typically flatter compared to individual supply curves. This occurs because changes in price result in a proportionately greater change in market supply compared to the proportionate change in individual supplies.

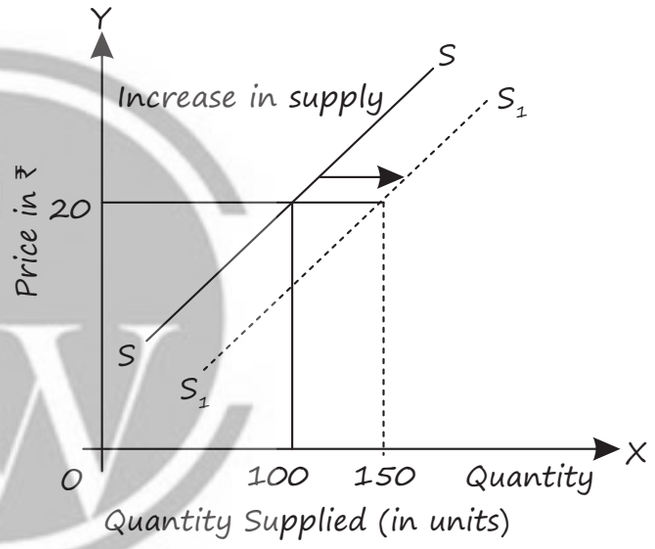
MOVEMENTS ON THE SUPPLY CURVE – INCREASE OR DECREASE IN THE QUANTITY SUPPLIED

When the quantity supplied of a commodity changes solely due to a change in its own price, while other factors remain constant, it is referred to as a 'change in quantity supplied'. Graphically, this change is represented as a movement along the same supply curve. This movement can either be downward, indicating a contraction in supply, or upward, indicating an expansion in supply, along the existing supply curve.



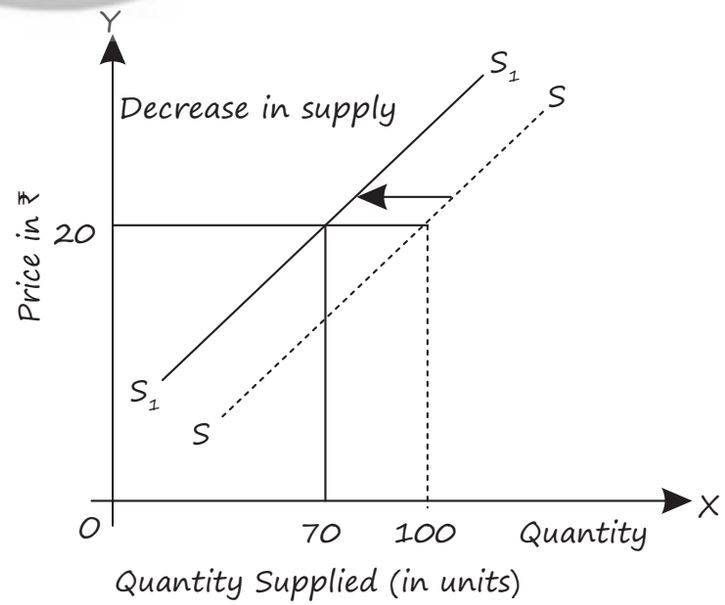
SHIFTS IN SUPPLY CURVE – INCREASE OR DECREASE IN SUPPLY

Rightward Shift In Supply Curve (Increase in Supply): 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.



Price (in Rs.)	Quantity (in units)
20	100
25	150

Leftward Shift (Decrease in Supply): When the factors other than price change and cause the supply curve to shift to the left, we call it decrease in supply. When the supply curve shifts to the left, less quantity is offered for sale at each price.



Price (in Rs.)	Quantity (in units)
20	100
25	70

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 i.e.,

$$Es = \frac{\text{(Percentage change in quantity supplied)}}{\text{(Percentage change in Price)}}$$

Or

$$Es = \frac{\dfrac{\text{(Change in quantity supplied)}}{\text{(quantity supplied)}}}{\dfrac{\text{(Change in price)}}{\text{Price}}}$$

Or

$$Es = \frac{\Delta P}{\Delta Q} \times \frac{P}{Q}$$

Where,

q denotes original quantity supplied.

Δq denotes change in quantity supplied.

p denotes original price.

Δp denotes change in price.

TRY YOUR UNDERSTANDING 2.3.1

1. Supply is the:
   (a) Limited resources that are avail-ab le with the seller.
   (b) Cost of producing a good.
   (c) Entire relationship between the quantity supplied and the price of good.
   (d) Willingness to produce a good if the techno logy to produce it becomes available.
2. The quantity supplied of a good or service is the amount that _____
   (a) Is actually bought during a given time period at a given price.
   (b) Producers wish they could sell at a higher price.
   (c) Producers plan to sell during a given time period at a given price.
   (d) People are willing to buy during a given time period at a given price.
3. In a very short period, the supply:
   (a) Can be changed.
   (b) Cannot be changed.
   (c) Can be increased.
   (d) None of the above.

4. Which of the following statement is correct?
   (a) Supply is inversely related to its cost of production
   (b) Price and quantity demand of a goods have direct relationship
   (c) Taxes and subsidy has no impact on the supply of the product
   (d) Seasonal changes have no impact on the supply of the commodity

5. Which of the following is a factor determining the supply?
   (a) Price of the good (b) Price of related goods
   (c) Price of factor of Production (d) All of the above.

6. Other things being equal,the _____ the relative price of a good the _____ the quantity of it that will be supplied.
   (a) Higher, Lesser (b) Higher, Greater
   (c) Lower,Lower (d) None of these

7. According to law of supply, change in supply is related to?
   (a) Price of goods (b) Price of related goods
   (c) Factors of production (d) None of the above

8. The supply curve for perishable commodities is _____ .
   (a) Elastic (b) Inelastic
   (c) perfectly elastic (d) perfectly inelastic

9. When supply price increase in the short run, the profit of the producer _____ .
   (a) Increases (b) Decreases
   (c) Remains constant (d) Decreases marginally Answer:

10. Contraction of supply is the result of:
   (a) Decrease in the number of pro-ducers.
   (b) Decrease in the price of the good concerned.
   (c) Increase in the prices of other goods.
   (d) Decrease in the outlay of sellers. Answer:

11. When the supply of a good increase as a result of an increase in _____ its price,then it is an increase in and there is a upward _____ the supply curve.
   (a) Quantity Supplied, movement on
   (b) Quantity Supplied, Shift of
   (c) Supply, movement on
   (d) Supply, Shift of Answer:

12. Movements on the supply curve may be due to:
   (a) Change in price of goods
   (b) Change in price of related goods
   (c) Change in technology
   (d) None of the above. Answer:

13. Contraction of supply implies _____ .
    (a) Decrease in cost of production
    (b) Decrease in price of the good concerned
    (c) Decrease in price of related good
    (d) Increase in price of the good concerned Answer:

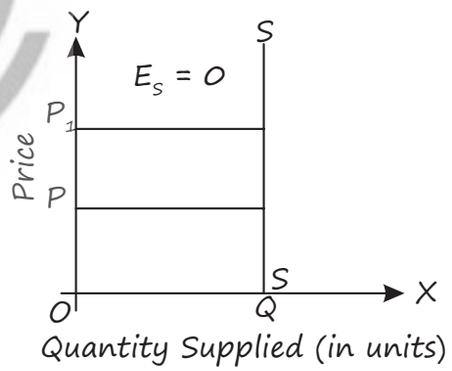
14. When supply curve moves to the left, it means
    (a) Smaller supply at a given price.
    (b) Larger supply at a given price.
    (c) Constant supply at a lower price.
    (d) None of the above.

15. When the supply curve shifts to the left or right, it is called as respectively. _____or _____ in supply,
    (a) Decrease, Decrease(b)Decreases, Increase
    (c) Increase, Increase (d)Increase, Decrease.

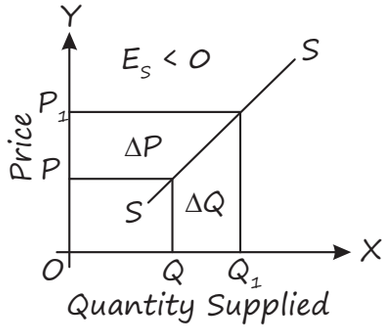
Answer Key									
1. (c)	2. (c)	3. (b)	4. (a)	5. (d)	6. (b)	7. (a)	8. (d)	9. (a)	10. (b)
11. (a)	12. (b)	13. (b)	14. (a)	15. (b)					

TYPES OF SUPPLY ELASTICITY

1. **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 (Es = 0.).
   - Supply curve is Vertical (i.e. Parallel to Y axis)



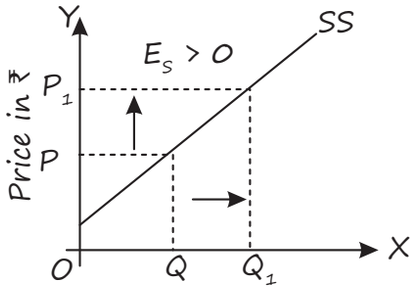
2. **Relatively less-elastic supply**
   - If as a result of a change in the price of a good its supply changes less than proportionately, we say that the supply of the good is relatively less elastic or elasticity of supply is less than one.
   - In this case, the coefficient of elasticity falls in the range 0 < Es < 1
   - The percentage change in quantity is less than the percentage change in price.
   - In other words, the quantity is not very responsive to price.



3. 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 $1 < E < \infty$.

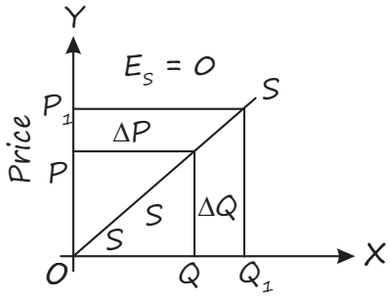
Highly Elastic Supply



Quantity Supplied (in units)

4. Unit-elastic

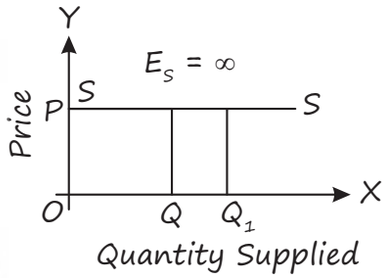
- In this case, the coefficient of elasticity is one.(Es = 1).
- If the relative change in the quantity supplied is exactly equal to the relative change in the price, the supply is said to be unitary elastic.
- The percentage change in quantity is equal to the percentage change in price.
- Unit elasticity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



Quantity Supplied

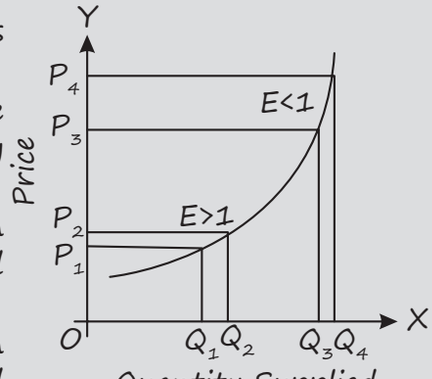
5. Perfectly elastic supply

- 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.



Quantity Supplied

- In some cases, the elasticity of supply is not constant but varies over the supply curve.
- In the case of an industry with limited capacity for production. For low levels of quantity supplied, firms respond substantially to changes in price.
- When there is a small rise in price from P1 to P2 ,the quantity supplied increases more than proportionately (Q1 to Q2).
- In this region, firms have idle capacity and therefore when price rises, they respond by increase in quantity supplied using the idle capacity available.
- Once fir ms reach their full capacity, further increase in production is possible only by building new plants and incurring expenses towards this.
- To induce firms to increase output, price must rise substantially (P3 to P4) and supply becomes less elastic.



Quantity Supplied

MEASUREMENT OF SUPPLY-ELASTICITY

1. **Percentage / Proportionate Method:** According to this method elasticity of supply is calculated by dividing a % or proportionate change in supply with the % or proportionate change in price.

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

2. **Point 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.
   - Point-elasticity of supply can be measured with the help of the following formula:

$$Es = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

3. **Arc Elasticity:** In situations where there is a relatively larger price change and we need to measure elasticity over a range or arc, rather than at a specific point, we utilize the concept of arc elasticity. Arc elasticity involves calculating the average of the two prices and quantities, both original and new, to determine the elasticity of demand or supply over the specified range.

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

Where P_1 Q_1 are original price and quantity and P_2 Q_2 are new price and quantity supplied.

DETERMINANTS OF ELASTICITY OF SUPPLY

Following are the general determinants of elasticity of supply:

1. 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. If there are constant costs or negligible rise in costs as output increases, supply will be elastic.

   Similarly, Products that involve more complex production processes or require relatively longer time to produce exhibit lower elasticity of supply. For example the supply of aircrafts and cruise ships is less elastic compared to supply of motor bikes

2. The longer the period of time, the more responsive the quantity supplied to changes in price and the greater the supply elasticity. A shorter time period does not allow sellers sufficient time to find resources and alternatives and to adjust their production decisions to changes in price. In the long run, firms can build new plants or new firms may be able to enter the market and increase the supply.

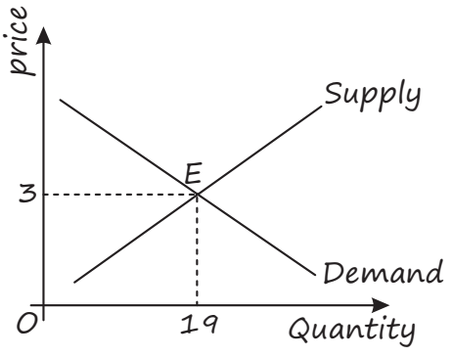
3. Supply is more elastic when there is large number of producers and there is high degree of competition among them. Supply elasticity is also higher when there are fewer barriers of entry into the market.

4. Supply will be elastic if firms are not working to full capacity. If spare production capacity is available with the firms, they can increase output without a rise in costs. The greater the spare capacity available, the greater will be the elasticity of supply.
5. 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. In case it is difficult to procure resources economically, the cost of production increases and supply will become less elastic.
6. If firms have adequate stocks of raw materials, components and finished products, they will be able to respond with higher supply as price rises. Generally, those commodities which can be easily and inexpensively stored without losing value may have elastic supply.
7. The ease and cost of factor substitution influence price elasticity of supply. Commonly available and easily substituted factors allow for quick production response to price changes. Scarcity of specialized materials or labor with longer training periods reduces supply elasticity. For example, physicians in healthcare industry and chartered accountants in accounting service.
8. 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. For example, a printing press can easily switch between printing magazines and greeting cards. Similarly falling prices of a particular vegetable encourage farmers to switch to the production of another. Products which are more continuously produced have greater supply elasticity than those which are produced infrequently.
   (a) Expectations about future prices also affect elasticity of supply. Expectation of substantial rise in prices in future will make the sellers respond less to a current rise in price.

EQUILIBRIUM PRICE

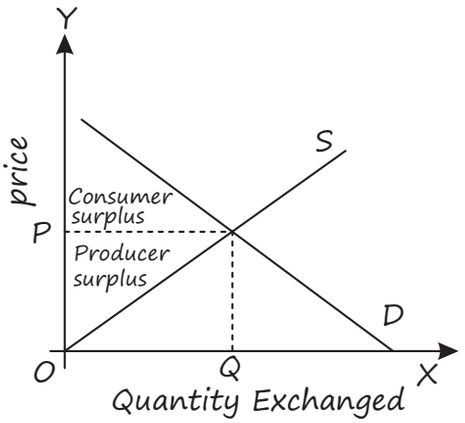
- The equilibrium price in a market is determined by the intersection between demand and supply. It is also called the market equilibrium.
- At this price, the amount that the buyers want to buy is equal to the amount that sellers want to sell.
- The competitive market equilibrium represents the 'unique' point at which both consumers and suppliers are satisfied with price and quantity.
- Equilibrium price is also called market clearing price.
- The determination of market price is the central theme of micro economic analysis. Hence, micro-economic theory is also called price theory

Price	Demand	Supply	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.
- consumer surplus is a measure of consumer welfare whereas Producer surplus is the benefit derived by producers from the sale of a unit above and beyond their cost of producing that unit.
- Producer surplus can be calculated as the area above the supply curve and below the market price.
- It represents the additional revenue or profit that producers gain when the market price exceeds their production costs.



TRY YOUR UNDERSTANDING 2.3.2

1. Elasticity of supply refers to the degree of responsiveness of supply of a good to changes in its:
   (a) Deand. (b) Price.
   (c) Cost of production. (d) State of technology.
2. The elastic ity of supply is defined as the _____
   (a) Responsiveness of the quantity supplied of a good to a change in its price.
   (b) Responsiveness of the quan-,tity supplied of a good without change in its price.
   (c) Responsiveness of the quantity demanded of a good to a change in its price.
   (d) Responsiveness of the quantity demanded of a good without change in its price.
3. When price of a commodity Rises from 200 to '{ 300 and Quantity supply increases from 2,000 to 5,000 units find elasticity of supply?
   (a) 3.0 (b) 2.5 (c) 0.3 (d) 3.5
4. If price of computers increases by 10% and supply increases by 25%. The elasticity of supply is :
   (a) 2.5 (b) 0.4 (c) (-) 2.5 (d) (-) 0.4
5. The Price of Commodity X in-creased from '{ 2,000 per unit to '{ 2,100 per unit and consequently the quantity supplied rises from 2,500 units to 3,000 units. The Elasticity of supply will be
   (a) 2 (b) 4 (c) .25 (d) 0
6. Perishable commodities will have _____
   (a) Perfectly elastic curve (b) Perfectly inelastic curve
   (c) Elastic (d) Inelastic

7. A vert ical supply curve parallel to Y axis implies that the elasticity of supply is:
   (a) Zero (b) Infinity
   (c) Equalto one (d) Greater than zero but less than infinity
8. A horizontal supply curve parallelto the quantity axis implies that the elasticity of supply is:
   (a) Zero. (b) Infinite.
   (c) Equal to one. (d) Greater than zero but less than one.
9. When the supply of a product is perfectly inelastic then the curve will be
   (a) Parallel to Y - axis (b) Parallel to X - axis
   (c) At the angle of 45° (d) Sloping upwards
10. The cross elasticity between Rye bread and Whole Wheat bread is expected to be:
   (a) Positive (b) Negative (c) Zero (d) Can't say
11. Equilibrium refers to a market situation where quantity demand is to quantity supplied.
   (a) Equal (b) Less than or Equal
   (c) More than (d) More than or equal
12. The equilibrium price is deter-mined by the inter-section between and It is also called as the equilibrium.
   (a) Demand, Supply, Static (b) Demand Supply, Dynamic
   (c) Supply, Demand, Partial (d) Demand, Supply, Market
13. Suppose the price of movies seen at a theater rise from Rs.120 per person to Rs.200 per person .The theater manager observes that the rise in price causes attendance at a given movie to fall from 300 persons to 200 persons .What is the price elasticity of demand for movies ?
   (a) 0.5 (b) 0.8 (c) 1 (d) 1.2
14. A discount store has a special offer on CD's .It reduces their from Rs.150 to Rs.100. Suppose the store manager observes that the quantity demanded increases from 700 CD's to 1,300 CD's .What is the price elasticity of demand for CD's ?
   (a) 0.8 (b) 1 (c) 1.25 (d) 1.5

Answer Key

1. (b) **2.** (a) **3.** (a) **4.** (a) **5.** (b) **6.** (b) **7.** (a) **8.** (b) **9.** (a) **10.** (a)
11. (a) **12.** (d) **13.** (b) **14.** (d)

Important Economist name in the chapter	(1) Substitution Effect
Hicks and Allen	(2) Indifference curve analysis
James Dusesenberry	Demonstration Effect
Thorstein Veblen	(1) Veblen Effect
	(2) Conspicuous Consumption
Robert Giffen	Giffen Goods
Olaf Helmer	Delphi Technique

EXERCISE

1. Demand for a commodity refers to:
   (a) desire backed by ability to pay for the commodity.
   (b) need for the commodity and willingness to pay for it
   (c) the quantity demanded of that commodity at acertain price.
   (d) the quantity of the commodity demanded at a certain price during any particular period of time.
2. Contraction of demand is the result of :
   (a) decrease in the number of consumers.
   (b) increase in the price of the good concerned.
   (c) increase in the prices of other goods.
   (d) decrease in the income of purchasers.
3. All but one of the following are assumed to remain the same while drawing an individual's demand curve for a commodity. Which one is it?
   (a) The preference of the individual.
   (b) His monetary income.
   (c) Price of the commodity
   (d) Price of related goods.
4. 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.
5. In the case of a straight line demand curve meeting the two axes, the price-elasticity of demand at the mid-point of the line would be :
   (a) 0 (b) 1 (c) 1.5 (d) 2
6. The Law of Demand, assuming other things to remain constant, establishes the relationship between:
   (a) income of the consumer and the quantity of a good demanded by him.
   (b) price of a good and the quantity demanded.
   (c) price of a good and the demand for its substitute.
   (d) quantity demanded of a good and the relative prices of its complementary goods.
7. Identify the factor which generally keeps the price-elasticity of demand for a good low:
   (a) Variety of uses for that good.
   (b) Very low price of a commodity
   (c) Close substitutes for that good.
   (d) High proportion of the consumer's income spent on it.

8. Identify the coefficient of price-elasticity of demand when the percentage increase in the quantity of a good demanded is smaller than the percentage fall in its price:
   (a) Equal to one. (b) Greater than one.
   (c) Less than one. (d) Zero.

9. In the case of an inferior good, the income elasticity of demand is:
   (a) positive. (b) Zero. (c) Negative. (d) infinite.

10. If the demand for a good is inelastic, an increase in its price will cause the total expenditure of the consumers of the good to:
   (a) Remain the same. (b) Increase.
   (c) Decrease. (d) Any of these.

11. If regardless of changes in its price, the quantity demanded of a good remains unchanged, then the demand curve for the good will be:
   (a) horizontal. (b) Vertical.
   (c) positively sloped. (d) negatively sloped.

12. Suppose the price of Pepsi increases, we will expect the demand curve of Coca Cola to:
   (a) Shift towards left since these are substitutes
   (b) Shift towards right since these are substitutes
   (c) Remain at the same level
   (d) None of the above

13. All of the following are determinants of demand except:
   (a) Tastes and preferences. (b) Quantity supplied.
   (c) Income of the consumer (d) Price of related goods.

14. A movement along the demand curve for soft drinks is best described as :
   (a) An increase in demand.
   (b) A decrease in demand.
   (c) A change in quantity demanded.
   (d) A change in demand.

15. If the price of Pepsi decreases relative to the price of Coke and 7-UP, the demand for :
   (a) Coke will decrease . (b) 7-Up will decrease.
   (c) Coke and 7-UP will increase. (d) Coke and 7-Up will decrease.

16. If a good is a luxury, its income elasticity of demand is:
   (a) Positive and less than 1. (b) Negative but greater than -1.
   (c) Positive and greater than 1. (d) Zero.

17. The price of hot dogs increases by 22% and the quantity of hot dogs demanded falls by 25%. This indicates that demand for hot dogs is :
   (a) Elastic. (b) Inelastic.
   (c) Unitarily elastic. (d) Perfectly elastic.

18. If the quantity demanded of mutton increases by 5% when the price of chicken increases by 20%, the cross-price elasticity of demand between mutton and chicken is

(a) -0.25 (b) 0.25 (c) -4 (d) 4

19. Given the following four possibilities, which one results in an increase in total consumer expenditure?

(a) Demand is unitary elastic and price falls.

(b) Demand is elastic and price rises.

(c) Demand is inelastic and price falls.

(d) Demand is inelastic and prices rises.

20. Which of the following statements about price elasticity of supply is correct?

(a) Price elasticity of supply is a measure of how much the quantity supplied of a good responds to a change in the price of that good

(b) Price elasticity of supply is computed as the percentage change in quantity supplied divided by the percentage change in price

(c) Price elasticity of supply in the long run would be different from that of the short run

(d) All the above

21. Which of the following is an incorrect statement?

(a) When goods are substitutes, a fall in the price of one (ceteris paribus) leads to a fall in the quantity demanded of its substitutes.

(b) When commodities are complements, a fall in the price of one (other things being equal) will cause the demand of the other to rise

(c) As the income of the consumer increases, the demand for the commodity increases always and vice versa.

(d) When a commodity becomes fashionable people prefer to buy it and therefore its demand increases

22. Suppose the price of movies seen at a theatre rises from Rs 120 per person to Rs 200 per person. The theatre manager observes that the rise in price causes attendance at a given movie to fall from 300 persons to 200 persons. What is the price elasticity of demand for movies? (Use Arc Elasticity Method)

(a) .5 (b) .8 (c) 1.0 (d) 1.2

23. Suppose a department store has a sale on its silverware. If the price of a plate-setting is reduced from Rs 300 to Rs 200 and the quantity demanded increases from 3,000 plate-settings to 5,000 plate-settings, what is the price elasticity of demand for silverware? (Use Arc Elasticity Method)

(a) .8 (b) 1.0 (c) 1.25 (d) 1.50

24. When the numerical value of cross elasticity between two goods is very high, it means

(a) The goods are perfect complements and therefore have to be used together

(b) The goods are perfect substitutes and can be used with ease in place of one another

(c) There is a high degree of substitutability between the two goods

(d) The goods are neutral and therefore cannot be considered as substitutes

25. If the local pizzeria raises the price of a medium pizza from ` 60 to ` 100 and quantity demanded falls from 700 pizzas a night to 100 pizzas a night, the price elasticity of demand for pizzas is : (Use Arc Elasticity Method)

(a) .67 (b) 1.5 (c) 2.0 (d) 3.0

26. If electricity demand is inelastic, and electricity charges increase, which of the following is likely to occur?

(a) Quantity demanded will fall by a relatively large amount.

(b) Quantity demanded will fall by a relatively small amount.

(c) Quantity demanded will rise in the short run, but fall in the long run.

(d) Quantity demanded will fall in the short run, but rise in the long run.

27. Suppose the demand for meals at a medium-priced restaurant is elastic. If the management of the restaurant is considering raising prices, it can expect a relatively:

(a) Large fall in quantity demanded.

(b) Large fall in demand.

(c) Small fall in quantity demanded.

(d) Small fall in demand.

28. Point elasticity is useful for which of the following situations?

(a) The bookstore is considering doubling the price of notebooks.

(b) A restaurant is considering lowering the price of its most expensive dishes by 50 percent.

(c) An auto producer is interested in determining the response of consumers to the price of cars being lowered by Rs 100.

(d) None of the above.

29. A decrease in price will result in an increase in total revenue if :

(a) The percentage change in quantity demanded in less than the percentage change in price.

(b) The percentage change in quantity demanded is greater than the percentage change in price.

(c) Demand is inelastic.

(d) The consumer is operating along a linear demand curve at a point at which the price is very low and the quantity demanded is very high.

30. An increase in price will result in an increase in total revenue if :

(a) The percentage change in quantity demanded is less than the percentage change in price.

(b) The percentage change in quantity demanded is greater than the percentage change in price.

(c) Demand is elastic.

(d) The consumer is operating along a linear demand curve at a point at which the price is very high and the quantity demanded is very low.

31. Demand for a good will tend to be more elastic if it exhibits which of the following characteristics?

(a) It represents a small part of the consumer's income.

(b) The good has many substitutes available.

(c) It is a necessity (as opposed to a luxury).

(d) There is little time for the consumer to adjust to the price change.

32. Demand for a good will tend to be more inelastic if it exhibits which of the following characteristics?

(a) The good has many substitutes.

(b) The good is a luxury (as opposed to a necessity).

(c) The good is a small part of the consumer's income.

(d) There is a great deal of time for the consumer to adjust to the change in prices.

33. Suppose a consumer's income increases from ₹30,000 to ₹36,000. As a result, the consumer increases her purchases of compact discs (CDs) from 25 CDs to 30 CDs. What is the consumer's income elasticity of demand for CDs? (Use Arc Elasticity Method)

(a) 0.5 (b) 1.0 (c) 1.5 (d) 2.0

34. Total utility is maximum when :

(a) Marginal utility is zero. (b) Marginal utility is at its highest point.

(c) Marginal utility is negative (d) None of the above

35. Which one is not an assumption of the theory of demand based on analysis of indifference curves?

(a) Given scale of preferences as between different combinations of two goods.

(b) Diminishing marginal rate of substitution.

(c) Diminishing marginal utility of money

(d) Consumers would always prefer more of a particular good to less of it, other things remaining the same.

36. An indifference curve slopes down towards right since more of one commodity and less of another result in:

(a) Same level of satisfaction. (b) Greater satisfaction.

(c) Maximum satisfaction. (d) Any of the above

37. Suppose that workers in a steel plant managed to force a significant increase in their wage package. How would the new wage contract be likely to affect the market supply of steel, other things remaining the same?

(a) Supply curve will shift to the left.

(b) Supply curve will shift to the right.

(c) Supply will not shift, but the quantity of cars produced per month will decrease.

(d) Supply will not shift, but the quantity of cars produced per month will increase.

38. Which of the following statements is incorrect?
    (a) An indifference curve must be downward-sloping to the right.
    (b) Convexity of a curve implies that the slope of the curve diminishes as one moves from left to right.
    (c) The income elasticity for inferior goods to a consumer is positive
    (d) The total effect of a change in the price of a good on its quantity demanded is called the price effect.

39. The successive units of stamps collected by a little boy give him greater and greater satisfaction. This is a clear case of
    (a) Operation of the law of demand.
    (b) Consumer surplus enjoyed in hobbies and rare collections
    (c) Exception to the law of diminishing utility.
    (d) None of the above

40. What will happen in the rice market if buyers are expecting higher rice prices in the near future?
    (a) The demand for rice will increase and the demand curve will shift to the right
    (b) The demand for rice will decrease and the demand curve will shift to the left
    (c) The demand for rice will be unaffected as it is a necessity
    (d) The demand for wheat will increase and the demand curve will shift to the right

41. In the case of a Giffen good, the demand curve will usually be :
    (a) horizontal. (b) downward-sloping to the right.
    (c) vertical. (d) upward-sloping to the right.

42. By consumer surplus, economists mean
    (a) The area inside the budget line above the price of the commodity
    (b) The area between the average revenue and marginal revenue curves.
    (c) The difference between the maximum amount a person is willing to pay for a good and its market price.
    (d) The difference between the market price and the supply curve

43. Which of the following is a property of an indifference curve?
    (a) It is convex to the origin due to diminishing marginal rate of substitution
    (b) The marginal rate of substitution is constant as you move along an indifference curve.
    (c) Marginal utility is constant as you move along an indifference curve.
    (d) Total utility is greatest where the budget line line cuts the indifference curve.

44. When economists speak of the utility of a certain good, they are referring to
    (a) The demand for the good.
    (b) The usefulness of the good in consumption.
    (c) The expected satisfaction derived from consuming the good.
    (d) The rate at which consumers are willing to exchange one good for another.

45. A vertical supply curve parallel to Y axis implies that the elasticity of supply is :
(a) Zero
(b) Infinity
(c) Equal to one
(d) Greater than zero but less than infinity.

46. For a normal good with a downward sloping demand curve:
(a) The price elasticity of demand is negative; the income elasticity of demand is negative.
(b) The price elasticity of demand is positive; the income elasticity of demand is negative.
(c) The price elasticity of demand is positive; the income elasticity of demand is positive.
(d) The price elasticity of demand is negative; the income elasticity of demand is positive.

47. An increase in the supply of a good is caused by :
(a) Improvements in its production technology
(b) Fall in the prices of other goods which can be produced using the same inputs .
(c) Fall in the prices of factors of production used in its production .
(d) all of the above.

48. Elasticity of supply refers to the degree of responsiveness of supply of a good to changes in its:
(a) Demand.
(b) Price.
(c) Cost of production.
(d) State of technology.

49. A horizontal supply curve parallel to the quantity axis implies that the elasticity of supply is:
(a) Zero.
(b) Infinite.
(c) Equal to one.
(d) Greater than zero but less than one.

50. Contraction of supply is the result of :
(a) Decrease in the number of producers.
(b) Decrease in the price of the good concerned.
(c) Increase in the prices of other goods.
(d) Decrease in the outlay of sellers.

51. Conspicuous goods are also known as
(a) Prestige goods
(b) Snob goods
(c) Veblen goods
(d) All of the above

52. The quantity purchased remains constant irrespective of the change in income. This is known as
(a) negative income elasticity of demand
(b) income elasticity of demand less than one
(c) zero income elasticity of demand
(d) income elasticity of demand is greater than one

53. As income increases, the consumer will go in for superior goods and consequently the demand for inferior goods will fall. This means inferior goods have
(a) income elasticity of demand less than one
(b) negative income elasticity of demand

(c) zero income elasticity of demand

(d) unitary income elasticity of demand

54. When income increases the money spent on necessaries of life may not increase in the same proportion, This means

(a) income elasticity of demand is zero

(b) income elasticity of demand is one

(c) income elasticity of demand is greater than one

(d) income elasticity of demand is less than one

55. The luxury goods like jewellery and fancy articles will have

(a) low income elasticity of demand

(b) high income elasticity of demand

(c) zero income elasticity of demand

(d) none of the above

56. A good which cannot be consumed more than once is known as

(a) Durable good (b) Non-durable good

(c) Producer good (d) None of the above

57. A relative price is

(a) price expressed in terms of money

(b) what you get paid for babysitting your cousin

(c) the ratio of one money price to another

(d) equal to a money price

58. A point below the budget line of a consumer

(a) Represents a combination of goods which costs the whole of consumer's income

(b) Represents a combination of goods which costs less than the consumer's income

(c) Represents a combination of goods which is unattainable to the consumer given his/her money income

(d) Represents a combination of goods which costs more than the consumers' income

59. Demand is the

(a) the desire for a commodity given its price and those of related commodities

(b) the entire relationship between the quantity demanded and the price of a good other things remaining the same

(c) willingness to pay for a good if income is larger enough

(d) ability to pay for a good

60. Suppose potatoes have (–).0.4 as income elasticity. We can say from the data given that:

(a) Potatoes are superior goods.

(b) Potatoes are necessities.

(c) Potatoes are inferior goods.

(d) There is a need to increase the income of consumers so that they can purchase potatoes.

61. The price of tomatoes increases and people buy tomato puree. You infer that tomato puree and tomatoes are
(a) Normal goods (b) Complements
(c) Substitutes (d) Inferior goods

62. Chicken and fish are substitutes. If the price of chicken increases, the demand for fish will
(a) Increase or decrease but the demand curve for chicken will not change
(b) Increase and the demand curve for fish will shift rightwards.
(c) Not change but there will be a movement along the demand curve for fish.
(d) Decrease and the demand curve for fish will shift leftwards.

63. Potato chips and popcorn are substitutes. A rise in the price of potato chips will _____ the demand for popcorn and the quantity of popcorn sold will _____
(a) increase; increase(b)increase; decrease
(c) decrease; decrease(d)decrease; increase

64. If the price of orange Juice increases, the demand for apple Juice will _____.
(a) increase because they are substitutes
(b) decrease because they are substitutes
(c) remain the same because real income is increased
(d) decrease as real income decreases

65. An increase in the demand for computers, other things remaining same, will:
(a) Increase the number of computers bought.
(b) Decrease the price but increase the number of computers bought.
(c) Increase the price of computers.
(d) Increase the price and number of computers bought.

66. When total demand for a commodity whose price has fallen increases, it is due to:
(a) Income effect. (b) Substitution effect
(c) Complementary effect (d) Price effect

67. With a fall in the price of a commodity:
(a) Consumer's real income increases
(b) Consumer's real income decreases
(c) There is no change in the real income of the consumer
(d) None of the above

68. With an increase in the price of diamond, the quantity demanded also increases. This is because it is a:
(a) Substitute good (b) Complementary good
(c) Conspicuous good (d) None of the above

69. An example of goods that exhibit direct price-demand relationship is
(a) Giffen goods (b) Complementary goods
(c) Substitute goods (d) None of the above

70. In Economics, when demand for a commodity increases with a fall in its price it is known as:
(a) Contraction of demand (b) Expansion of demand
(c) No change in demand (d) None of the above

71. The quantity supplied of a good or service is the amount that
(a) is actually bought during a given time period at a given price
(b) producers wish they could sell at a higher price
(c) producers plan to sell during a given time period at a given price
(d) people are willing to buy during a given time period at a given price

72. Supply is the
(a) limited resources that are available with the seller
(b) cost of producing a good
(c) entire relationship between the quantity supplied and the price of good.
(d) Willingness to produce a good if the technology to produce it becomes available

73. In the book market, the supply of books will decrease if any of the following occurs except
(a) a decrease in the number of book publishers
(b) a decrease in the price of the book
(c) an increase in the future expected price of the book
(d) an increase in the price of paper used.

74. If price of computers increases by 10% and supply increases by 25%. The elasticity of supply is :
(a) 2.5 (b) 0.4 (c) (–) 2.5 (d) (–) 0.4

75. An increase in the number of sellers of bikes will increase the
(a) The price of a bike(b)Demand for bikes
(c) The supply of bikes (d)Demand for helmets

76. If the supply of bottled water decreases, other things remaining the same, the equilibrium price _____ and the equilibrium quantity _____
(a) increases ; decreases (b) decreases; increases
(c) decreases; decreases (d) increases; increases

77. A decrease in the demand for cameras, other things remaining the same will
(a) Increase the number of cameras bought
(b) Decrease the price but increase the number of cameras bought
(c) Decrease in quantity of camera demanded
(d) Decrease the price and decrease in the number of cameras bought.

78. Which of the following statements about inferior goods is/are false?
(i) Inferior goods are those that we will never buy, no matter how cheap they are.
(ii) Inferior goods are those that we buy more of, if we become poorer.

(iii) Inferior goods are those that we buy more of, if we become richer.

(a) (i) and (iii) only. (b) (i) only.

(c) (iii) only. (d) (i), (ii), and (iii)

79. Comforts lie between

(a) inferior goods and necessaries

(b) luxuries and inferior goods

(c) necessaries and luxuries

(d) none of the above

80. In a very short period, the supply

(a) can be changed (b) can not be changed

(c) can be increased(d) none of the above

81. When supply curve moves to the left, it means

(a) lesser quantity is supplied at a given price

(b) larger quantity is supplied at a given price

(c) prices have fallen and quantity is supplied at a lower price

(d) none of the above

82. When supply curve moves to right, it means

(a) supply increases and more quantity is supplied at a given price

(b) supply decreases and less quantity is supplied at a given price

(c) supply remains constant at a given price

(d) none of the above

83. The elasticity of supply is defined as the

(a) responsiveness of the quantity supplied of a good to a change in its price

(b) responsiveness of the quantity supplied of a good without change in its price

(c) responsiveness of the quantity demanded of a good to a change in its price

(d) responsiveness of the quantity demanded of a good without change in its price

84. Elasticity of supply is measured by dividing the percentage change in quantity supplied of a good by _____

(a) Percentage change in income

(b) Percentage change in quantity demanded of goods

(c) Percentage change in price

(d) Percentage change in taste and preference

85. Elasticity of supply is zero means

(a) perfectly inelastic supply

(b) perfectly elastic supply

(c) imperfectly elastic supply

(d) none of the above

86. Elasticity of supply is greater than one when

(a) Proportionate change in quantity supplied is more than the proportionate change in price.

(b) Proportionate change in price is greater than the proportionate change in quantity supplied.

(c) change in price and quantity supplied are equal

(d) None of the above

87. If the quantity supplied is exactly equal to the relative change in price then the elasticity of supply is

(a) Less than one (b) Greater than one

(c) One (d) None of the above

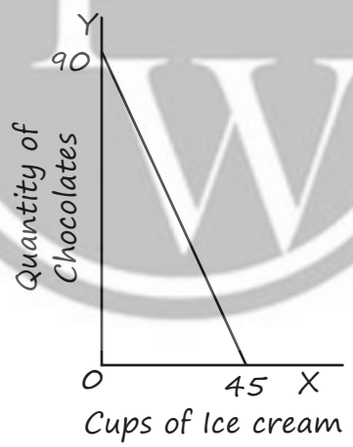
88. The price of a commodity decreases from Rs 6 to Rs 4 and the quantity demanded of the good increases from 10 units to 15 units, find the coefficient of price elasticity.

(a) 1.5 (b) 2.5 (c) -1.5 (d) 0.5

89. The supply function is given as $Q = -100 + 10P$. Find the elasticity using point method, when price is ₹ 15.

(a) 4 (b) -3 (c) -5 (d) 3

90. The figure below shows the budget constraint of a consumer with an income of ₹900/- to spend on two commodities, namely ice cream and chocolates.



The prices of these two commodities respectively are:

(a) Rs. 10 and Rs 20 (b) Rs 20 and Rs. 10

(c) Rs. 10 and Rs 5 (d) Any of the above

91. 'No matter what the price of coffee is, Arjun always spend a total of exactly 100 per week on coffee.' The statement implies that:

(a) Arjun is very fond of coffee and therefore he has an inelastic demand for coffee

(b) Arjun has elastic demand for coffee

(c) Arjun's demand for coffee is relatively less elastic

(d) Arjun's demand for coffee is unit elastic

92. A firm learns that the own price elasticity of a product it manufactures is 3.5. What would be the correct action for this firm to take if it wishes to raise its total revenue?
(a) Lower the price because demand for the good is elastic.
(b) Raise the price because demand for the product is inelastic.
(c) Raise the price because demand is elastic.
(d) We need information in order to answer this question.

93. At higher prices people demand more of certain goods not for their worth but for their prestige value – This is called
(a) Veblen effect
(b) Giffens paradox
(c) Speculative effect
(d) None of the above

94. If the price of air-conditioner increases from ₹30,000 to ₹30,010 and resultant change in demand is negligible, we use the measure of _____ to measure elasticity.
(a) Point elasticity of demand since it is a small change
(b) Arc elasticity of demand since it is a small change
(c) Price elasticity based on average prices method
(d) Any of the above

95. Given the following four possibilities, which one will result in an increase in total expenditure of the consumer?
(a) Demand is unit elastic and price rises
(b) Demand is elastic and price rises
(c) Demand is inelastic and price falls
(d) demand is inelastic and price rises

96. The supply curve shifts to the right because of _____
(a) improved technology
(b) increased price of factors of production
(c) increased excise duty
(d) all of the above

97. Which of the following statements is correct?
(a) When the price falls the quantity demanded falls
(b) Seasonal changes do not affect the supply of a commodity
(c) Taxes and subsidies do not influence the supply of the commodity
(d) With lower cost, it is profitable to supply more of the commodity.

98. If the demand is more than supply, then the pressure on price will be
(a) Upward
(b) Downward
(c) Constant
(d) None of the above

99. The supply curve for highly perishable commodities during very short period is generally _____
(a) Elastic
(b) Inelastic
(c) Perfectly elastic
(d) Perfectly inelastic

100. Supply is a _____ concept.

(a) Stock (b) Flow and stock

(c) Flow (d) None of the above

101. The cross elasticity between Rye bread and Whole Wheat bread is expected to be:

(a) Positive (b) Negative

(c) Zero (d) Can't say

102. The cross elasticity between personal computers and soft wares is:

(a) Positive (b) Zero

(c) Negative (d) One

103. The cross elasticity between Bread and DVDs is:

(a) Positive (b) Negative

(c) Zero (d) One

104. Which of the following statements is correct?

(a) With the help of statistical tools, the demand can be forecasted with perfect accuracy

(b) The more the number of substitutes of a commodity, the more elastic is the demand.

(c) Demand for butter is perfectly elastic.

(d) Gold jewellery will have negative income elasticity.

105. Suppose the income elasticity of education in private school in India is 3.6. What does this indicate:

(a) Private school education is highly wanted by rich

(b) Private school education is a necessity.

(c) Private school education is a luxury.

(d) We should have more private schools.

106. If the organizers of an upcoming cricket match decide to increase the ticket price in order to raise its revenues, what they have learned from past experience is;

(a) The percentage increase in ticket rates will be always equal the percentage decrease in tickets sold

(b) The percentage increase in ticket rates will be always greater than the percentage decrease in tickets sold

(c) The percentage increase in ticket rates will be less than the percentage decrease in tickets sold

(d) (a) and (c) above are true

107. Data on production of vegetables for the past two years showed that, despite stable prices, there is a substantial decline in output of cabbage leading to lower supply into the market. Which of the following can possibly be the reason?

(a) An increase in the price of cauliflower which is equally preferred by consumers

(b) Announcement of a subsidy by government on vegetable production

(c) More farmers producing cabbage and the increasing competition among them

(d) A substantial decrease in the price of capsicum

108. The following diagram shows the relationship between price of Good X and quantity demanded of Good Y. What we infer from the diagram is ;

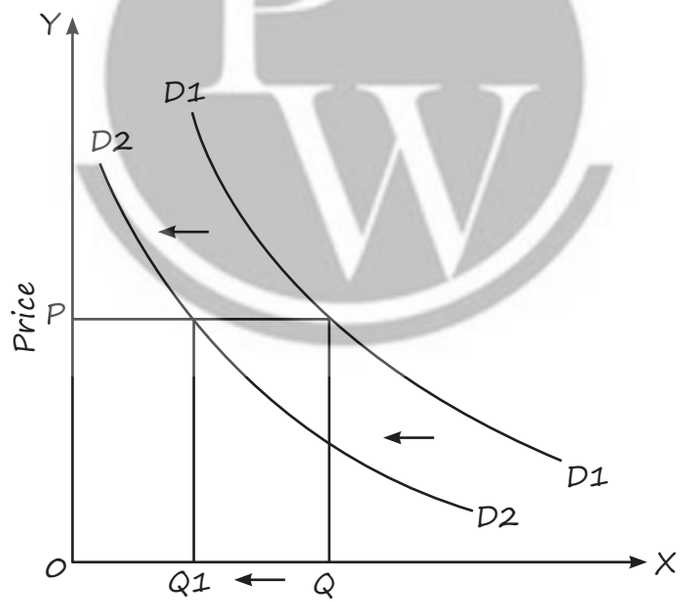
(a) Good X and Good Y are perfect complements

(b) Good X and Good Y are perfect substitutes

(c) Good X and Good Y are remote substitutes

(d) Good X and Good Y are close substitutes

109. The diagram given below shows



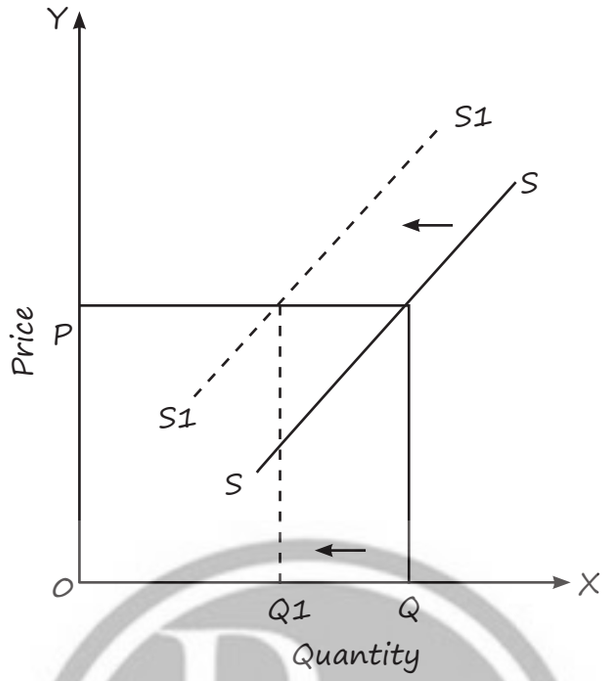
(a) A change in demand which may be caused by a rise in income and the good is a normal good

(b) A shift of demand curve caused by a fall in the price of a complementary good

(c) A change in demand which is caused by a rise in income and the good is an inferior good

(d) A shift of demand curve caused by a rise in the price of a substitute and the good is a normal good.

110. Which of the following alternatives would be true if the event presented in the following diagram occurs?



(a) A fall in wage costs of the firm along with a fall in consumer incomes

(b) A shortage of raw materials and consequent increase in raw material price

(c) An increase in subsidy by the government and a reduction in taxes

(d) Decrease in the market price of the commodity in question

111. The demand curve of a normal good has shifted to the right. Which of the four events would have caused the shift?

(a) A fall in the price of a substitute with the price of the good unchanged

(b) A fall in the nominal income of the consumer and a fall in the price of the normal good

(c) A fall in the price of a complementary good with the price of the normal good unchanged

(d) A fall in the price of the normal good, other things remaining the same

112. If roller- coaster ride is a function of amusement park visit, then, if the price of amusement park entry falls

(a) The demand for roller- coaster rides will rise and the demand curve will shift to right

(b) The demand for roller coaster ride cannot be predicted as it depends on the tastes of consumers for the ride

(c) There will be an expansion in the demand for roller coaster drive as it complementary

(d) None of the above

113. If a short run supply curve is plotted for the following table which presents price and quantity of fighter aircrafts, what will be its shape?

Price in millions of $	Number of Aircrafts
124	28
140	28
150	28
160	28
175	28

(a) Horizontal straight line parallel to the quantity axis
(b) Steeply rising with elasticity less than one
(c) Vertical straight line parallel to Y axis
(d) A perfectly elastic supply curve

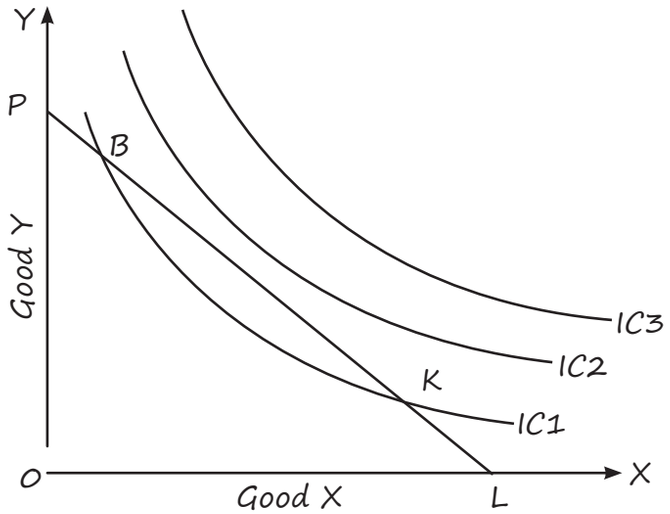
114. The average income of residents of two cities A and B and the corresponding change in demand for two goods is given in the following table. Which of the following statements is true?

City	%Increase In Income	% change in demand for Good X	% change in demand for Good Y
A	12	6.5	- 2.3
B	9	5.6	1.6

(a) Both goods are normal goods in both cities A and B
(b) Good X is a normal good in both cities ; good Y is an inferior good in city A
(c) Good X is a normal good in both cities ; good Y is an inferior good in city B
(d) Need more information to make an accurate comment

Refer to the figure below. Answer questions 115 and 116

115. If this consumer is spending her entire income and consuming at point B, what advise will you give her?

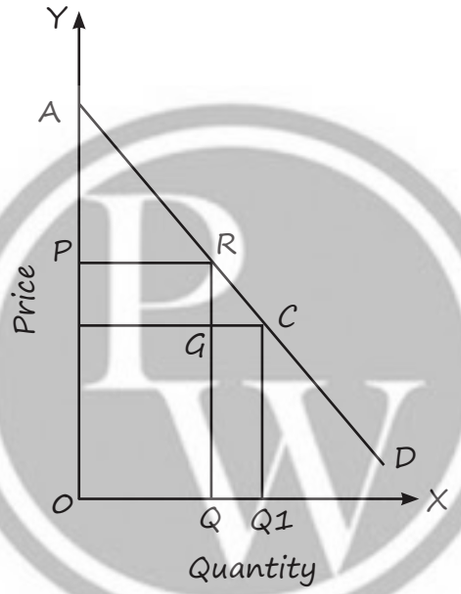


(a) No advise needed ,as she is maximizing her utility at B
(b) Consume more of Good X and less of Good Y
(c) Consume more of X and and less of Y and reach point K
(d) Consumer same quantity of Good Y and more of Good X

116. Which of the following statements is true about this consumer?
(a) The consumer is not maximizing her utility at point K
(b) The consumer is spending her entire income on both goods
(c) The consumer gets equal pleasure at points B and K
(d) All the above

Refer to the figure below. Answer questions 117 and 118

117. The effect on consumer surplus of a fall in price from E to F is



(a) A decrease in consumer surplus by EFGR
(b) A decrease in consumer surplus by AER
(c) A decrease in consumer surplus by EFCR
(d) None of The above

118. When price rises from F to E, the increase in revenue earned by the seller is
(a) Equivalent to area EFGR (b) Equivalent to area EFCR
(c) Equivalent to area AER (d) None of the above

119. How would that budget line be affected if the price of both goods fell?
(a) The budget line would not shift.
(b) The new budget line must be parallel to the old budget line.
(c) The budget line must be shifting to the left
(d) The new budget line will have the same slope as the original so long as the prices of both goods change in the same proportion.

120. During a recession, economies experience increased unemployment and a reduced level of income. How would a recession likely to affect the market demand for new cars?

(a) Demand curve will shift to the right.

(b) Demand curve will shift to the left.

(c) Demand will not shift, but the quantity of cars sold per month will decrease.

(d) Demand will not shift, but the quantity of cars sold per month will increase.

Answer Key

1.	(d)	2.	(b)	3.	(c)	4.	(b)	5.	(b)	6.	(b)	7.	(b)	8.	(c)
9.	(c)	10.	(b)	11.	(b)	12.	(b)	13.	(b)	14.	(c)	15.	(d)	16.	(c)
17.	(a)	18.	(b)	19.	(d)	20.	(d)	21.	(c)	22.	(b)	23.	(c)	24.	(c)
25.	(d)	26.	(b)	27.	(a)	28.	(c)	29.	(b)	30.	(a)	31.	(b)	32.	(c)
33.	(b)	34.	(a)	35.	(c)	36.	(a)	37.	(a)	38.	(c)	39.	(c)	40.	(a)
41.	(d)	42.	(c)	43.	(a)	44.	(c)	45.	(a)	46.	(d)	47.	(d)	48.	(b)
49.	(b)	50.	(b)	51.	(d)	52.	(c)	53.	(b)	54.	(d)	55.	(b)	56.	(b)
57.	(c)	58.	(b)	59.	(b)	60.	(c)	61.	(c)	62.	(b)	63.	(a)	64.	(a)
65.	(d)	66.	(d)	67.	(a)	68.	(c)	69.	(a)	70.	(b)	71.	(c)	72.	(c)
73.	(b)	74.	(a)	75.	(c)	76.	(a)	77.	(c)	78.	(a)	79.	(c)	80.	(b)
81.	(a)	82.	(a)	83.	(a)	84.	(c)	85.	(a)	86.	(a)	87.	(c)	88.	(a)
89.	(d)	90.	(b)	91.	(d)	92.	(a)	93.	(a)	94.	(a)	95.	(d)	96	(a)
97.	(d)	98.	(a)	99.	(d)	100.	(c)	101	(a)	102	(c)	103.	(c)	104	(b)
105	(c)	106.	(b)	107	(a)	108.	(d)	109	(c)	110	(b)	111	(c)	112	(a)
113	(c)	114	(b)	115	(b)	116	(d)	117	(d)	118	(a)	119	(d)	120	(b)

❑❑❑

UNIT
3

Supply and Elasticity of Supply

- 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:
  (i) Supply refers to what a firm offer for sale in the market, not necessarily to what they succeed in selling. What is offered may not get sold.
  (ii) Supply requires both willingness and ability to supply. Production cost is often the primary influence on ability.
  (iii) 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

Price is an important consideration in determining the willingness and desire to part with commodities, there are many other factors which determine the supply of a product or a service. These are discussed below:

(a) 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. This is because goods and services are produced by the firm in order to earn profits and, ceteris paribus, profits rise if the price of its product rises.

(b) 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.
- For example, a rise in the price of comic books will encourage publishers to shift resources out of the production of other books (such as novels) and use them in the production of comic books.

(c) Prices of factors of production:

- The cost of producing a commodity is determined by the prices of the factors of production or inputs involved, such as labor, capital, and raw materials. When the prices of these factors increase, it leads to higher production costs, which in turn

reduces profitability for the seller. Consequently, the seller tends to decrease the supply of the commodity. Conversely, if the prices of factors of production or inputs decrease, the cost of production falls, resulting in higher profit margins and an increase in the supply of the commodity.

- For example, let's consider a clothing manufacturer. If the price of cotton, a key raw material, rises significantly, it directly affects the cost of producing garments. As a result, the manufacturer's profitability decreases. To mitigate this, the manufacturer may reduce the supply of clothing items or increase their prices to maintain profitability.

(d) 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, and thus they tend to increase the quantity supplied of some products and to reduce the quantity supplied of products that are displaced.
- Availability of spare production capacity and the ease with which factor substitution can be made and the cost of such substitution also determine supply.

(e) Government Policy (Taxes & Subsidies)

- An increase in taxes raises the overall cost of production, resulting in a decrease in the supply of goods or services due to reduced profit margins. Conversely, tax concessions and subsidies have the opposite effect, increasing the supply of goods as they make it more financially beneficial for firms to engage in production.
- For instance, if the government imposes higher taxes on a particular industry, such as the automotive sector, the cost of production for automobile manufacturers will rise. This increase in costs reduces the profit margin for these manufacturers, leading them to decrease the supply of vehicles in the market.

(f) Nature of competition and size of industry: Under competitive conditions, supply will be more than that under monopolized conditions.

(g) 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. An increase in the anticipated future price of a good or service reduces its supply today; and if sellers expect a fall in prices in future, more will be supplied now.

(h) 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.

(i) 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 strikes, communal riots etc.

THE LAW OF SUPPLY

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.

CHANGE IN QUANTITY SUPPLIED VS CHANGE IN SUPPLY

1. Change in Quantity Supplied refers to a change in the supply of a commodity that occurs solely due to a change in its own price. For instance, if the supply of Close-Up toothpaste changes in response to a change in its own price, it is considered a change in quantity supplied.
2. Change in Supply refers to a change in the supply of a commodity that is caused by factors other than its price. These factors may include changes in the price of related goods, advancements in technology, or alterations in taxation policies. For example, if the supply of Close-Up toothpaste changes due to a shift in the price of other goods, advancements in toothpaste manufacturing technology, or a change in taxation policy, it is referred to as a change in supply.

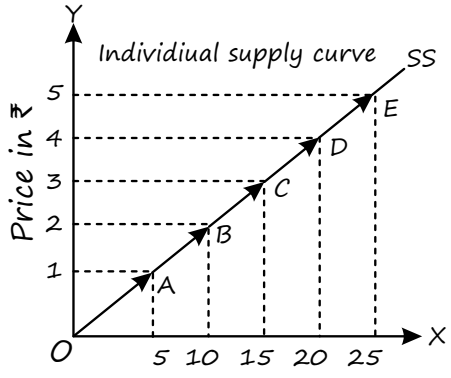
SUPPLY SCHEDULE

A supply schedule is a table or tabular statement that presents the quantities of a commodity that are supplied at different price levels over a specified period of time.

SUPPLY CURVE

It is a graphical representation of the supply schedule, showing the various quantities of a commodity that producers are willing to supply at different price levels, assuming no changes in other factors.

Price (Rs.)	Quantity supplied of good (units)
1	5
2	10
3	15
4	20
5	25



SLOPE OF SUPPLY CURVE

The slope of a curve is determined by calculating the change in the variable on the y-axis divided by the change in the variable on the x-axis. Therefore, the slope of the supply curve is calculated by dividing the change in price (ΔP) by the change in quantity (ΔQ).

MARKET SUPPLY SCHEDULE

In mathematical terms, the slope of the supply curve can be represented as:

Slope of Supply Curve = (ΔP) / (ΔQ)

MARKET SUPPLY SCHEDULE

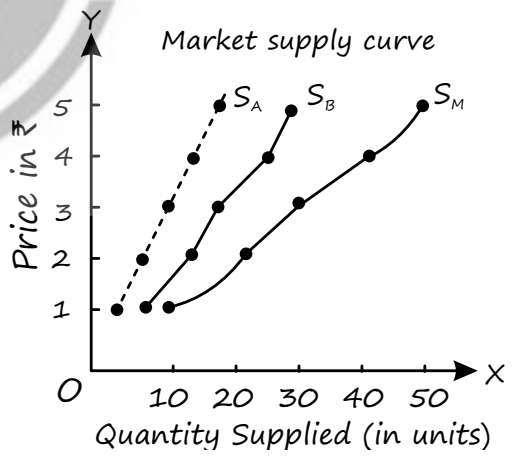
- A market supply schedule is a table that shows the quantities of a commodity that all producers in a market are willing to sell at different price levels during a specific time period.
- It is derived by aggregating the individual supply schedules of all producers in the market.
- The market supply schedule is expressed as: Sm = SA + SB + ... where Sm represents the market supply, and SA, SB, and so on represent the individual supplies of each supplier.

MARKET SUPPLY CURVE

The market supply curve is a graphical representation that shows the relationship between the price of a commodity and the total quantity supplied by all producers in the market.

- It is derived by horizontally adding or summing up the individual supply curves of each producer.

Price (Rs.) Px	Individual Supply (units)		Market Supply (units) (SA + SB}
	SA	SB	
1	5	10	5 + 10 = 15
2	10	20	10 + 20 = 30
3	15	25	15 + 25 = 40
4	20	35	20 + 35 = 55
5	25	40	25 + 40 = 65

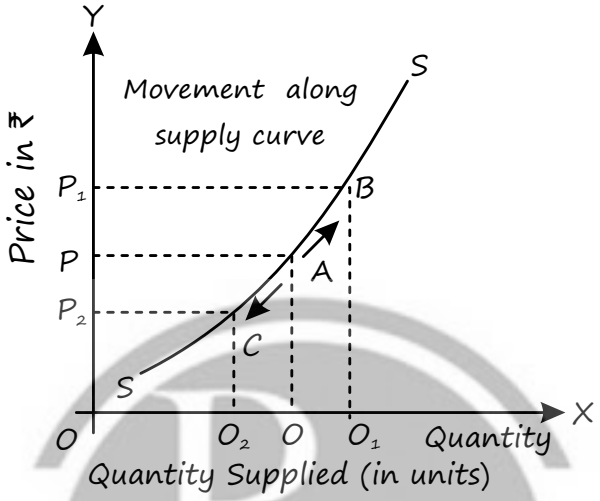


Market Supply Curve is Flatter

The market supply curve is typically flatter compared to individual supply curves. This occurs because changes in price result in a proportionately greater change in market supply compared to the proportionate change in individual supplies.

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

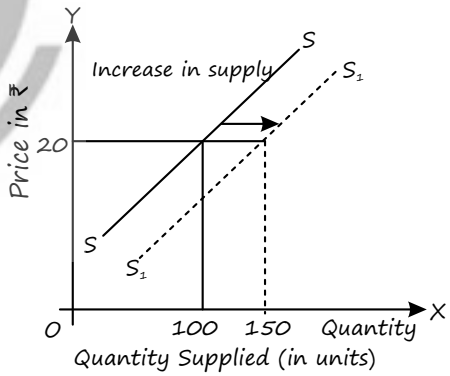
When the quantity supplied of a commodity changes solely due to a change in its own price, while other factors remain constant, it is referred to as a 'change in quantity supplied'. Graphically, this change is represented as a movement along the same supply curve. This movement can either be downward, indicating a contraction in supply, or upward, indicating an expansion in supply, along the existing supply curve.



SHIFTS IN SUPPLY CURVE – INCREASE OR DECREASE IN SUPPLY

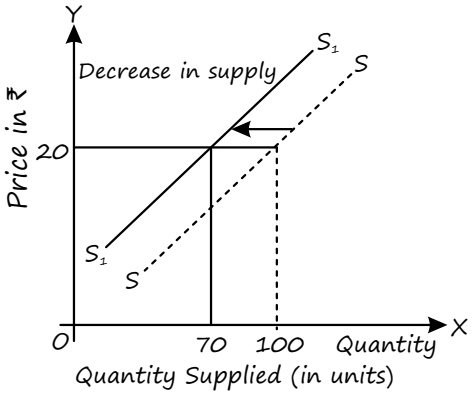
Rightward Shift In Supply Curve (Increase in Supply): When the supply curve bodily shifts towards the right as a result of a change in one of the factors that influence the quantity supplied other than the commodity's own price, we say there is an increase in supply. When the supply curve shifts to the right, more is offered for sale at each price.

Price (in Rs.)	Quantity (in units)
20	100
25	150



Leftward Shift (Decrease in Supply): When the factors other than price change and cause the supply curve to shift to the left, we call it decrease in supply. When the supply curve shifts to the left, less quantity is offered for sale at each price.

Price (in Rs.)	Quantity (in units)
20	100
25	70



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 i.e.,

$$Es = \frac{\text{(Percentage change in quantity supplied)}}{\text{(Percentage change in Price)}}$$

Or

$$Es = \frac{\dfrac{\text{(Change in quantity supplied)}}{\text{(quantity supplied)}}}{\dfrac{\text{(Change in price)}}{\text{Price}}}$$

Or

$$Es = \frac{\Delta P}{\Delta Q} \times \frac{P}{Q}$$

Where,

q denotes original quantity supplied.

Δq denotes change in quantity supplied.

p denotes original price.

Δp denotes change in price.

TRY YOUR UNDERSTANDING 1.1

1. Supply is the:
   (a) Limited resources that are avail-ab le with the seller.
   (b) Cost of producing a good.
   (c) Entire relationship between the quantity supplied and the price of good.
   (d) Willingness to produce a good if the techno logy to produce it becomes available.
2. The quantity supplied of a good or service is the amount that _____
   (a) Is actually bought during a given time period at a given price.
   (b) Producers wish they could sell at a higher price.
   (c) Producers plan to sell during a given time period at a given price.
   (d) People are willing to buy during a given time period at a given price.
3. In a very short period, the supply:
   (a) Can be changed. (b) Cannot be changed.
   (c) Can be increased. (d) None of the above.

4. Which of the following statement is correct?
   (a) Supply is inversely related to its cost of production
   (b) Price and quantity demand of a goods have direct relationship
   (c) Taxes and subsidy has no impact on the supply of the product
   (d) Seasonal changes have no impact on the supply of the commodity
5. Which of the following is a factor determining the supply?
   (a) Price of the good (b) Price of related goods
   (c) Price of factor of Production (d) All of the above.
6. Other things being equal,the _____ the relative price of a good the _____ the quantity of it that will be supplied.
   (a) Higher, Lesser (b) Higher, Greater
   (c) Lower,Lower (d) None of these
7. According to law of supply, change in supply is related to?
   (a) Price of goods (b) Price of related goods
   (c) Factors of production (d) None of the above
8. The supply curve for perishable commodities is _____ .
   (a) Elastic (b) Inelastic
   (c) perfectly elastic (d) perfectly inelastic
9. When supply price increase in the short run, the profit of the producer _____ .
   (a) Increases (b) Decreases
   (c) Remains constant (d) Decreases marginally Answer:
10. Contraction of supply is the result of:
   (a) Decrease in the number of pro-ducers.
   (b) Decrease in the price of the good concerned.
   (c) Increase in the prices of other goods.
   (d) Decrease in the outlay of sellers. Answer:
11. When the supply of a good increase as a result of an increase in _____ its price,then it is an increase in and there is a upward _____ the supply curve.
   (a) Quantity Supplied, movement on
   (b) Quantity Supplied, Shift of
   (c) Supply, movement on
   (d) Supply, Shift of Answer:
12. Movements on the supply curve may be due to:
   (a) Change in price of goods
   (b) Change in price of related goods
   (c) Change in technology
   (d) None of the above. Answer:

13. Contraction of supply implies _____ .

(a) Decrease in cost of production

(b) Decrease in price of the good concerned

(c) Decrease in price of related good

(d) Increase in price of the good concerned Answer:

14. When supply curve moves to the left, it means

(a) Smaller supply at a given price.

(b) Larger supply at a given price.

(c) Constant supply at a lower price.

(d) None of the above.

15. When the supply curve shifts to the left or right, it is called as respectively. _____or _____ in supply,

(a) Decrease, Decrease (b) Decreases, Increase

(c) Increase, Increase (d) Increase, Decrease.

ANSWER

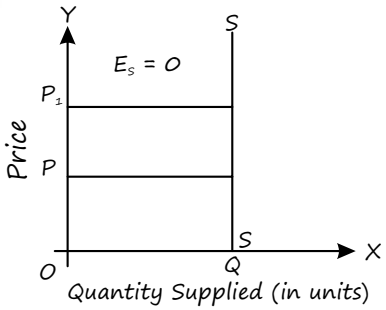
1. (c)	2. (c)	3. (b)	4. (a)	5. (d)	6. (b)	7. (a)
8. (d)	9. (a)	10. (b)	11. (a)	12. (a)	13. (b)	14. (a)

15. (b)

TYPES OF SUPPLY ELASTICITY

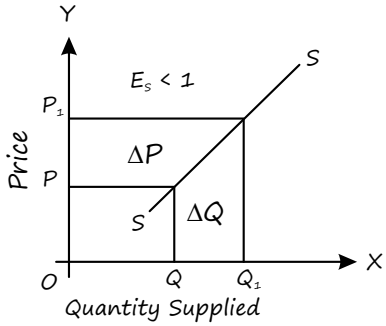
1. **Perfectly inelastic supply**

- 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 (Es = 0.).
- Supply curve is Vertical (i.e. Parallel to Y axis)



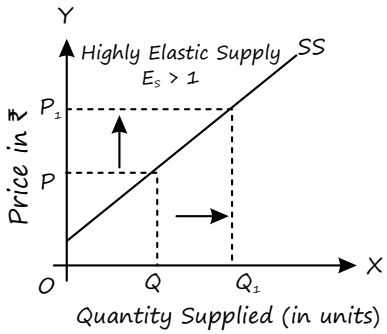
2. **Relatively less-elastic supply**

- 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 < Es < 1
- The percentage change in quantity is less than the percentage change in price.
- In other words, the quantity is not very responsive to price.



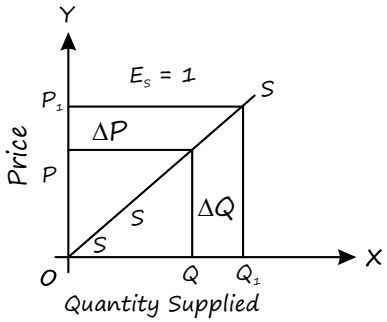
3. Relatively greater-elastic supply

- 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 $1 < E < \infty$.



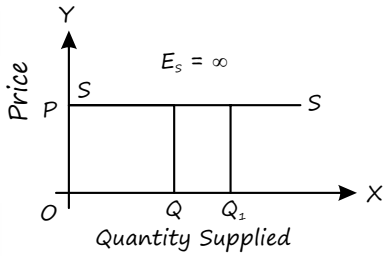
4. Unit-elastic

- In this case, the coefficient of elasticity is one.(Es = 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.

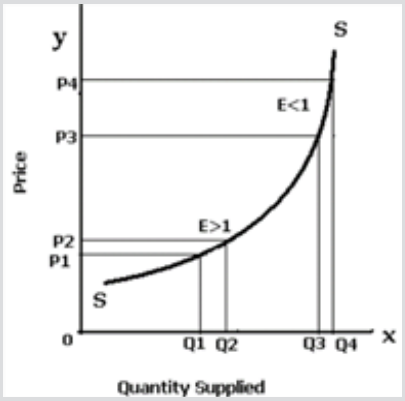


5. Perfectly elastic supply

- 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.



- In some cases, the elasticity of supply is not constant but varies over the supply curve.
- In the case of an industry with limited capacity for production. For low levels of quantity supplied, firms respond substantially to changes in price.
- When there is a small rise in price from P1 to P2 ,the quantity supplied increases more than proportionately (Q1 to Q2).
- In this region, firms have idle capacity and therefore when price rises, they respond by increase in quantity supplied using the idle capacity available.
- Once fir ms reach their full capacity, further increase in production is possible only by building new plants and incurring expenses towards this.
- To induce firms to increase output, price must rise substantially (P3 to P4) and supply becomes less elastic.



MEASUREMENT OF SUPPLY-ELASTICITY

(a) **Percentage / Proportionate Method:** According to this method elasticity of supply is calculated by dividing a % or proportionate change in supply with the % or proportionate change in price.

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

(b) **Point 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.
- Point-elasticity of supply can be measured with the help of the following formula:

$$Es = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

(c) **Arc Elasticity:** In situations where there is a relatively larger price change and we need to measure elasticity over a range or arc, rather than at a specific point, we utilize the concept of arc elasticity. Arc elasticity involves calculating the average of the two prices and quantities, both original and new, to determine the elasticity of demand or supply over the specified range.

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

Where P_1 Q_1 are original price and quantity and P_2 Q_2 are new price and quantity supplied.

DETERMINANTS OF ELASTICITY OF SUPPLY

Following are the general determinants of elasticity of supply:

(a) 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. If there are constant costs or negligible rise in costs as output increases, supply will be elastic.

Similarly, Products that involve more complex production processes or require relatively longer time to produce exhibit lower elasticity of supply. For example the supply of aircrafts and cruise ships is less elastic compared to supply of motor bikes

(b) The longer the period of time, the more responsive the quantity supplied to changes in price and the greater the supply elasticity. A shorter time period does not allow sellers sufficient time to find resources and alternatives and to adjust their production decisions to changes in price. In the long run, firms can build new plants or new firms may be able to enter the market and increase the supply.

(c) Supply is more elastic when there is large number of producers and there is high degree of competition among them. Supply elasticity is also higher when there are fewer barriers of entry into the market.

(d) Supply will be elastic if firms are not working to full capacity. If spare production capacity is available with the firms, they can increase output without a rise in costs. The greater the spare capacity available, the greater will be the elasticity of supply.

(e) 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. In case it is difficult to procure resources economically, the cost of production increases and supply will become less elastic.

(f) If firms have adequate stocks of raw materials, components and finished products, they will be able to respond with higher supply as price rises. Generally, those commodities which can be easily and inexpensively stored without losing value may have elastic supply.

(g) The ease and cost of factor substitution influence price elasticity of supply. Commonly available and easily substituted factors allow for quick production response to price changes. Scarcity of specialized materials or labor with longer training periods reduces supply elasticity. For example, physicians in healthcare industry and chartered accountants in accounting service.

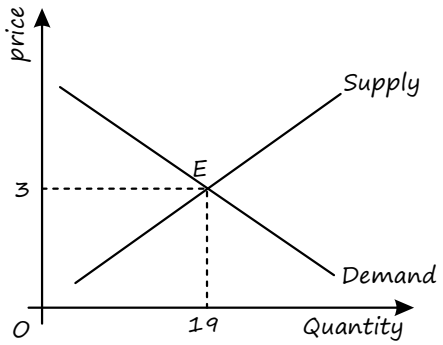
(h) If both capital and labour are occupationally mobile, then the elasticity of supply for a product is higher than if capital and labour cannot be easily switched. For example, a printing press can easily switch between printing magazines and greeting cards. Similarly falling prices of a particular vegetable encourage farmers to switch to the production of another. Products which are more continuously produced have greater supply elasticity than those which are produced infrequently.

(i) Expectations about future prices also affect elasticity of supply. Expectation of substantial rise in prices in future will make the sellers respond less to a current rise in price.

EQUILIBRIUM PRICE

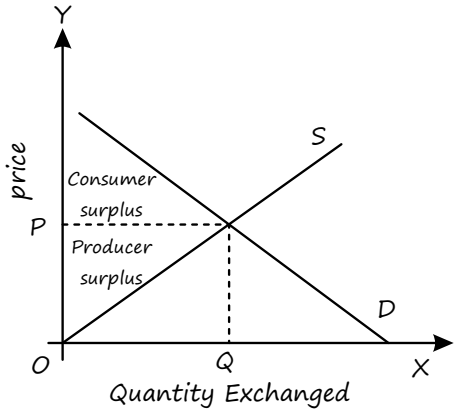
- The equilibrium price in a market is determined by the intersection between demand and supply. It is also called the market equilibrium.
- At this price, the amount that the buyers want to buy is equal to the amount that sellers want to sell.
- The competitive market equilibrium represents the 'unique' point at which both consumers and suppliers are satisfied with price and quantity.
- Equilibrium price is also called market clearing price.
- The determination of market price is the central theme of micro economic analysis. Hence, micro-economic theory is also called price theory

Price	Demand	Supply	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.
- consumer surplus is a measure of consumer welfare whereas Producer surplus is the benefit derived by producers from the sale of a unit above and beyond their cost of producing that unit.
- Producer surplus can be calculated as the area above the supply curve and below the market price.
- It represents the additional revenue or profit that producers gain when the market price exceeds their production costs.



TRY YOUR UNDERSTANDING 1.2

1. Elasticity of supply refers to the degree of responsiveness of supply of a good to changes in its:

   (a) Demand. (b) Price.

   (c) Cost of production. (d) State of technology.

2. The elastic ity of supply is defined as the _____

   (a) Responsiveness of the quantity supplied of a good to a change in its price.

   (b) Responsiveness of the quan-,tity supplied of a good without change in its price.

   (c) Responsiveness of the quantity demanded of a good to a change in its price.

   (d) Responsiveness of the quantity demanded of a good without change in its price.

3. When price of a commodity Rises from 200 to '{ 300 and Quantity supply increases from 2,000 to 5,000 units find elasticity of supply?

   (a) 3.0 (b) 2.5

   (c) 0.3 (d) 3.5

4. If price of computers increases by 10% and supply increases by 25%. The elasticity of supply is :

   (a) 2.5 (b) 0.4

   (c) (-) 2.5 (d) (-) 0.4

5. The Price of Commodity X in-creased from '{ 2,000 per unit to '{ 2,100 per unit and consequently the quantity supplied rises from 2,500 units to 3,000 units. The Elasticity of supply will be

   (a) 2 (b) 4

   (c) .25 (d) 0

6. Perishable commodities will have _____

(a) Perfectly elastic curve (b) Perfectly inelastic curve

(c) Elastic (d) Inelastic

7. A vert ical supply curve parallel to Y axis implies that the elasticity of supply is:

(a) Zero (b) Infinity

(c) Equalto one (d) Greater than zero but less than infinity

8. A horizontal supply curve parallelto the quantity axis implies that the elasticity of supply is:

(a) Zero. (b) Infinite.

(c) Equal to one. (d) Greater than zero but less than one.

9. When the supply of a product is perfectly inelastic then the curve will be

(a) Parallel to Y - axis (b) Parallel to X - axis

(c) At the angle of 45° (d) Sloping upwards

10. The cross elasticity between Rye bread and Whole Wheat bread is expected to be:

(a) Positive (b) Negative

(c) Zero (d) Can't say

11. Equilibrium refers to a market situation where quantity demand is to quantity supplied.

(a) Equal (b) Less than or Equal

(c) More than (d) More than or equal

12. The equilibrium price is deter-mined by the inter-section betweenand It is also called as the equilibrium.

(a) Demand, Supply, Static (b) Demand Supply, Dynamic

(c) Supply, Demand, Partial (d) Demand, Supply, Market

13. Suppose the price of movies seen at a theater rise from Rs.120 per person to Rs.200 per person .The theater manager observes that the rise in price causes attendance at a given movie to fall from 300 persons to 200 persons .What is the price elasticity of demand for movies ?

(a) 0.5 (b) 0.8

(c) 1 (d) 1.2

14. A discount store has a special offer on CD's .It reduces their from Rs.150 to Rs.100. Suppose the store manager observes that the quantity demanded increases from 700 CD's to 1,300 CD's .What is the price elasticity of demand for CD's ?

(a) 0.8 (b) 1

(c) 1.25 (d) 1.5

ANSWER

1. (b)	2. (a)	3. (a)	4. (a)	5. (b)	6. (b)	7. (a)
8. (b)	9. (a)	10. (a)	11. (a)	12. (d)	13. (b)	14. (d)

Important Economist name in the chapter Hicks and Allen	(1) Substitution Effect (2) Indifference curve analysis
James Dusesenberry	Demonstration Effect
Thorstein Veblen	(1) Veblen Effect (2) Conspicuous Consumption
Robert Giffen	Giffen Goods
Olaf Helmer	Delphi Technique

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