

ECONOMICS**CLASS XII****PART A: INTRODUCTORY MICROECONOMICS**

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MICRO ECONOMICS**UNIT I _INTRODUCTION**

Economics: A science which studies the human behaviour as a relationship between ends and scarce means which have alternative uses.

Two Branches of Economics

Sr. No.	Points of difference	Micro Economics	Macro Economics
1.	Meaning	It studies the economic behaviour of individual units of the economy	It studies economic behaviour of aggregates of the economy as a whole.
2.	Focus of Study	Price determination, consumer/Producer Equilibrium	Determination of level of national income and employment
3.	Instruments/tools	Demand and supply	Aggregate demand and aggregate supply
4.	Method of study	Partial equilibrium analysis	General equilibrium analysis
5.	Example	Individual demand, Individual supply, Price of a commodity an equilibrium of industry, equilibrium of a firm etc.	Aggregate demand aggregate supply, national Income, general price level total investment etc.

Three Types of economy:

1. **Market/capitalist economy:** - In this type of Economy the factors of production are owned and operated by individuals or group of individuals.
2. Main objective of production is self interest or profit maximization.
3. Central problems are solved by price mechanism or market forces of demand & supply.

2. Planned/centrally planned/ socialistic economy

1. Factors of production are owned and operated by Govt.
2. Main objective of production is social welfare.
3. Central problems are solved by central planning authority.

3 Mixed Economy: -

1. The Economy in which factors of production are owned and operated by both Govt. and private sector
2. Main objective is profit maximization(private sector) and social welfare(Gov. sector)
3. Central problems are solved by central planning authority(in public sector) and price mechanism (in private sector)

Scarcity of Resources:-

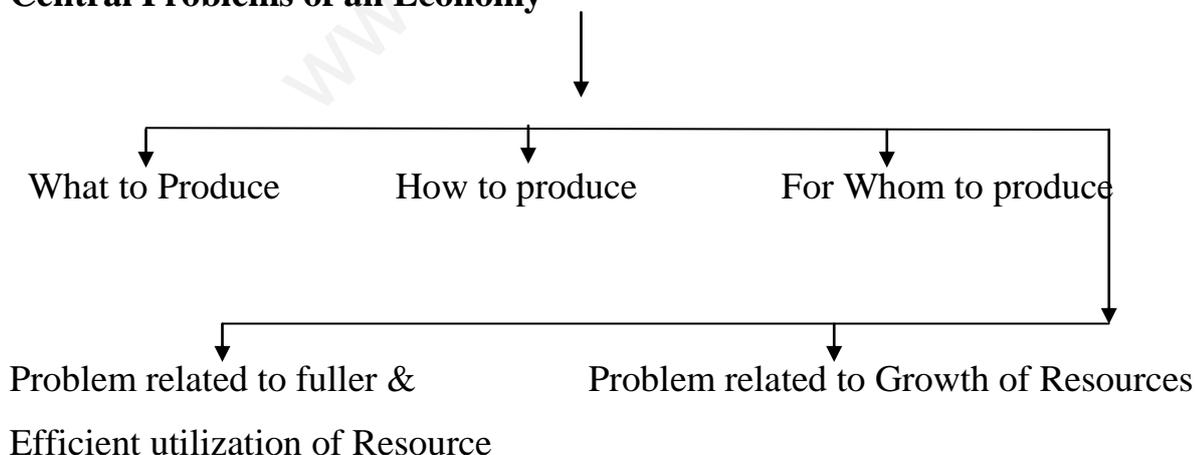
It implies that availability/supply of resources is less than their requirement/demand.

$$(D > S)$$

Economic Problem:

- Main economic problem is how to allocate the scarce resources so as to satisfy maximum of our unlimited wants. Economic problem arise mainly because human wants are unlimited and resources are limited and have alternative uses. This creates the problem of choice.

Central Problems of an Economy



1. **What to produce:** - An economy have unlimited wants and limited means having alternative use. Economy can't produce all type of goods like consumer goods, producer goods etc. So, Economy has to make a choice what type of goods and services are to be produced and in what quantities.

2 How to produce: - It is the problem of choice of technique of production. There are two techniques of production.

(a) **Labour Intensive Technique:** - It is the technique of production when labour is used more than capital.

(b) **Capital Intensive Technique:** - In this technique capital is used more than Labour.

3 For whom to produce: - It is the problem related to distribution of produced goods among the different group of the society.

It has two aspects:-

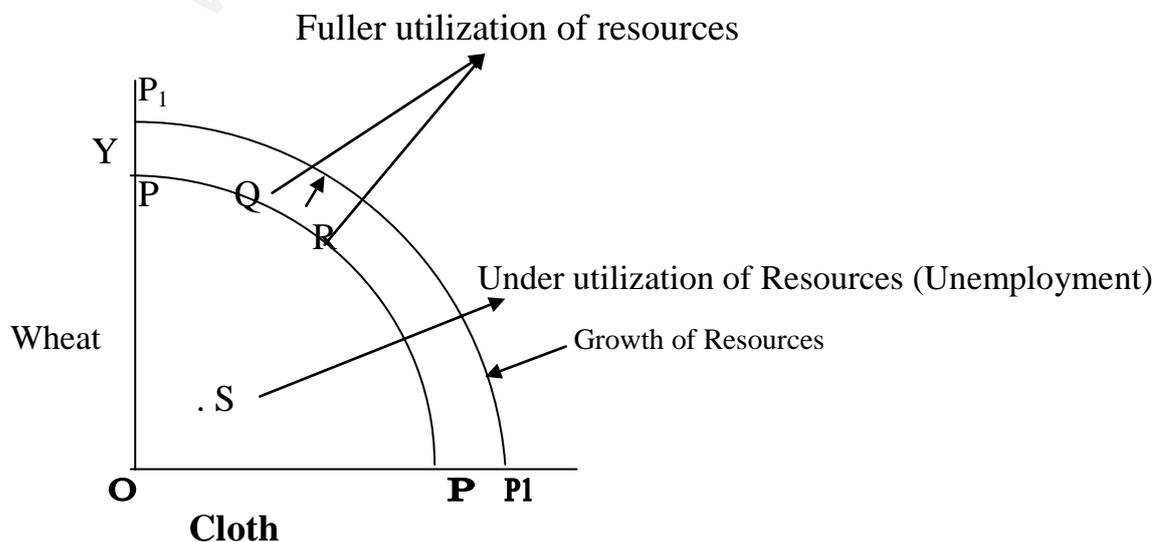
1. Personal distribution
2. Functional distribution

Personal distribution:- When the National Income is distributed according to the ownership of the factors of production.

Functional distribution: - When the national Income/Production is distributed among different factors of production like Land, Labour, capital and Entrepreneurship for providing their service in term of rent, wages, interest and profit respectively.

4 Problem related to the efficient use and fuller utilization of resources

Efficiency of production means the maximum possible amounts of goods and services are being produced with available resources. The resources are already scarce in relation to the need for them and therefore an economy has to ensure that its resources do not remain underutilized their under employment is nothing but wastage of resources.



5. Problem related to Growth of Resources

It is related to increase in the production capacity of the economy so that the quantity of production will rise.

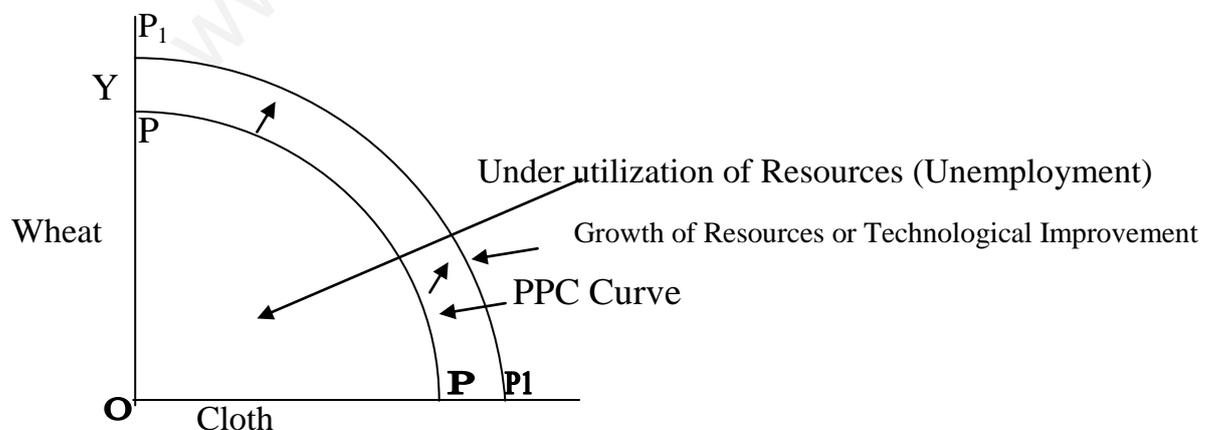
Production Possibility Curve/ Transformation Curve/Production Frontier Curve

Meaning: - The curve which shows the various alternative production combinations of two goods that can be produced with given resources and technology when resources are fully and efficiently utilized.

Combination	Cloth	Wheat
A	0	15
B	1	14
C	2	12
D	3	9
E	4	5
F	5	0

Features of PPC:-

1. It is concave to origin because of increasing marginal opportunity cost.
2. If the marginal opportunity cost is constant than PPC will be a straight line and
3. If MOC is decreasing than PPC will be convex to origin.



Opportunity cost

It is the cost of next best alternative foregone.

Marginal Opportunity Cost/Marginal Rate of Transformation

- It is the amount of a good (good Y) sacrificed for the production of an additional unit of other good (good X)

Questions for revision

1. Define scarcity.

Ans : - Scarcity means shortage of resources in relation to their demand is called scarcity.

2. What is an economy?

Ans : - An economy is a system by which people get their living.

3. Define central problem.

Ans : - Central problem is concerned with the problems of choice (or) the problem of resource allocation.

4. Give one reason which gives rise to economic problems?

Ans : - Scarcity of resources which have alternative uses.

5. Name the three central problems of an economy.

Ans : - i) What to produce?

ii) How to produce?

iii) For whom to produce?

6. What is opportunity cost?

Ans: - It is the cost of next best alternative foregone.

7. Why is there a need for economizing of resources?

Ans: - Resources are scarce in comparison to their demand, therefore it is necessary to use resources in the best possible manner without wasting it.

8. What is production possibility frontier?

Ans: - It is a boundary line which shows the various combinations of two goods which can be produced with the help of given resources and technology.

9. Why PPC is concave to the origin?

Ans :- PPC is concave to the origin because of increased marginal opportunity cost.

10. Define marginal rate of transformation.

Ans :- MRT is the ratio of units of one good sacrificed to produce one more unit of other goods. $MRT = \Delta y / \Delta x$

11. What does a point inside the PPC indicate?

Ans :- Any point inside the production possibility curve indicate underutilization of resources.

HOTS

1. Does massive unemployment shift the PPC to the left?

Ans:- Massive unemployment will shift the PPC to the left because labour force remains underutilized. The economy will produce inside the PPC indicating underutilization of resources.

2. What does the slope of PPC show?

Ans. The slope of PPC indicates the increasing marginal opportunity cost.

3. From the following PP schedule calculate MRT of good x.

Production possibilities	A	B	C	D	E
Production of good x units	0	1	2	3	4
Production of good y units	14	13	11	8	4

Production of good X units	Production of good Y units	MRT = $\Delta y / \Delta x$
0	14	-
1	13	1:1
2	11	2:1
3	8	3:1
4	4	4:1

UTILITY ANALYSIS**UTILITY**

Meaning: - It may be defined as the process of commodity or service to satisfy human wants.

Utility may be 'Cardinal' or 'Ordinal'

Cardinal Utility:- It means that utility can be measured with the utils. but it converted to the price.

Ordinal Utility:- It means that utility can be ranked according to the preferences of the individuals.

Two concepts of utility (i) Total utility (ii) Marginal Utility

Total Utility: - Total amount of satisfaction obtained from consuming various units of commodity

$$TU = \sum MU$$

Marginal Utility: - Change in total utility from the consumption of one additional unit of goods.

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

OR

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

TU_n = Total Utility of n units

TU_{n-1} = Total Utility of n-1 units

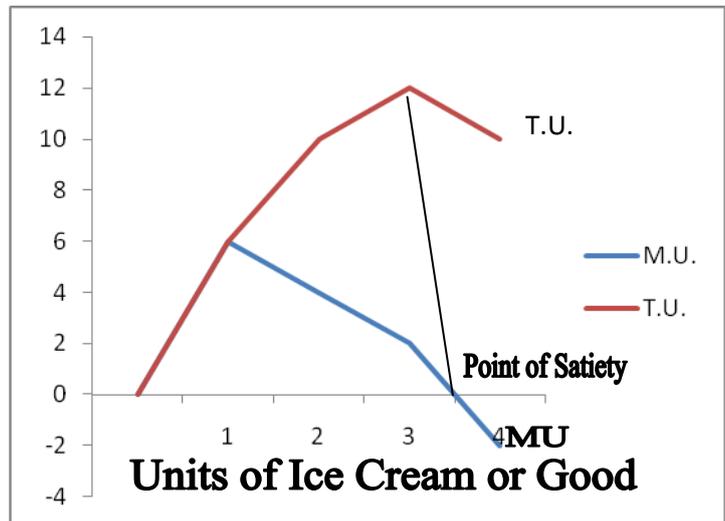
ΔQ = Change in Quantity

ΔTU = Change in Total Utility

Relationship between M.U. & T.U.

Table

Units of commodity ice-cream	M.U.	T.U.
1	6	6
2	4	10
3	2	12
4	0	12
5	-2	10



1. When T.U. Increases with diminishing rate, M.U. declines.
2. When T.U. is maximum, M.U. is zero
3. When T.U. declines, M.U. is negative.

The Law of Diminishing Marginal Utility.

Definition: - When a consumer consumes more and more units of commodity marginal utility from it goes on diminishing.

Units	M.U.
1	6
2	4
3	2
4	0
5	-2

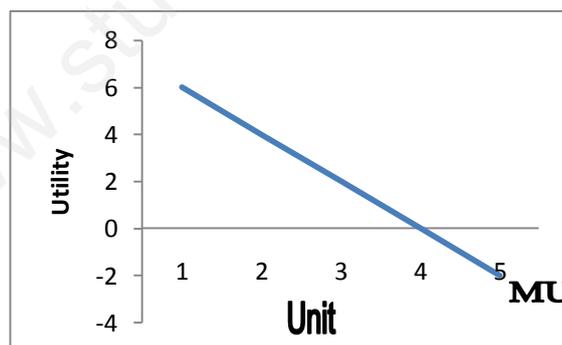


Diagram and table shown that as we consume additional units of a good, M.U. from them goes on diminishing.

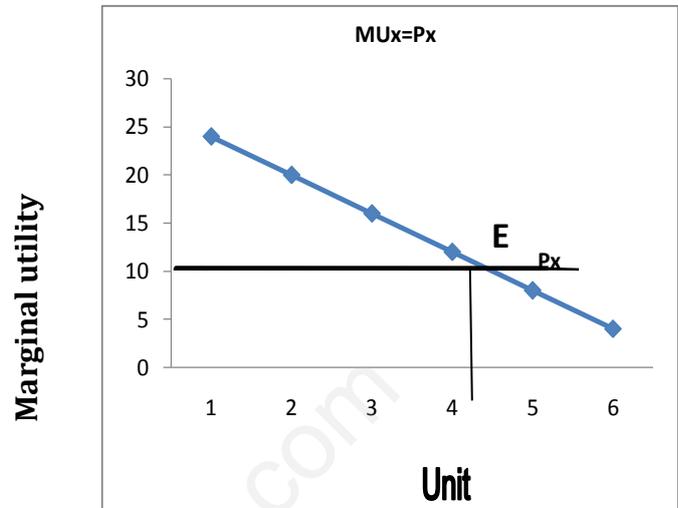
Consumer Equilibrium: A consumer is in equilibrium when he gets maximum satisfaction out of his limited Income and he has not tendency to shift from this situation till circumstances unchanged.

Consumer Equilibrium with Single Commodity

When a consumer purchases a single commodity, his behavior is guided by the Law of Diminishing Marginal Utility. He will try to consume the Commodity up to the point where marginal utility is just equal to its price.

$$MU_x = P_x$$

Unit X	M.U.x	Px
1	24	12
2	20	12
3	16	12
4	12	12 $MU_x = P_x$
5	8	12
6	4	12

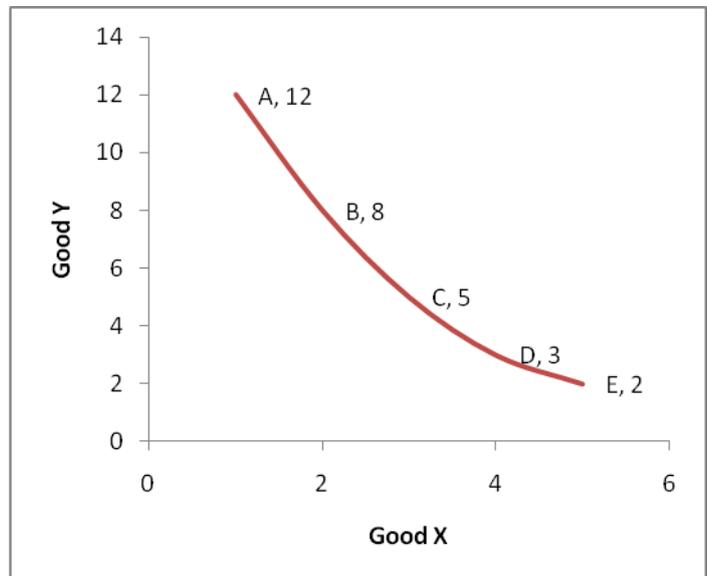


Above diagram and table shows equilibrium at point E. where $MU = \text{Price}$. Here Consumer consumes four units of goods.

Indifference Curve Analysis

Meaning: - Indifference Curve shows the different combinations between two commodities in which consumer's get equal satisfaction

Unit of Combination	Good X	Good Y	MRS
A	1	12	-
B	2	8	1:4
C	3	5	1:3
D	4	3	1:2
E	5	2	1:1



In the table and diagram shows that consumer is indifferent between five combination of goods x and y.

MRS- Marginal Rate of substitution:-

The rate of substitution of one commodity for another is known as M.R.S.

$$MRS_y = \frac{\Delta Y}{\Delta X}$$

Assumptions of IC:-

1. The consumer is rational.
2. Consumer has monotonic preferences.
3. Price of goods and Income of the Consumer are given.
4. There is no change in the taste and preference of consumer.

Properties of Indifference Curve:-

1. An indifference curve always slopes downward from left to right. If a consumer increases one unit of a particular commodity other one has to be decreased.
2. Indifference Curve are Convex to the origin:-
Because diminishing Marginal rate of Substitution.
3. Indifference Curves never intersect each other:-
Each IC has its own level of satisfaction.
4. Higher Indifference Curves represent higher level of satisfaction.

Budget Set: - "A budget set is collection of all bundles available to a consumer at prevailing market price, with his Income."

Budget Line: - A budget line represents all bundles which a consumer can actually buy with his Income at prevailing market price.

If there are two goods- good1 and good 2 than

$$P_1X_1 + P_2X_2 = M \quad P_1 = \text{Price of good-I}$$

$$X_1 = \text{Unit of good-I}$$

$$P_2 = \text{Price of good 2}$$

$$X_2 = \text{Unit of good 2}$$

$$P_x = \text{Rs. 20} \quad \text{Income} = \text{Rs. 100}$$

$$P_y = \text{Rs. 25}$$

Budget Equation

$$P_1X_1 + P_2X_2 = \text{Income}$$

$$(20 \times 5) + (25 \times 0) = 100$$

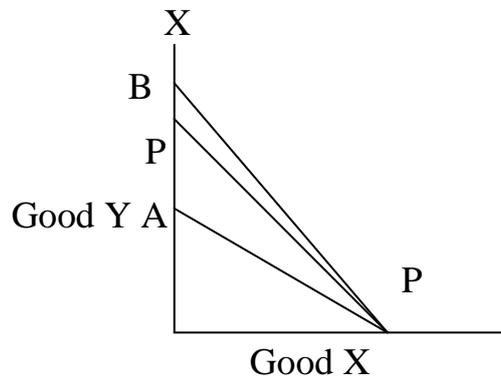
$$(20 \times 0) + (25 \times 4) = 100$$

Budget line is also known as Price line, or Market offer line/curve

Budget line changes (Rotates) due to following reasons:-

When change in Price of a Single good.

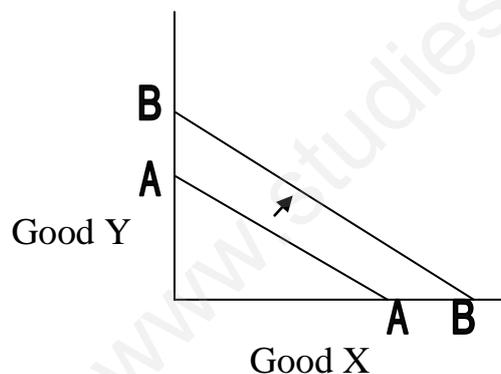
a) When change in price of Y good (Good 2)



- Budget line rotates to the left (P-A) when Price of Good Y Increase.
- Budget line rotates to the right (P-B), when Price of Good Y Decreases.

b) When change in Income of Consumer than Budget line shift right or left.

(1) Ex. If income of Consumer Increases, Budget line Shift rightward.



Consumer's Equilibrium

A consumer will be in equilibrium where he can maximize his satisfaction, subject to his budget constraint.

There are two conditions for consumer equilibrium.

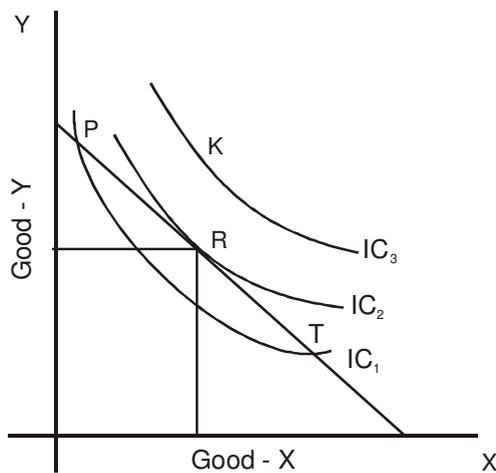
1. Budget line should be tangent to indifference Curve.

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

Or

Slope of IC and budget line are equal to each other.

2. Indifference Curve should be Convex to the Point of origin at equilibrium Point.



Here P is $MRS_{xy} > P_x / P_y$

Here R is the equilibrium Point
both the condition are fulfilled.

where

Here T is $MRS_{xy} < P_x / P_y$

Question for Practice

- Q.1 Define Total Utility (TU)
- Q.2 Define Marginal Utility (MU)
- Q.3 How is T.U. derived from Marginal Utilities?
- Q.4 State Law of Diminishing Marginal Utility?
- Q.5 What is Consumer's Equilibrium?
- Q.6 State conditions of Consumer's Equilibrium?
- Q.7 Define Indifference Curve?
- Q.8 What is meant by marginal rate of substitution (MRS)?
- Q.9 What do you mean by the budget set?
- Q.10 What is budget line?
- Q.11 What do you mean by monotonic preference?
- Q.12 If a Consumer has monotonic preference, can he be indifferent between the bundle (10, 8) and (8, 6)
- Ans. No, he prefer (10, 8) to (8, 6)
- Q.13 Explain Consumer's Equilibrium through utility schedule in case of single commodity?
- Q.14 A Consumer is in equilibrium where indifference curve equal budget line?
(False / True)
- Q.15 A Consumer is in equilibrium where he earns maximum profit.
(False / True)

Demand

Meaning of Demand: Demand of commodity refers to the quantity of a commodity which a consumer is willing to buy at a given price, and time.

Market Demand: Market Demand refers to the sum total of the quantities demanded by all the individual households in the market at various prices in given time.

Demand Function: Demand Function is the functional relationship between demand and factors affecting demand.

$$D_x = f(P_x, P_o, Y, T, E)$$

Factors affecting Demand:- Following are the factors which affect the Demand.

1. **Price of Commodity:** When the price of commodity rises demand of commodity will decrease and vice-versa.
2. **Price of other related commodity:** Price of other commodity affect the demand of commodity in two ways:
 - a) **Substitute Goods:-** In the case of substitute goods, the demand for a commodity X rises with a rise in the Price of commodity Y and vice versa.

Example- Tea and coffee

- b) **Complementary Goods:-** In case of complementary goods, the demand for a commodity X rises with the fall in the Price of commodity Y and vice versa.

Example: Car and Petrol, Ink and Pen,

3. **Income of Consumer:** - When the Income of Consumer rises the demand of normal goods increases and if the income decreases the demand of normal good decreases.

In case of Inferior good the demand will decrease with rise in income and increase with decrease in income.

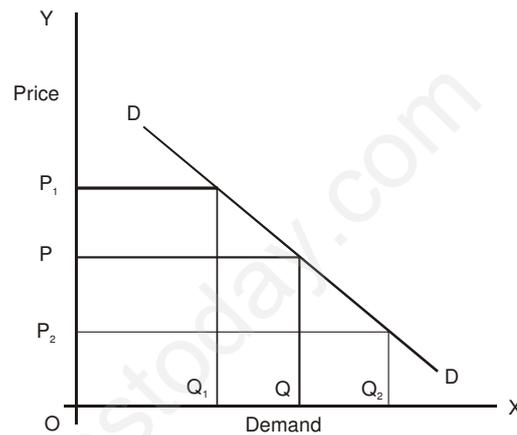
4. **Taste and Preference:** - If the taste and preference of consumer develop for a commodity the demand will rise.

5. **Expectation:** - If the consumer expects that price in future will rise the demand will rise and vice-versa
6. **Population:** - More population, more demand, less population less demand.
7. **Climate:** - The demand of commodity changes according to the climate.

Law of Demand: - Other things being equal, the demand for a good rises with a decrease in price and decreases with increase in price.

Explanation

P _x	Q _x
10	100
9	150
8	200



The table shows when price decreases the demand increases. Demand curve DD shows more quantity (OQ_1) and lower Price (OP_1)

Inferior Goods: - These are the goods for which demand rises with decreases in income of consumer. In other words income effect is negative.

Giffen Goods: - Those inferior goods whose income effect is negative but price effect is positive.

Change in Quantity demanded: - It is also called movement along a demand curve.

Due to change in its own price, quantity of commodity changes. There are two type of change in quantity of Demand (a) Extension in Demand

(b) Contraction in Demand.

Change in Demand: - It is also called shift in demand curve. When quantity of commodity change due to change in factor other than price. It has two types-

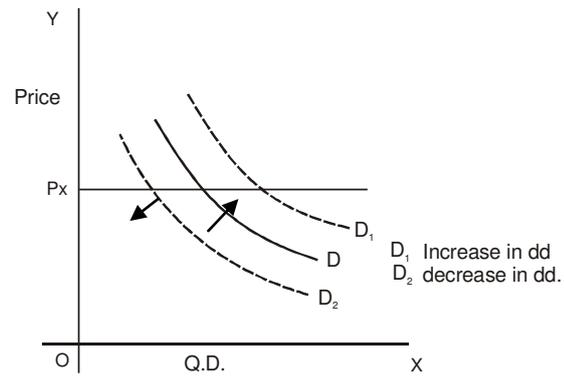
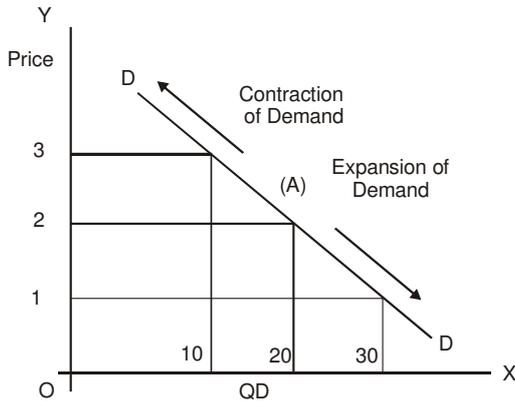
a) Increase in Demand

b) Decrease in Demand

Change in Quantity Demanded

Change in Demand

Diagram



Elasticity of Demand: - The elasticity of demand measures the responsiveness of the quantity demanded due to change in price of the commodity.

Measurement of elasticity of demand:-

Total Expenditure Method/Total outlay method

- (i) If no change in total expenditure as change in price than $E_d=1$
- (ii) If total expenditure and price changes in opposite direction $E_d>1$
- (iii) If total expenditure and price changes in same direction $E_d<1$

Proportionate or Percentage Method: - Under this method elasticity of demand is measured by the ratio of the percentage change in quantity demanded to the percentage in price.

$$E_d = \frac{\text{Percentage change in Quantity Demanded}}{\text{Percentage change in Price}}$$

$$E_d = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q} \quad P=\text{initial price } Q=\text{initial quantity}$$

ΔQ = Change in Quantity

ΔP = Change in price

Ex.

P	Q
10	100
15	80

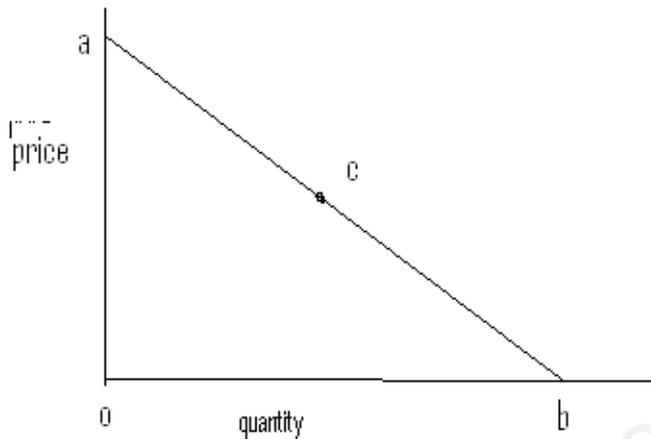
$$E_d = \frac{20 \times 10}{5 \times 100} = 0.4$$

Geometric Method/ Point Elasticity Method

If elasticity of demand is to be measured on the point of demand curve following formula is to be used

$$ed = \frac{\text{Lower segment from the point}}{\text{Upper segment from the point}}$$

$$ed = \frac{cb}{ca}$$

**Factors effecting elasticity of Demand:-**

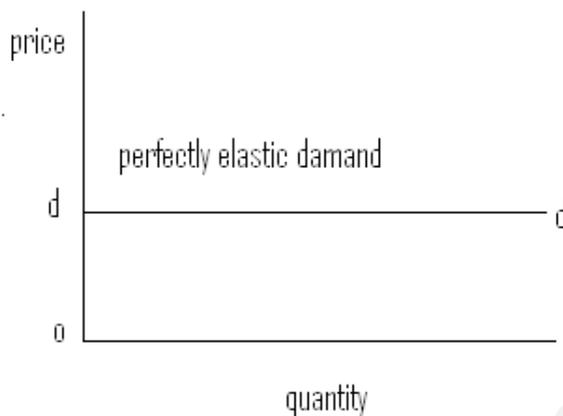
1. **Nature of Goods:** - The elasticity of demand is of necessary goods is less than one $Ed < 1$. The elasticity of demand of luxury good is greater than one $ed > 1$. The elasticity of demand of comfort goods is equals to one $ed = 1$
2. **Availability of Substitutes:-** If the substitutes of goods are available than elasticity of demand is high or elastic demand $ed > 1$ and if the substitutes are not available than demand is in elastic $ed < 1$
3. **Postponement of Consumption:-** If the consumption of goods cannot be postponement, than elasticity of demand is less than one $ed < 1$ like medicines. If the consumption of goods can be postponed the demand of good is elastic $ed > 1$.
4. **Number of Uses:-** If the commodity has several uses, than its demand will be elastic $ed > 1$ like milk and if the number of uses of commodity is less than demand of commodity is in elastic $ed < 1$
5. **Time period:** - Demand is generally inelastic in the short period and more elastic in long run.

6. **Habit of consumer:-** If consumer is habitual for the consumption of commodity, than the demand will be inelastic $ed < 1$

Degrees of elasticity of Demand: - There is the different degree of elasticity of demand.

1. **Perfectly elastic Demand:** - When the demand for a commodity rises or falls to any extent, without any change in its price, the demand is said to be perfectly elastic.

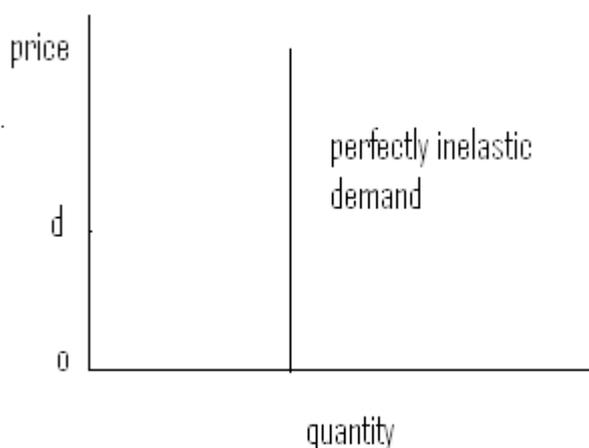
$Ed = \infty$ % change in price = 0 Demand curve is parallel to OX axis.



2. **Perfectly Inelastic Demand:** - When the demand of a commodity does not change as a result of change in price, it is called perfectly inelastic demand.

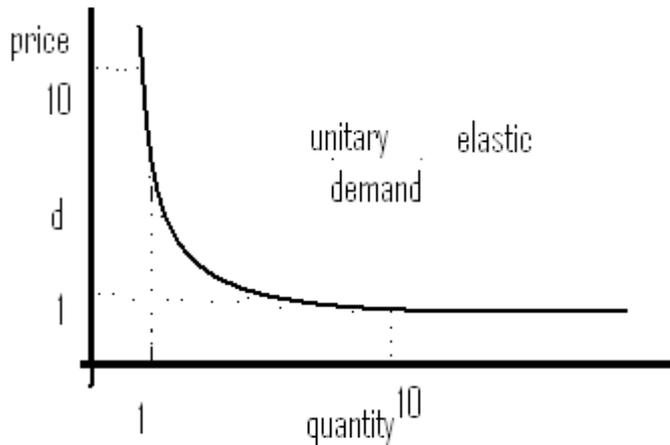
$ed = 0$ % change in demand = 0

Demand curve is parallel to OY axis



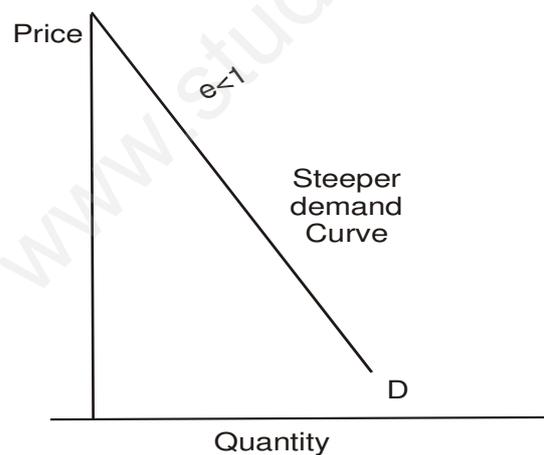
3. **Unitary Elastic Demand:** - When the percentage change in quantity is equal to percentage change in price it is called elastic demand. $E_d=1$

$\% \text{ change in quantity} = \% \text{ change in price}$



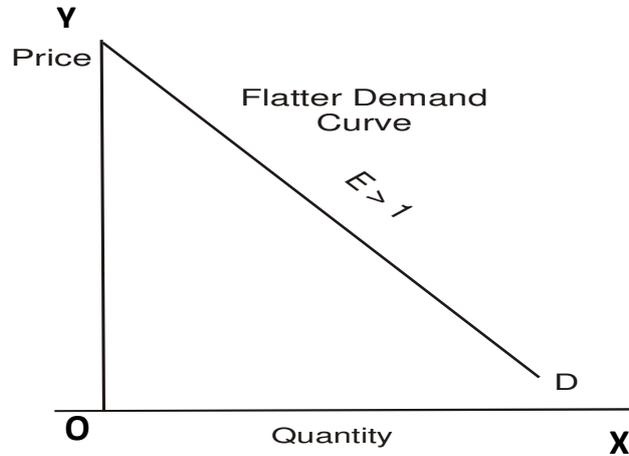
4. **Inelastic Demand:** - When the percentage change in quantity is less than % change in price, it is called inelastic demand.

$\% \text{ change in quantity} < \% \text{ change in price}$



5. **Elastic Demand:** - When the percentage change in quantity is greater than percentage change in price it is called elastic demand.

$\% \text{ Change in quantity} > \% \text{ change in price}$



HOTS

1. Is the demand for the following elastic, moderate elastic, highly elastic? Give reasons.

- (i) Demand for petrol
- (ii) Demand for text books
- (iii) Demand for cars
- (iv) Demand for milk

Ans :- i) Demand for petrol is moderately elastic , because when the price of the petrol goes up , the consumer will reduce the use of it.

ii) Demand for text books is completely inelastic. In case of text books, even a substantial change in price leaves the demand unaffected.

iii) Demand for cars is elastic. It is a luxury good, when the price of the car rises, the demand for the car comes down.

iv) Demand for milk is elastic, because price of the milk increases then the consumer purchase less quantity milk.

2. Explain the various degrees of price elasticity of demand with the help of diagrams.

Ans:- There are five degrees of price elasticity of demand. They are,

- a) Perfectly elastic demand ($E_d = \infty$):- a slight or no change in the price leads to infinite changes in the quantity demanded.
- b) Perfectly Inelastic demand ($E_d = 0$) :- Demand of a commodity does not change at all irrespective of any change in its price.

- c) Unitary elastic demand ($E_d=1$):- When the percentage change in demand (%) of a commodity is equal to the percentage change in price.
- d) Greater than unitary elastic demand ($E_d>1$):- When percentage change in demand of a commodity is more than the percentage change in its price.
- e) Less than unitary elastic demand ($E_d<1$) :- When percentage change in demand of a commodity is less than the percentage change in its price.

Numerical for practice

3. Derive the total utility schedule from the marginal utility.

Units consumed	Marginal utility
1	12
2	11
3	8
4	6
5	3
6	0

4. A consumer buys 50 units of a good at Rs. 4/- per unit. When its price falls by 25 percent its demand rises to 100 units. Find out the price elasticity of demand.

Ans:- $E_d=4$

5. Price elasticity of demand for wheat is equal to unity and a household demands 40 Kg of wheat when the price is Rs.1 per kg. At what price will the household demand 36 kg of wheat?

Ans:- The price of wheat rises to Rs.1.10 per kg.

6. The quantity demanded of a commodity at a price of Rs.10 per unit is 40 units. Its price elasticity of demand is -2. Its price falls by Rs.2/- per unit. Calculate its quantity demanded at the new price.

Ans :- 56 units.

Unit III**Production Function**

Production Function: - It is defined as the functional relationship between input and output for a given state of technique.

$$Q = f(L, K, \dots)$$

Total Product:- The total quantity of goods produced by a firm during a given period of time with given inputs. $TP = \sum MP$

Average Product:- The output per unit variable input. $AP = TP/Q$

Marginal Product:- The change in total output by using one more unit of variable factor .

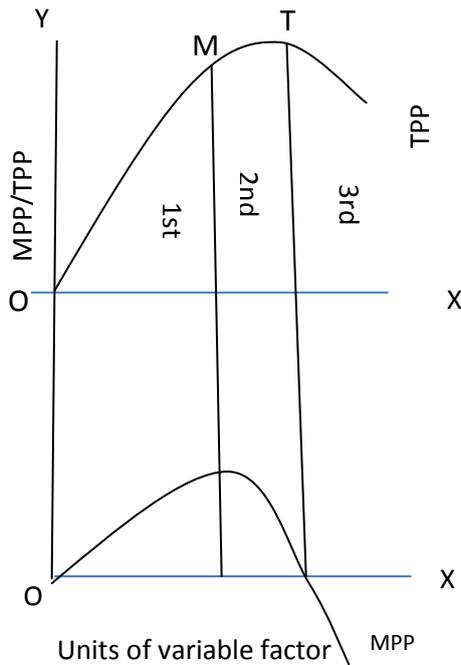
$$MP_n = TP_n - TP_{n-1} \quad MP =$$

Return to a factor: - It is operated in short run period. If some factors are constant and by increasing the quantity of variable factor resulting output is affected. The effect on output is called returns to factor.

Law of variable proportion: this law state that as we increase the quantity of only one input keeping other input constant initially MP increases than decreases and ultimately become negative.

Land	Labour	TP	MP	Stage
1	1	2	2	I
1	2	5	3	I
1	3	9	4	I
1	4	12	3	II
1	5	14	2	II
1	6	15	1	II
1	7	15	0	II
1	8	14	-1	III
1	9	12	-2	III

Digram



In stage I TP increases between O to M at an increasing rate and M P increase

In stage II, TP continues to increase at a diminishing rate and reaches the maximum at T, MP continues to decrease and become zero

In stage III, TP begins to fall, MP is negative, **Causes of Application of the Law of Variable Proportions.**

1. Indivisibility of factors.
2. Division of Labour and specialization.
3. More than optimum use of the fixed factors.
4. Imperfect substitutes.

Relationship between TP and MP Curves:

1. MP curve is the slope of TP curve at each point.
2. When TP increases at an increasing rate, MP increases.
3. When TP increases at a diminishing rate, MP decreases.
4. When TP is maximum MP is zero.
5. When TP decrease, MP is negative.

Relationship between AP and MP

1. When $MP > AP$, AP increases
2. When $MP = AP$, AP is maximum

3. When $MP < AP$, AP decreases
4. MP can be zero or negative but AP is never zero
5. MP reaches its maximum point earlier than AP reaches its own.

Questions

- Q.1 Explain the concept of Production function.
- Q.2 What is the total product of an input?
- Q.3 What is the average product of an input?
- Q.4 What is marginal product of an input?
- Q.5 Explain the relationship between marginal products and the total product Q.6 Explain the diminishing marginal product?
- Q.7 What is the law of variable proportions? Explain with diagram and schedule.

HOTS

Giving reasons, state whether the following statements are true or false :

1. When there are diminishing returns to a factor, total product always decreases.

Ans :- False, as TPP increases at a decreasing rate when there is diminishing returns to a factor.

2. TPP increases only when MPP increases.

Ans :- False, TPP also increases when MPP decreases but remains positive.

3. Increase in TPP always indicates that there are increasing returns to a factor.

Ans :- False . TPP increases even when there are diminishing returns to a factor.

4. When there are diminishing returns to a factor marginal and total products always fall.

Ans: - False, only MPP falls, not TPP. In case of diminishing returns to a factor TPP increase at diminishing rate.

5. Calculate MP for the following.

Variable factor unit	0	1	2	3	4	5	6
TP unit	0	5	13	23	28	28	24

Ans :-MP: 0 5 8 10 5 0 -4

Cost concept

Cost:- The expenditure incurred on various inputs is known as the cost of production.

Types of Cost

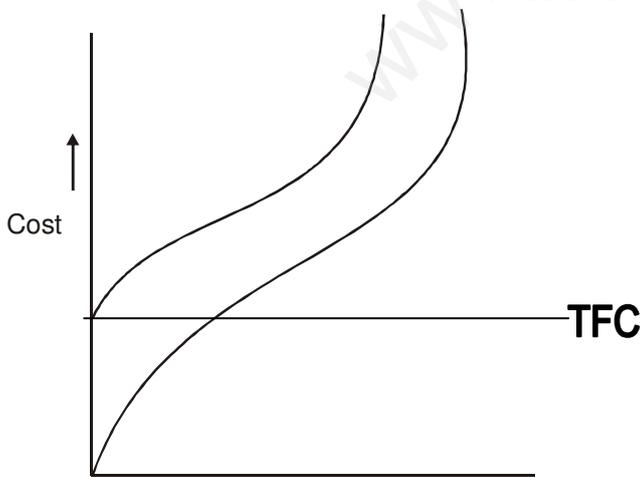
1. **Money Cost:-** Total money expenses by a firm for producing a commodity.
2. **Explicit Cost and Implicit Cost:-** Actual payment made to outsiders is Explicit Cost.
Cost of self-supplied factors in implicit cost.
3. **Real Cost:-** All the pain, sacrifices, discomforts involved in producing factor services to produce commodity.
4. **Opportunity Cost:** - It is the cost of next best alternative foregone.
5. **Short Run Cost:-**
 - I. Fixed Cost: - Cost of fixed factors.
 - II. Variable Cost: - Cost of variable factors

Diagram

Total Cost (TC) = Total expenditure incurred by a firm on the factors of production.

$$TC = TFC + TVC$$

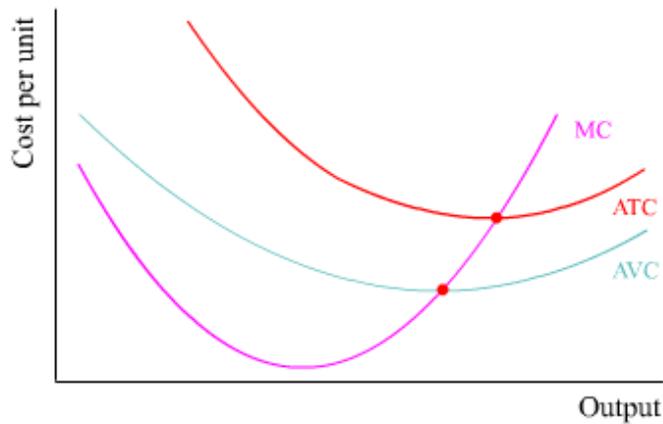
TC TVC Relationship between TC, TFC, TVC



$$AC = \frac{TC}{Q} \quad MC = \frac{\Delta TC}{\Delta Q}, \quad MC = \frac{TC_n - TC_{n-1}}{Q_n - Q_{n-1}}$$

Relationship between AC, MC & AVC

Diagram



1. When MC is less than AC then AC tends to fall.
2. When MC is equal to AC then AC is minimum.
3. When MC is more than AC then AC tends to increase

HOTS

1. Why AFC curve never touches 'x' axis though lies very close to x axis?

Ans :- Because TFC can never be zero.

2. Why AVC and AFC always lie below AC?

Ans:- AC is the summation of AVC & AFC so AC always lies above AVC & AFC.

3. Why TVC curve start from origin?

Ans:- TVC is zero at zero level of output.

4. When TVC is zero at zero level of output, what happens to TFC or Why TFC is not zero at zero level of output?

Ans:- Fixed cost are to be incurred even at zero level of output.

HOTS

1. Marginal cost includes both fixed cost and variable cost. Comment. 1 Mark

No, marginal cost is only variable cost; it does not include fixed cost. Because, marginal cost is additional cost and additional cost cannot be fixed cost.

2. ATC must fall simply because AFC always falls. Comment.

No, it is not correct. $ATC = AFC + AVC$. Being a component of ATC, falling AFC implies falling ATC. But this is true only in the initial stages of production when average fixed cost is a significant component of AC. In the later stages of production, average fixed cost (because it is continuously falling) reduces to an insignificant component of AC. Accordingly AC tends to rise in assonance with rising AVC, even when AFC tends to fall.

3. TC is not the sum total of marginal cost (**$TC \neq \sum MC$**). Why?

MC is additional cost. Additional cost can only be variable cost. Accordingly sum total of

marginal cost will be total variable cost, not total cost (which includes both variable cost and fixed cost).

Thus, $\sum MC = TVC$
 $\sum MC \neq TC$

(Here, MC = Marginal Cost, TVC = Total Variable Cost, TC = Total Cost.)

4. Complete the following table when fixed cost is Rs 100.

4 Marks

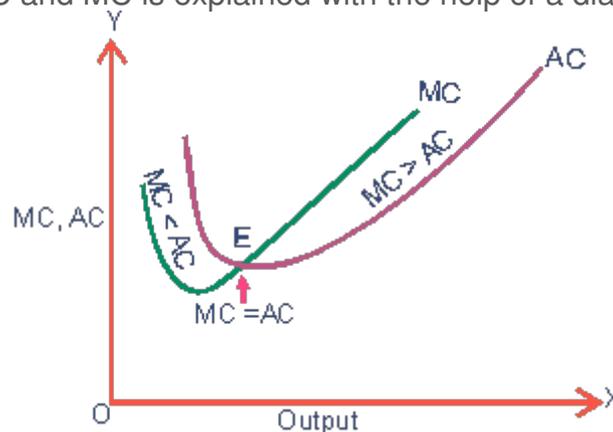
Output (Units)	Marginal Cost (Rs)	Total Cost (Rs)	Average Fixed Cost (Rs)	Average Variable Cost (Rs)
0	–			
1	100			
2	60			
3	40			
4	20			
5	60			
6	100			

Output (Units)	Marginal Cost (Rs)	Total Fixed Cost (Rs)	Total Variable Cost (Rs)	Total Cost (Rs)	Average Fixed Cost (Rs)	Average Variable Cost (Rs)
0	–	100	0	100	∞	0
1	100	100	100	200	100	100
2	60	100	160	260	50	80
3	40	100	200	300	33.33	66.67
4	20	100	220	320	25	55
5	60	100	280	380	20	56
6	100	100	380	480	16.67	63.33

5. Explain the relation between AC and MC with the help of a diagram.

4 Marks

The relation between AC and MC is explained with the help of a diagram as under:



Observations:

(i) When AC declines, MC declines faster than AC. So that MC curve remains below AC curve. Implying that $AC > MC$. In the figure, AC curve is falling till point E and MC continues to be lower than AC.

(ii) When AC increases, MC increases faster than AC. So that MC curve is above the AC curve. Implying that $AC < MC$. In the figure, AC start rising from point E and beyond E, MC is higher than AC.

(iii) MC curve cuts AC curve from its lowest point. When average curve is minimum then $MC = AC$. In the figure, MC curve is intersecting AC curve at its lowest or minimum point E.

Supply

Meaning of Supply: - Supply refers to quantity of a commodity that a firm is willing and able to offer for sale, at each possible price during a given period of time.

Market Supply: - It refers to quantity of a commodity that all the firms are willing and able to offer for sale at each possible price during a given period of time.

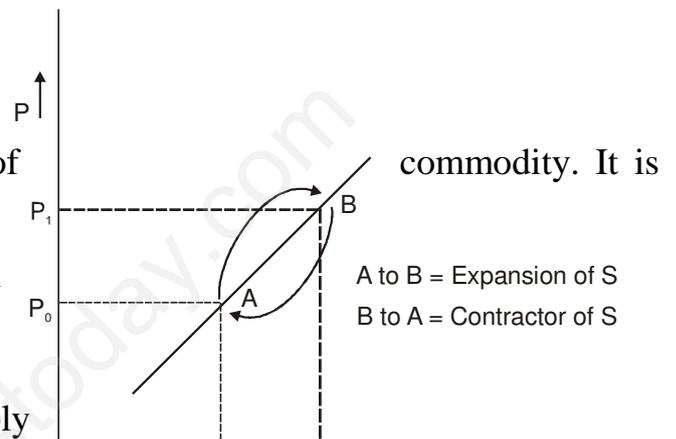
Factors affecting the Supply:

1. **Price of Commodity:** Higher the price of a commodity, larger is the quantity supplied and vice-versa.
2. **Technological Changes:** Improved techniques reduce the cost of production and increase the supply and vice versa.
2. **Input Prices:** A fall in prices of factors of production will increase the supply of the commodity and vice-versa.
3. **Goal of the firm:** If the goal is profit maximization, more quantity will be supplied at higher price. If the goal is sales maximization more will be supplied at same price. If its aim is to minimize risk, less will be supplied.
4. **Price of Related Goods:** If price of a substitute goods increase, supply of the commodity concerned will fall. If price of a complementary good increases, supply of the commodity concerned increases.

5. **Expectation about future prices:** If there is an expectation of increase in price of the commodity in future, supply will be less at present and vice-versa.
6. **Government Policy:** Imposition of taxes reduces supply and subsidy increases supply.
7. **Number of firm:** The larger the number of firms, greater in the market supply and vice-versa.

Change in quantity supply: - when supply changes due to change in price of commodity. It is called movement along supply curve.

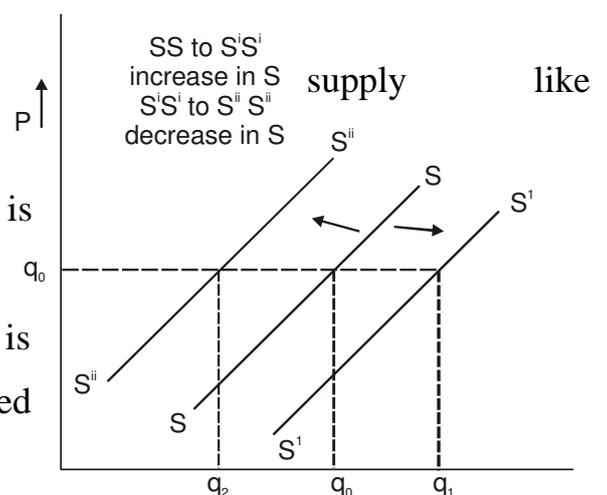
- a) **Extension in supply:** - When supply increases due to increase in price.
- b) **Contraction in supply:** - When supply decreases due to decrease in price, is called contraction in supply.



Change in supply/Shift of supply curve: -

It occurs due to change in other factors affecting Technology, No. of Firms, etc.

- a) Increase in supply: When more quantity is supplied at same price.
- b) Decrease in supply: When less quantity is supplied on the same price is called Decrease in supply.



Price Elasticity of Supply: - It measures the degree of responsiveness of the quantity supplied of a commodity to a change in its price.

Measurement of Price Elasticity of Supply

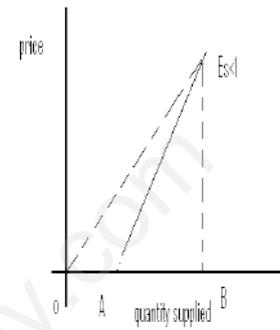
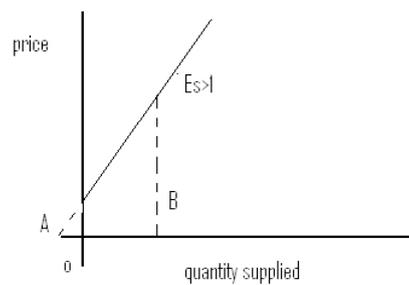
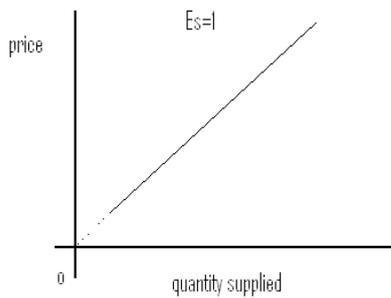
1. Percentage Method

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

$$= \frac{\Delta Q}{\Delta P} \times \frac{P}{Q} \quad ; \quad \begin{array}{l} \Delta Q = \text{Chang in quantity supplied} \\ \Delta P = \text{Chang in Price} \end{array}$$

2. Geometric Method

$$e_s = \frac{AB}{OB} \quad ; \quad \text{where A is the intercept of supply curve with X-axis}$$



Supply

1. Define supply
2. What causes a downward movement along a supply curve of a commodity?
3. What is meant by a change in supply?
4. What is the meaning of expansion of supply?
5. How does a change in price of the input effect the supply curve of a commodity?
6. When the supply of a commodity is called elastic?
7. List any three determinants of supply of a commodity?

REVENUE CONCEPT

Revenue: - Money receipt by a firm by selling a commodity.

Types of Revenue

1. **Total Revenue (TR)** = Total Revenue is total money receipt of a firm on account of the total sale.

$$TR = Q \times P$$

2. **Marginal Revenue (MR)** = Marginal Revenue is the change in total revenue as sale of one more unit of output.

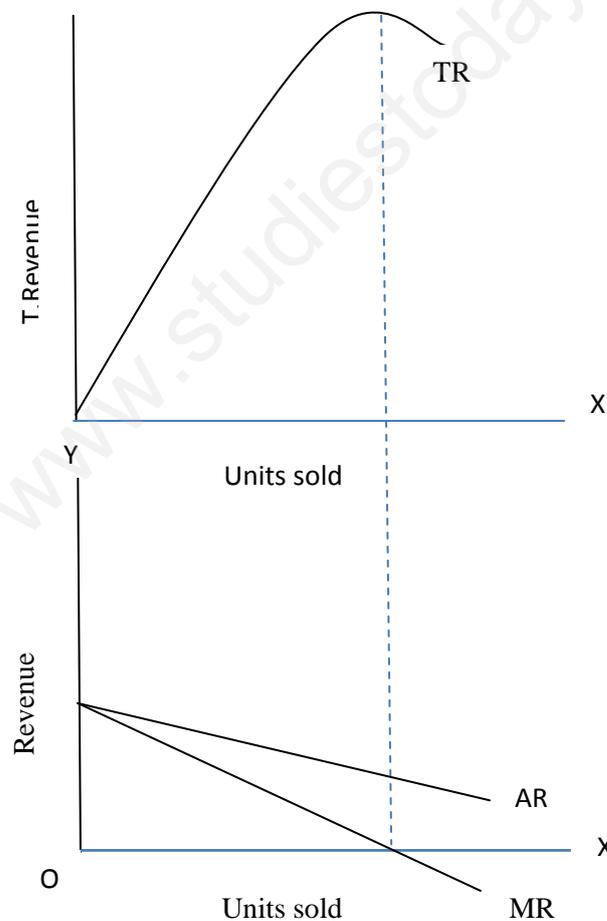
$$MR = \frac{\Delta TR}{\Delta Q} \quad MR = TR_n - TR_{n-1}$$

3. **Average Revenue (AR)** = Average Revenue is the per unit revenue received from sale of a commodity.

$$AR = TR/Q$$

Relationship between TR, MR in imperfect competition market.

1. When MR is 0 TR is maximum
2. When MR Negative TR falls.



HOTS

1. Can MR be negative or zero.

Ans:- Yes, MR can be zero or negative.

2. If all units are sold at same price how will it affect AR and MR?

Ans:- AR and MR will be equal at levels of output

3. What is price line?

Ans:- Price line is nothing but AR line and is horizontal to X-axis in perfect competition.

4. Can TR be a horizontal Straight line?

Ans:- Yes, when AR is zero.

5. What do you mean by revenue?

6. Explain the concept of revenue (TR, AR and MR)

7. Define AR

8. Prove that AR = price

9. Prove that AR is nothing but demand curve

10. Explain the relationships between AR and MR when price is constant and when price falls.

11. Explain the relationships between TR and MR when price is constant.

12. What is break- even point? Explain with a diagram.

13. When the situation of 'shut – down' point arises for a firm?

14. What happens to TR when a) MR is increasing, b) decreasing but remains positive and c) MR is negative?

Ans:- a) TR increases at an increasing rate.

b) TR increases at a diminishing rate.

c) TR decreases.

15. Why AR is more elastic in monopolistic competition than monopoly?

Ans:- Monopolistic competition market has close substitutes. Monopoly market does not have close substitutes.

16. Why TR is 45° angle in perfect competition market?

Ans:- In perfect competition market the goods are sold at the same price so AR = MR and the TR increases at a constant rate.

17. Can there be Break- even point with AR = AC

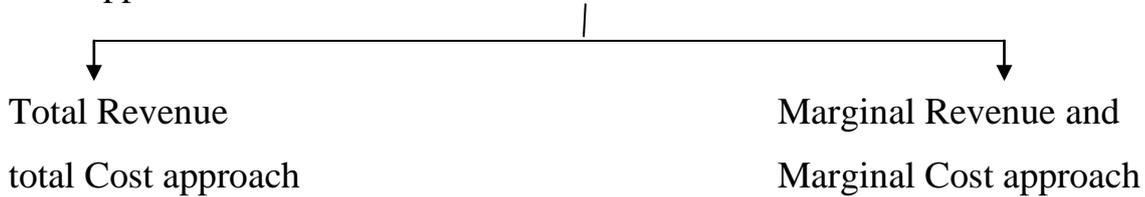
Ans:- Yes there can be breakeven point with AR = AC

PRODUCERS EQUILIBRIUM

Meaning:- It is the situation where producer get maximum profit.

Determination of producer Equilibrium

Two approaches

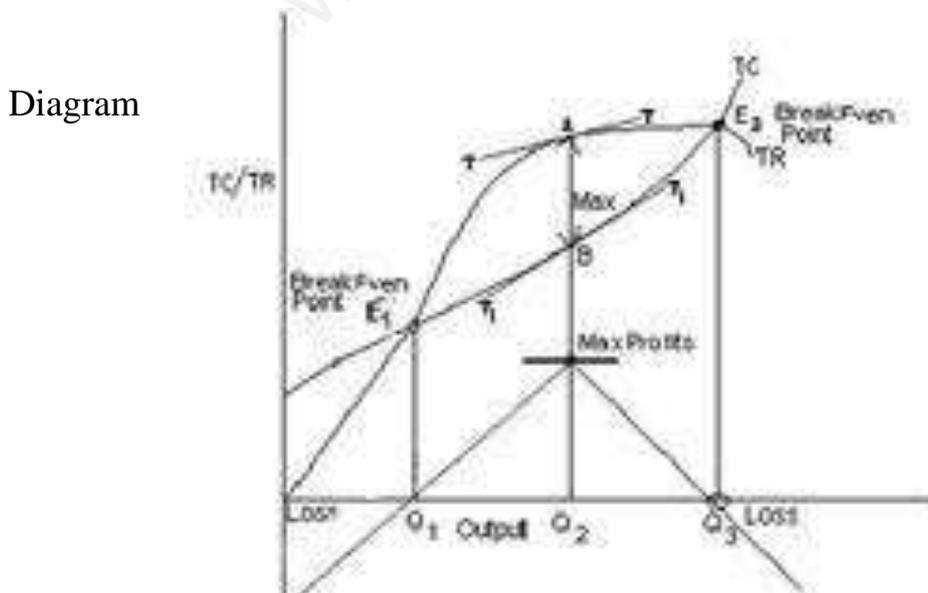


1. Total Revenue and Total Cost Approach

Equilibrium Conditions

Difference between Total Revenue (TR) and Total Cost (TC) is positively maximum.

Outputs (Units)	TR	TC	Profit
0	0	30	-30
1	40	50	-10
2	70	60	10
3	90	70	20
4	100	90	10
5	100	120	-20



2. Marginal Revenue and Marginal Cost Approach

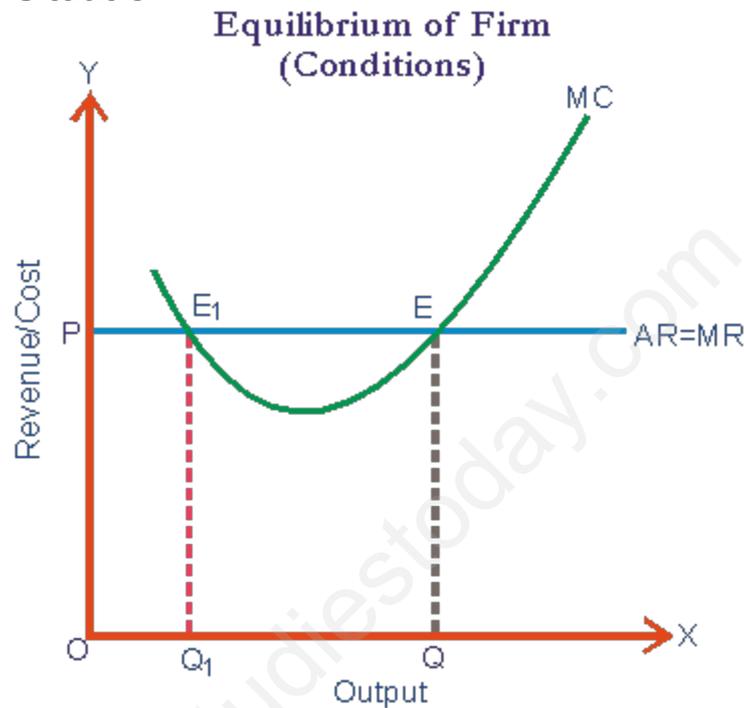
Conditions:-

1. $MR=MC$
2. At Equilibrium Point MC curve intersect to MR curve from below

Under perfect competition, a firm is in equilibrium in short-run when following two conditions are fulfilled.

(i) $MR = MC$

(ii) MC cuts MR from below or MC is rising at the point of equilibrium. Fig. 2 illustrates this situation.



In diagram, $MR = MC$ at two levels of output: Q and Q_1 . However, Q_1 is not equilibrium level of output. Corresponding to point Q_1 there is point E_1 which, no doubt, indicates that $MR = MC$. However, MC is not rising here, rather it is falling. Therefore, second condition is not fulfilled here. Clearly E is the point where not only $MR = MC$, but MC is also rising. So Q is the equilibrium level of output.

In short-run, when a producer or firm is in equilibrium three situations are possible:

(i) SNP, (ii) NP, (iii) Minimum Loss.

(i) Super Normal Profit (SNP): Super normal profits occur to the firm when its $AR > AC$ and both the conditions of equilibrium are also met. Therefore, in this case $AR > AC$, $MR = MC$ and MC cuts MR from below.

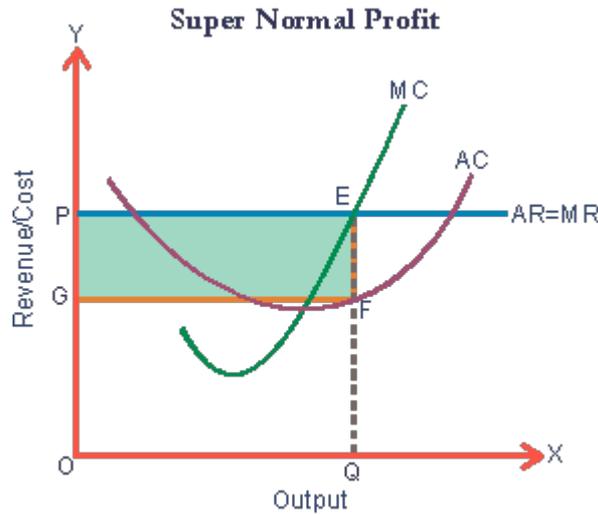


Fig. 3

In Fig. 3 E is the point of equilibrium and corresponding to this Q is equilibrium level of output. Here, AR is EQ, AC is FQ and clearly $AR > AC$.

$$\pi \text{ per unit} = AR - AC$$

$$= EQ - FQ = EF. \text{ Firm is producing GF output.}$$

Total Super Normal Profit of the firm is $GF \times EF = EFGP$

(ii) Normal Profit: Normal profits occur when $AR = AC$ and both the conditions of equilibrium are also met.

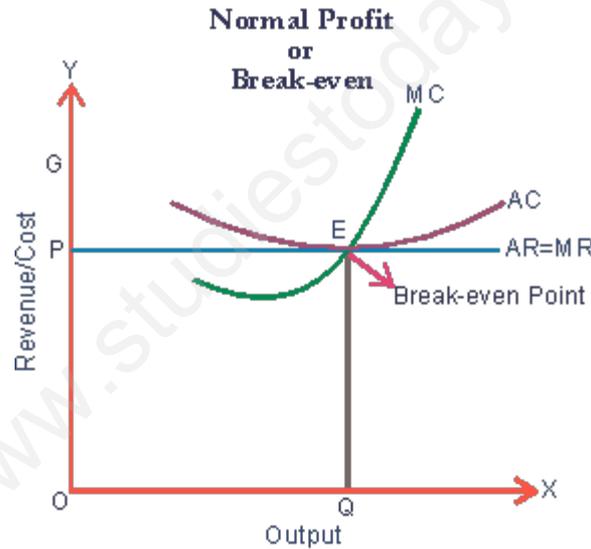


Fig. 4

In Fig. 4, E is the point of equilibrium, with normal profit.

Here, $AR = EQ$, $AC = EQ$

$$\pi \text{ per unit} = AR - AC$$

$$= 0 \text{ as } AR = AC$$

Firm is in equilibrium when it produces OQ level of output and it is earning just normal profit.

Point E is also known as Break-even point as $AR = AC$ or $TR = TC$. The firm is just recovering its costs.

Important

Normal profit is a part of total cost of the firm. It is equal to reward to the producer for his entrepreneurial services.

This is included in the estimation of TC. Thus, when $AR = AC$ and $\pi = 0$, it generally refers to the absence of super normal profit.

(iii) Minimum Loss: A firm incurs loss when its $AR < AC$ (or $TR < TC$) and still, the firm is in equilibrium.

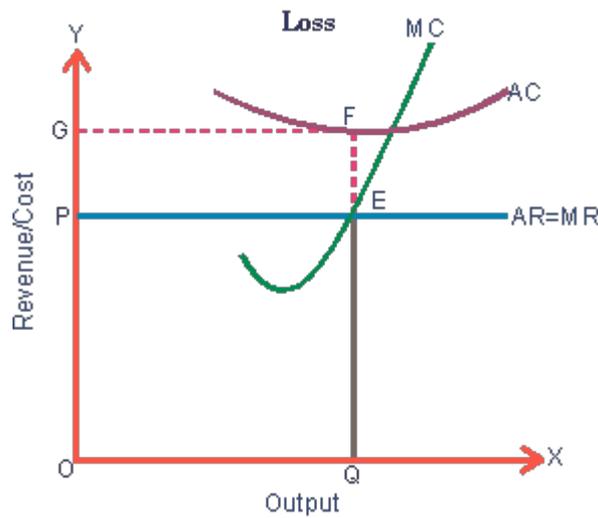


Fig. 5

In Fig. 5, firm is in equilibrium at point E where not only $MR = MC$, but MC is also rising. OQ is equilibrium output.

However, firm is incurring loss as:

$$AR = EQ$$

$$AC = FQ$$

Clearly, $AR < AC$, per unit Loss

$$= AR - AC$$

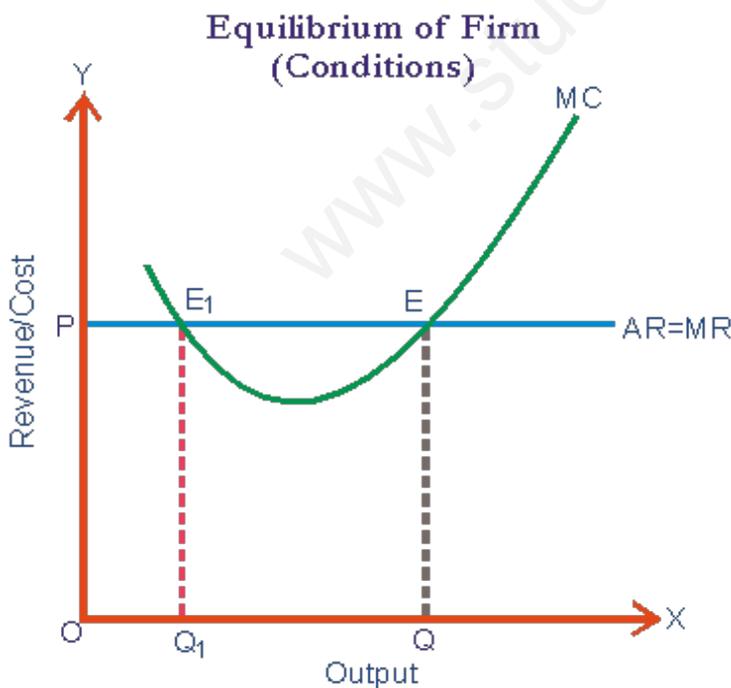
$$= EQ - FQ$$

$$= - EF$$

Total Loss = Loss per unit of output \times Total output

$$= - EF \times PE$$

$$= - EFGP$$



Producer is in Equilibrium at Point E where both equilibrium conditions are satisfied.

Questions

- Q.1 What is meant by producers Equilibrium
- Q.2 Explain the producer equilibrium by MR, MC method?

Market

Market: - Market refers to an arrangement that contact between the buyers and seller for the sale and purchase of goods.

Types:

1. **Perfect Competition Market:-** Perfect Competition is a form of Market where there are large number of buyers and sellers of a commodity and selling homogeneous product.

Features:

1. Large Number of buyers and sellers
2. Homogenous product
3. Free entry free exit from Market
4. Perfect knowledge
5. Perfect Mobility
6. Zero transport cost
2. **Monopoly Market: -** There is single seller of a commodity which has no close substitutes.

Features:

1. Single seller
2. Restricted entry
3. No close substitutes
4. Full control
5. Price Discrimination
3. **Monopolistic Competition:-** This market situated where there are many seller of the product, and selling differentiate product from each other.

Features:

1. Large Numbers of buyers and seller
2. Product Differentiation

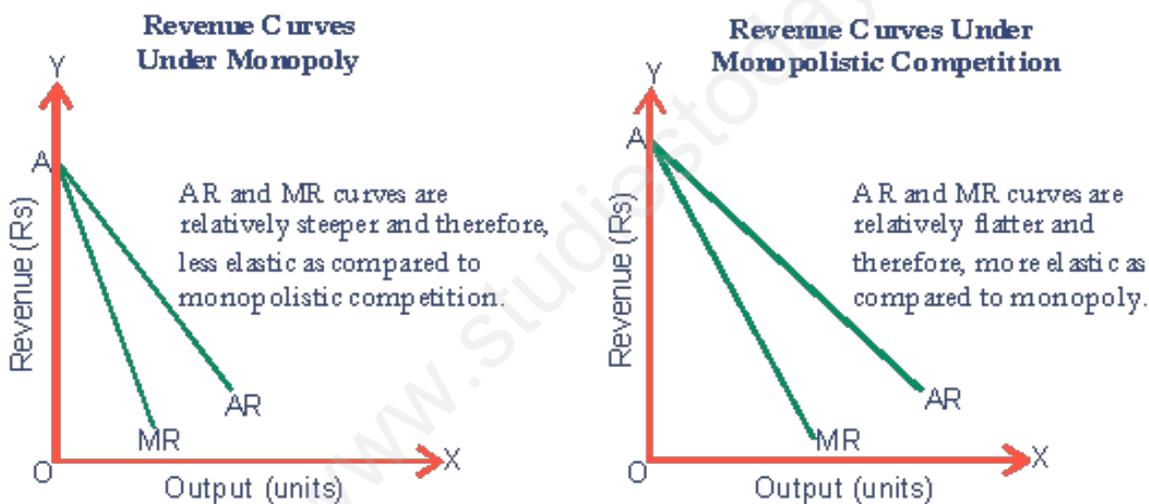
3. Freedom of entry and exit of firms
4. Selling cost is applicable

Oligopoly: - This is the situation of market there are few seller selling homogeneous or differentiated products. Every seller influences by the behavior of other firms.

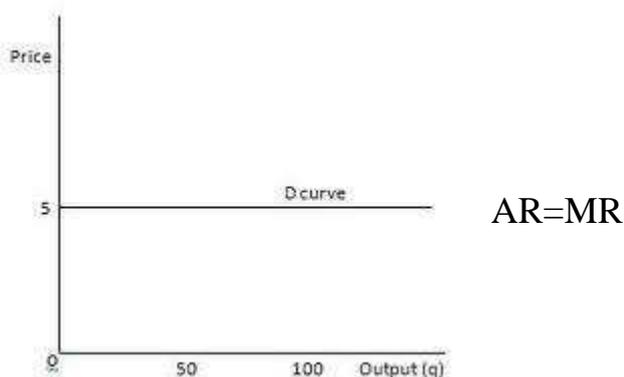
Features:-

1. Few firms
2. interdependence
3. no price competition
4. Group behavior
5. undetermined demand curve

Shapes of Curves AR, MR in different markets.



Perfect Competition



Very short answer questions

1. Define perfect competition

Ans:- Perfect competition is a market with large number of buyers and sellers , selling homogeneous product at same price.

2. Define monopoly.

Ans: Monopoly is a market situation dominated by a single seller who has full control over the price.

3. Define monopolistic competition.

Ans:- It refers to a market situation in which many buyers and sellers selling differentiated product and have partial control over the price.

4. Under which market form firm is a price maker?

Ans:- Perfect competition

5. What are selling cost?

Ans:- Cost incurred by a firm for the promotion of sale is known as selling cost.

6. What is oligopoly?

Ans:- Oligopoly is defined as a market structure in which there are few sellers of the commodity.

7. In which market form is there product differentiation?

Ans:- Monopolistic competition market

8. What is product differentiation?

Ans: It means close substitutes offered by different producers to show their output differ from other output available in the market. Differentiation can be in color, size packing, brand name etc to attract buyers.

9. What do you mean by patent rights?

Ans:- Patent rights is an exclusive right or license granted to a company to produce a particular output under a specific technology.

10. What is price discrimination?

Ans: - It refers to charging of different prices from different consumers for different units of the same product.

11. What do you mean by abnormal profits?

Ans:- It is a situation for the firm when $TR > TC$.

12. Why AR is equal to MR under perfect competition?

Ans:- AR is equal to MR under perfect competition because price is constant.

13. What are advertisement costs?

Ans:- Advertisement cost are the expenditure incurred by a firm for the promotion of its sales such as publicity through TV , Radio , Newspaper , Magazine etc.

14. What is meant by normal profit?

Ans:- Normal profit is the minimum amount of profit which is required to keep an entrepreneur in production in the long run.

15. What is break-even price?

ANs:- In a perfectly competitive market, break- even price is the price at which a firm earn normal profit ($Price=AC$). In the long run, Break- even price is that price where $P=AR=MC$

Short Answer Questions: (3 / 4 Marks)

1. Explain any four characteristics of perfect competition market.

Ans:- i) Large number of buyers and sellers : The number of buyers and sellers are so large in this market that no firm can influence the price.

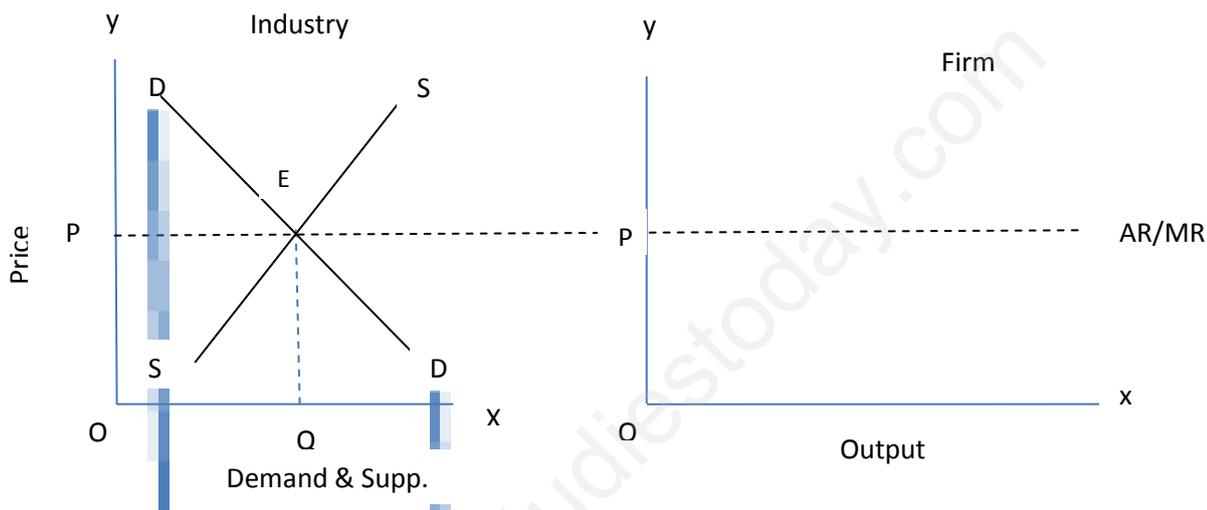
ii) Homogeneous products: Products are uniform in nature. The products are perfect substitute of each other. No seller can charge a higher price for the product. Otherwise he will lose his customers.

iii) Perfect knowledge: Buyers as well as sellers have complete knowledge about the product.

iv) Free entry and exit of firm: Under perfect competition any firm can enter or exit in the market at any time. This ensures that the firms are neither earning abnormal profits nor incurring abnormal losses.

2. Explain briefly why a firm under perfect competition is a price taker not a price maker?

Ans:- A firm under perfect competition is a price taker not a price maker because the price is determined by the market forces of demand of supply. This price is known as equilibrium price. All the firms in the industry have to sell their outputs at this equilibrium price. The reason is that, number of firms under perfect competition is so large. So no firm can influence the price by its supply. All firms produce homogeneous product.



3. Distinguish between monopoly and perfect competition.

Ans:-

Perfect Competition	Monopoly
Very large number of buyers and sellers.	Single seller of the product.
Products are homogenous	Product has no close substitute
Firm is the price taker and not a maker	Firm is price maker not price taker
Price is uniform in the market ie price =AC	Due to price discrimination price is not uniform.
Free entry and exit of firms.	Very difficult entry of new firms.

4. Which features of monopolistic competition are monopolistic in nature?

Ans:- i) Product differentiation

ii) Control over price

i) Downward sloping demand curve

5. What are the reasons which give emergence to the monopoly market?

i) Patent Rights: Patent rights are the authority given by the government to a particular firm to produce a particular product for a specific time period.

ii) Formation of Cartel: Cartel refers to a collective decision taken by a group of firms to avoid outside competition and securing monopoly right.

iii) Government licensing: Government provides the license to a particular firm to produce a particular commodity exclusively.

HOTS

1. Is abnormal profit possible in long-run for a monopoly firm?

1 Mark

Yes, because even in the long-run monopolist continues to have full control over price of the product and there is no possibility for the new firms to enter the market.

2. What is the difference between pure competition and perfect competition?

When there are large number of buyers and sellers and each seller sells homogeneous product at the same price and when there are no barriers to enter the industry and firms have freedom to enter and exit the industry, pure competition is said to exist. However, when in addition to all these, there is not only perfect knowledge of price and perfect mobility but also absence of transport costs, perfect competition is said to exist.

3. Why a firm under perfect competition will not lower the price to increase its sales?

A perfect competitive firm will not lower the price because of the following reasons:

(i) A firm under perfect competition can sell whatever amount it wishes to sell at the existing price. So that there is no rationality of lowering the price.

(ii) An individual firm under perfect competition is such a small supplier in the market that by lowering the price, it cannot ever cater to the entire market demand for the commodity.

Accordingly, reduction in price cannot be sustained by an individual firm.

4. What is monopolistic competition? Can a seller in such a market influence the price? Explain.

Monopolistic competition is found in the industry where there is a large number of sellers selling differentiated product to a large number of buyers. There is freedom of entry and exit for the firms. In such a market, a seller has a partial control over price through product differentiation. However, full control over price is not possible owing to the fact that there is a large number of close substitutes in the market.

5. Is a firm under perfect competition a price maker or a price taker? Illustrate your answer using a diagram.

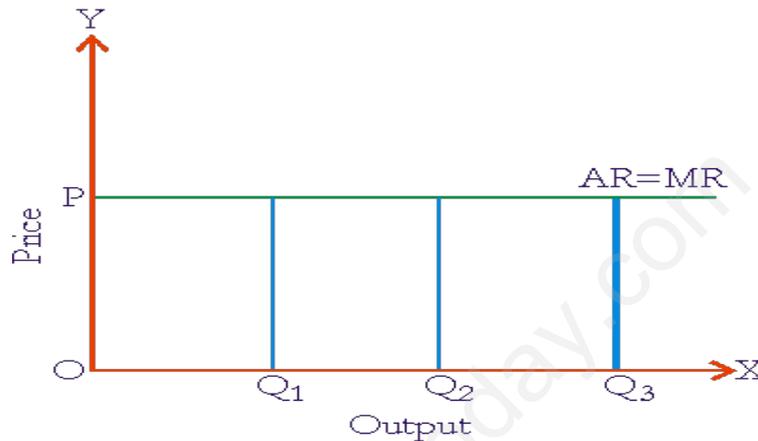
A firm under perfect competition is a price taker and not a price maker. The price is

determined by the industry so that the firm has to sell its product at the given price. It is owing to the following facts:

- (i) The number of the firms under perfect competition is so large or that each firm under perfect competition sells such a small fragment of the total output that (by varying its sales) it cannot impact price of the product in the market.
- (ii) All the firms in a perfectly competitive industry produce homogeneous product. Absence of product differentiation means the absence of even partial control over price.
- (iii) Firm under perfect competition cannot take advantage of ignorance of the buyers, as buyers are assumed to have perfect knowledge of the market conditions. Price variation (or price control) is ruled out.

Diagrammatic Illustration

The following diagram, illustrates how a firm under perfect competition is a price taker not a price maker.



The figure shows that firm's demand curve (AR curve) is a horizontal straight line.

It can sell any amount of output (Q_1 , Q_2 or Q_3) at the prevailing price (OP). Price in the market is determined by the forces of market supply and market demand. It will change only when market demand or market supply changes. But, as we are aware, an individual firm under perfect competition cannot impact market supply. This is because an individual firm commands a very small segment of the market supply. It is so small that even a manifold increase/decrease in it would not make any difference to the total supply of the product in the market. This is implied in the very definition of perfect competition. This renders a firm under perfect competition as a 'price taker'.

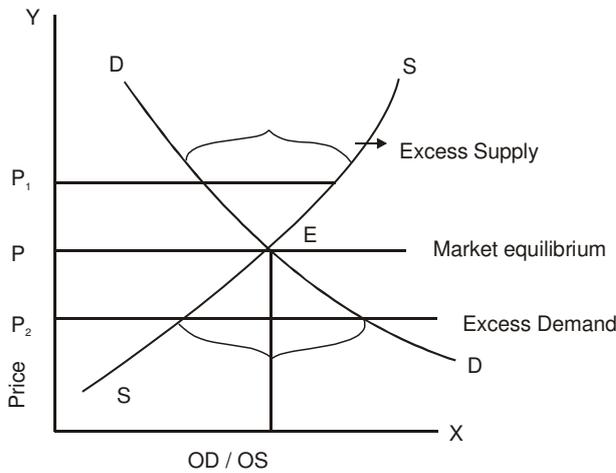
Note: If price control were possible, firm's AR curve would no longer be a horizontal straight line. But perfect competition assumes the existence of only a horizontal straight line AR curve for a firm. Implying that a firm under perfect competition is always a price taker.

PRICE DETERMINATION UNDER PERFECT COMPETITION

Price Determination:-

When quantity demanded is equal to the quantity supplied of a particular commodity.

Price (Rs)	Quantity Demand	Quantity Supply	
1	10	6	Excess
2	9	7	Demand
3	8 D=S	8	Market Equilibrium
4	7	9	Excess
5	6	10	Supply



Equilibrium Price:- The price at which the quantity demanded of a commodity is equal to quantity supplied.

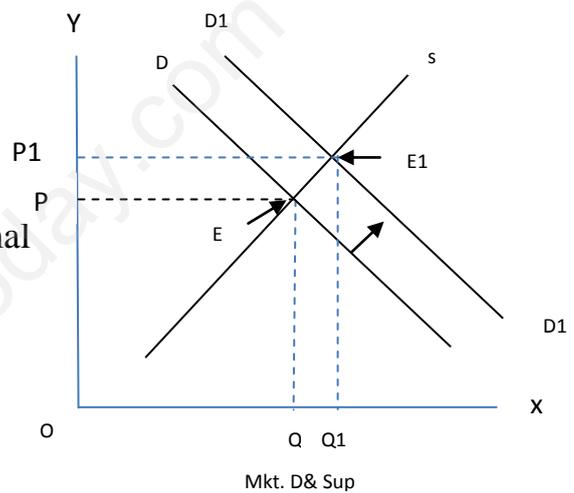
Effect on Equilibrium Price when

1. Change in demand

a) Increase in demand

Causes:-

1. Increase in Income of a consumer of Normal Goods
2. Increase in Price of Substitute goods.
3. Decrease in price of complimentary goods
4. Rise in expected future price.



Effects:-

Equilibrium price and Quantity of demand and supply increase.1

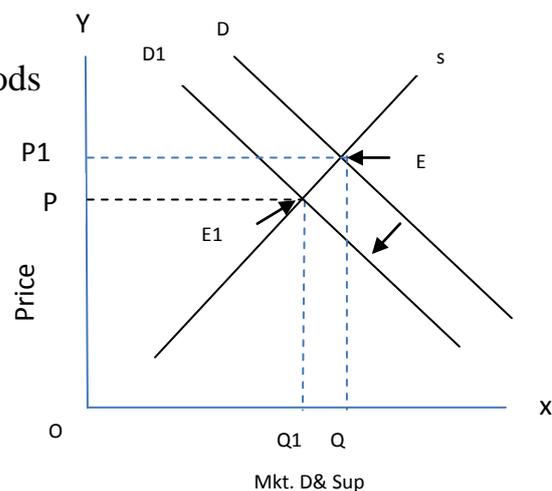
b) Decrease in Demand

Causes:-

1. Decrease in Income of a consumer for normal goods.
2. Decrease in price of Substitute goods.
3. Increase in Price of Complimentary goods
4. Decrease in expected future price.

Effect:-

Price and Quantity both decrease

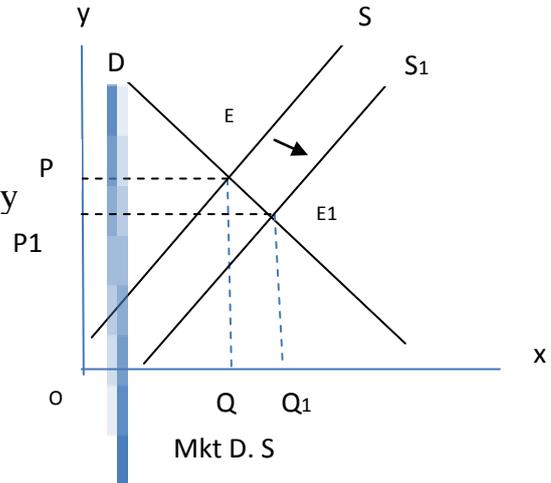


2. Change in Supply

a) Increase in supply

Causes:-

1. No. of firms increase
2. Technology improvement
3. Decrease in input price
4. Decrease in indirect tax and rise in subsidy
5. Decrease in expected future price.



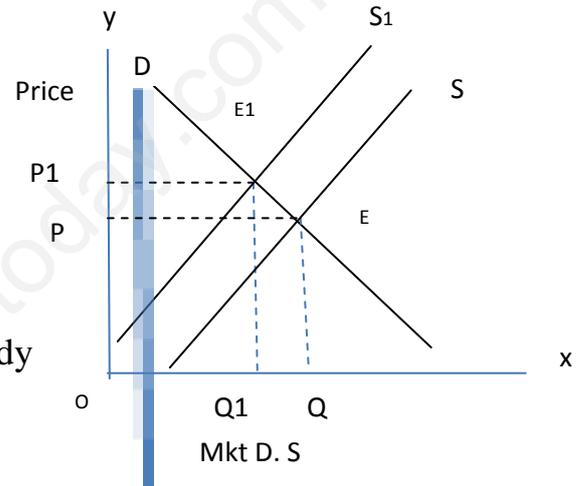
Effect:-

Equilibrium price decrease and equilibrium Quantity increases

b) Decrease in supply

Causes:-

1. No. of firms decrease
2. Technology backwardness
3. Increase in input price
4. Increase in indirect tax and rise in subsidy
5. Increase in expected future price.



Effects:-

Equilibrium price increases and Equilibrium Quantity decreases.

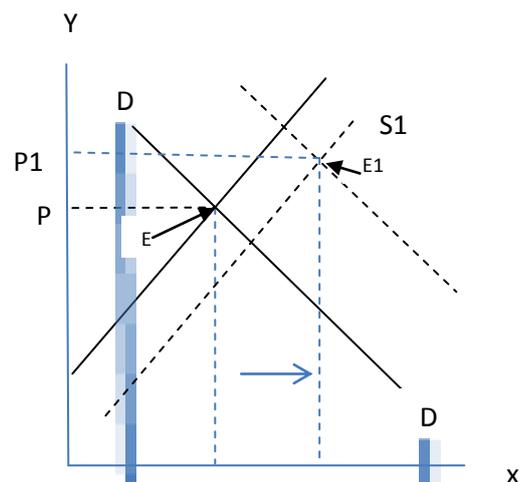
3. When both demand and supply changes simultaneous

A) Simultaneous increase in the demand and increase in supply and decrease in supply

a) Increase in demand is more than increase in supply.

DD and SS curves shift rightwards to DD₁ and SS₁

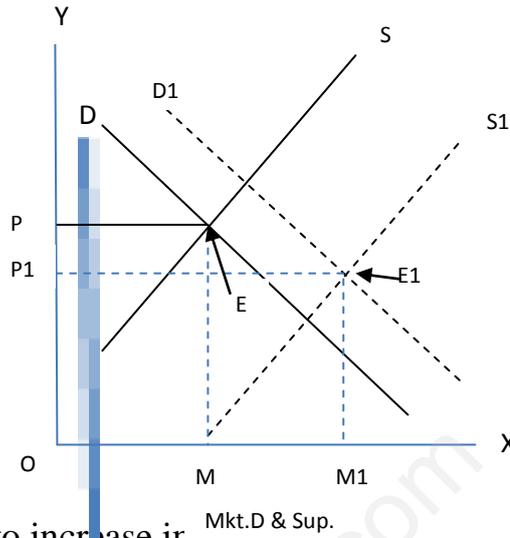
Effect:- Equilibrium price increase and equilibrium quantity increases



b) Increase in demand is less than increase in supply

DD and SS curves shift rightward to D_1D_1 and S_1S_1

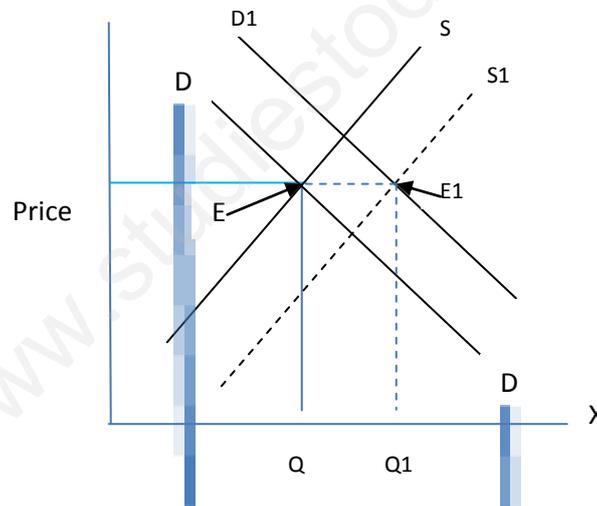
Effect:- Equilibrium price decreases and equilibrium quantity increases.



c) Increase in Demand is equal to increase in supply

DD and SS curves shift rightward to D_1D_1 and S_1S_1

Effect:- Equilibrium price constant and equilibrium quantity increases.



B) Simultaneous decrease in the demand and decrease in supply

a) **Decrease in demand is less than decrease in supply.**

DD and SS curves shift leftward to D_1D_1 and S_1S_1

Effect:- Equilibrium price increases

And equilibrium quantity decreases

b) **Decreases in demand is more than decreases in supply**

DD and SS curves shift leftward to D_1D_1 and S_1S_1

Effect:- Equilibrium price decreases and

Equilibrium quantity decreases.

c) **Decrease in Demand is equal to decrease in supply**

DD and SS curves shift leftward to D_1D_1 and S_1S_1

Effect:- Equilibrium price remain constant and
Equilibrium Quantity decreases.

Questions

- Q.1 What is meant by Equilibrium Price?
- Q.2 What is meant by Equilibrium Quantity?
- Q.3 When income of consumers increase what effects on eq. price?
- Q.4 When price of factor production increase, What effect on eq. price?
- Q. When demand and supply both increase simultaneously what effect on eq. price?

PART B-INTRODUCTORY MACRO ECONOMICS

Unit VI National Income and Aggregates

Stock	Flow
<p>Stock: - Quantity of an economic variable which is measured at a particular point of time. Stock has no time dimension. Stock is static concept.</p>	<p>Flow: Flow is that quantity of an economic variable, which is measured during the period of time. Flow has time dimension- like per hr, per day etc. Flow is a dynamic concept.</p>
The variable is measured at a point of time.	The variable is measured for a period of time.
Stocks influences flow	Flow influences stock
Stock is not represented as per unit time period	Flow is represented as per unit time period.
Population, Capital stock, Money supply	National Income, saving rate, Investment, change in money supply, etc.

Consumer Goods	Capital Goods
<p>Those goods which are bought by consumers as final or ultimate goods to satisfy their wants. Eg: Durable goods car, television, radio etc. Non-durable goods and services like fruit, oil, milk, vegetable etc. Semi durable goods such as crockery etc.</p>	<p>those final goods, which are used and help in the process of production of other goods and services. E.g.: plant, machinery etc.</p>
Gets used up by consumption for deriving satisfaction in the ones or several times.	Does not gets used up in production
These doesn't increase the production of economy	These goods increase the productivity of economy
Final use products used by consumers	Final use product used by Producers for

for direct use E.g. car purchased by consumer for personal use	indirect use. E.g. car purchased by taxi driver for taxi purpose
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Final Goods	Intermediate Goods
Final goods: Are those goods, which are used either for final consumption or for investment. It includes final consumer goods and final production goods. They are not meant for resale. So, no value is added to these goods. Their value is included in the national income.	Intermediate goods intermediate goods are those goods, which are used either for resale or for further production . Not include in National Income estimates
The goods are not used as raw materials during an accounting year. E.g. bread & milk purchased/used by consumers	The goods are used as raw materials during an accounting year. E.g. bread purchased to be used in making breadpakoras & milk used in making lassi at a restaurant
Resale of goods by firm for profit making in an accounting year is not possible.	Resale of goods by firm for profit making is possible in an accounting year.
Final goods are outside the production boundry and ready for use by final users.	Intermediate goods in the production boundry and not ready for use by final users.
Value addition not required in future.	Value addition required in future.

Domestic Territory of a Country

It includes:

- (i) Territory lying within the political frontiers, including territorial waters of the country.

- (ii) Ships and aircraft operated by the resident of the country between two or more countries.
- (iii) Fishing vessels, oil and natural gas rigs and floating of platforms operated by the residents of the country in the international waters or engaged in extraction in areas in which the country has exclusive rights of exploitation.
- (iv) Embassies, consulates and military establishment of the country located abroad.

Domestic territory is much bigger than the political frontiers of a country.

It excludes:-

- (i). Embassies, consulates and military establishment of a foreign country. For example USA Embassies in India is a part of domestic territory of USA.
- (ii). International Organization like UNO, WTO, WHO, IMF etc. Located within the geographical region

Normal Residents of a Country

A normal Resident of a country is defined as a person who ordinarily resides in a country and whose centre of interest (Economic interest) lies in that country. (It also covers institution along with individuals). It includes national and non- nationals residing in a country. Indians living in England are non-nationals of that country, because they still hold Indian passports and Indian citizenship. However, they are the normal residents of England because they have settled there and their economic interest lies in that country.

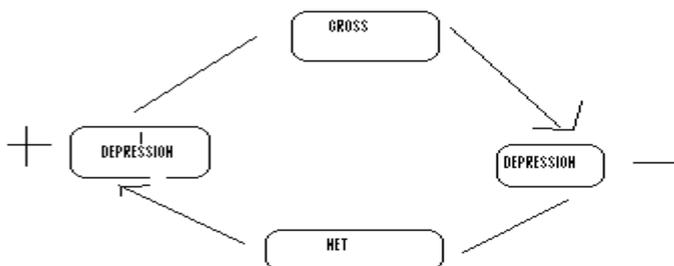
International Organizations like the World Health Organisation, World Bank, International Monetary Fund and International Labour Organisation are residents of an international area, but not of the country in which they are located. The offices of these organizations are also located in India. However, these are not normal residents of India, but the Indian citizens working in these offices are the normal residents of India.

Residents households of a country cover all individual living within the domestic territory of a country except the following:-

- (i) Foreign visitors in the country for such purposes as recreation, holidays, medicals treatment, study tours, conferences, sports- events etc.

- (ii) Crew members of foreign vessels, commercial travelers and seasonal workers in the country.
- (iii) Officials, diplomats and members of the armed forces of a foreign country.
- (iv) Employees of international organization who are not the citizens of the country in which the offices are located.
- (v) Foreigners who are the employees of non- resident enterprises and who have come to the country of purposes of installing machinery or equipment purchased from within employees.
- (vi) Individuals mentioned in (i), (ii), (iv) and (v) will be treated as foreigners in case they stay for less than one year in the domestic territory of the given country. It automatically means that if they stay for one year or more in that country, they will be treated as the normal residents of that country. Generally, individuals mentioned at (i) and (ii) above will go back to their respective countries in less than one year (or sometimes) more. In later case, they will be treated as the normal residents of the country where they are employed or are living A Bangladeshi daily crossing border and working in India and returning back in evening is a normal resident of Bangladesh.

Depreciation:- (Capital Consumption allowance, Consumption of Fixed Capital, Current replacement cost,):- The value of capital goods decreases due to wear and tear in use in production during an accounting year. It includes normal wear and tear, foreseen obsolescence and accidental losses under use



Reason of Depreciation :-

- (i) Normal wear and Tear
- (ii) Passage of time
- (iii) Expected obsolescence (loss in the value of fixed assets due to change in technology or demand for goods and services.

Depreciation	Capital loss
i. Expected loss	i. Unexpected loss
ii. Normal wear and tear, passage of time , expected obsolescence	ii. Unforeseen Contingencies such as natural calamities, theft, accident etc

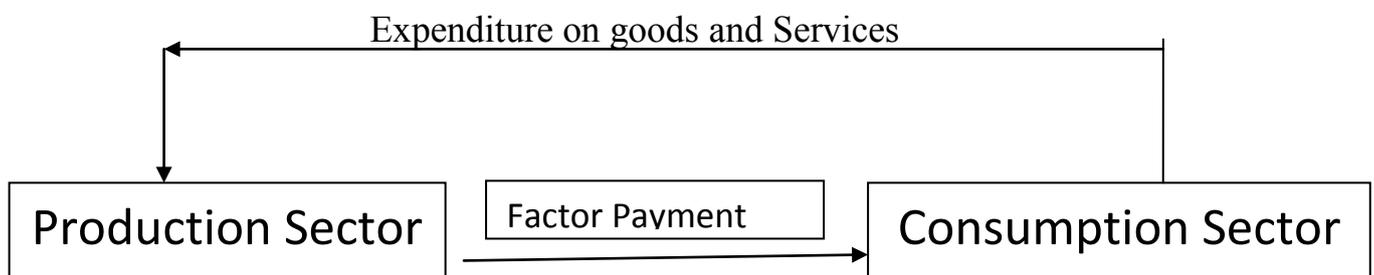
Gross Investment:- Gross addition to the stock of capital of a firm is called Gross investment. It means addition to the total stock of capital of a firm when the value of depreciation is not deducted from it.

Net Investment: - Net addition to the stock of capital of a firm is called Net investment. It means addition to the total stock of capital of a firm after deduction of Depreciation which gives more accurate value of available stock .

Circular flow of Income***Circular flow in a two sector economy.***

The National Income of economy is generated as a flow of goods and services produced, as a flow of Incomes, or as a flow of expenditures on goods and services which form three phases of the continues flow generated by two sectors. Money flow includes only financial transaction i.e. payments and receipts of money. The circular flow of income relates with money flow.

Real flow includes flow of goods and factors services. Value of Goods produced is equal to value of factor income generated in a 2 sector economy. The production sector gives factor payment for employing factors which comes from consumption sector.



Money Flow (2 Sector Economy)

The factor income received by consumption Sector is spent on goods produced by Production sector as expenditure on goods. Thus the factor income is spent on disposition of goods and circular flow of Income continues from one sector to another. Savings, taxes & imports are called leakages as they are reducing the flow in a four sector economy

Investment & exports are increasing the circular flow in a four sector economy these are called injections'.

Value Added Method (PRODUCT METHOD/inventory method/net output method/industrial origin method/commodity service method)

It measures the contribution of each producing enterprises in the domestic territory of the country.

Value added is the addition of value to the raw materials (intermediate goods) by a firm with its productivities. It is the contribution of an enterprise to the current flow of goods and services.

Gross Value added =

Gross value added (GDP_{MP}) = Value of Output (Gross) – Intermediate Consumption

Where:

Sales + change in stock = value of output

Change in stock = closing stock – opening stock

Note: - $\Sigma GVA_{MP} = GDP_{MP}$

For obtaining NNP_{Fc} (N.I) we have:

NNP_{Fc} (N.I) = GDP_{MP} (-) consumption of fixed capital (depreciation)

(+) Net factor income from abroad

(-) Net indirect tax.

Gross value added – depreciation = Net Value Added

(Gross value of output includes) = Depreciation + sales + Increase in stock

$GDP = GVA_{primary} + GVA_{secondary} + GVA_{tertiary}$

Intermediate consumption: _

Only the non factor inputs are included in intermediate consumption such as the expenditure of raw materials, fuel, power, spare parts, etc. The non factor inputs lose their identity in the process of production.

Precautions of Value Added Method:-

Included	Excluded
i.) Production for self-consumption is included ii.) Imputed value of owner occupied houses should be included. iii.) Change in stock of goods will be included	i.) Intermediate goods are not to be included ii.) Sale and purchase of second hand goods is not included iii.) Domestic services are not included

How to avoid double counting?

1. By using the final output method
2. By using the value added method

Income Method (Distributive Share Method/Factor Payment Method)

$NDP_{FC} = \text{Compensation to employees} + \text{Operating surplus} + \text{Mixed income of self employed}$

Components of factor Income		
1. Compensation of Employee (COE)	2. Operating Surplus (OS)	3. Mixed Income (MI)
a. Wages and salaries in cash ex- wages, salaries, bonous, D.A., commission etc. b. Wages and salaries in kind ex- rent free home, rent free car, free medical and educational facilities etc c. Employers contribution to social security scheme ex- GPF, gratuity, labour welfare funds, retirements pension etc.	a.) Income from property ex- Rent, Royalty and Interest. b.) Income from entrepreneurship ex- Profit i.) Corporate Tax ii.) Dividend undistributed profit iii.) Retained Earning (Saving of Private corporate sector)	Income from own account workers like farmers, barbers, and incorporated enterprises like retail traders, small shopkeeper.

$$NDP_{FC} = (1) + (2) + (3)$$

$$NNP_{FC} = NDP_{FC} (+) \text{ Net factor income from abroad (NFIA)}$$

$$GNP_{Mp} = NDP_{FC} + \text{consumption of fixed capital} + \text{Net indirect tax (Indirect tax – subsidy)}$$

Precautions of Income Method-

Included	Excluded
Imputed value of services of the owner ex-interest own capital and production of self consumption	1.Transfer income 2.Income of sell of second hand goods 3.Income from share and bonds 4.Income from wind fall gain 5.Payment out of past savings 6.Indirect tax

Expenditure method:

1. Private final consumption expenditure (C)
2. Government final consumption expenditure. (G)
- 3 Gross domestic capital formation (I_g)

Where: (Gross Domestic fixed Capital formation+ Change in stock) =

(I_g includes Depreciation, Net Business investment expenditure, Net Residential Building investment expenditure and Net Public investment expenditure and change in stock)

Gross domestic capital formation It can also be calculated as *Gross Business fixed Investment +Gross Residential Construction Investment+ Gross Public Investment + Inventory Investment*

4 . Net Export. (X-M)

$$GDP = C + I_g + G = (X-M)$$

$$GDP_{Mp} = (1) + (2) + (3) + (4)$$

$$NNP_{Fc} = GDP_{Mp} - \text{consumption of fixed capital} + NFIA - \text{Net indirect taxes}$$

EXPENDITURE METHOD:-

Included	Excluded
1. Include on account production of fixed assets by all the producing sectors. (2)Include purchase of new house by consumer households. Work in progress at the site of construction. 3. Include capital repairs like alteration of new building.	1. Exclude second hand goods expenditure. 2. Exclude Expenditure on old and new shares and bonds as they are only paper claims 3. Exclude all government expenditures on transfer payments such as unemployment benefits, old age pensions and scholarships as no productive service rendered in return. 4. Exclude expenditure on all intermediate goods and services to avoid double counting.

Related Aggregates –**Gross Domestic product at market price**

It is the total market value of all final goods and services produced during an accounting year within the domestic territory of a country.

NATIONAL INCOME: - NNP_{Fc} is the sum total of factor income earned by normal residents of a country during the accounting year

Gross National product at market price:

It is the total market value of all final goods and services produced by a country during an accounting year including net factor income from abroad.

Net Factor Income from Abroad (NFIA): -

It is the difference between factor income received from the rest of the world and factor income paid the rest of the world.

NFIA = Factor Income earned from abroad - Factor income paid abroad

Components of Net factor income from abroad

Net compensation of employees

Net income from property and entrepreneurship (other than retained earnings of resident companies of abroad)

Net retained earnings of resident companies abroad

Formulas

$NNP_{Mp} = GNP_{Mp} - \text{depreciation}$

$NDP_{Mp} = GDP_{Mp} - \text{depreciation}$

$NDP_{Fc} = NDP_{Mp} - \text{Net indirect taxes (indirect tax - subsidiary)}$

$GDP_{Fc} = NDP_{Fc} + \text{depreciation}$

$NNP_{Fc} = GDP_{Mp} - \text{depreciation} + \text{Net factor income from abroad} - \text{Net indirect taxes}$

$NNP_{Fc} = NDP_{Fc} + \text{Net factor income from abroad.}$

Relation between national product and Domestic product.

Domestic product concept is based on the production units located within domestic (Economic) territory, operated both by residents and non-residents.

National product concept based on resident and includes their contribution to production both within and outside the economic territory.

National product = Domestic product + Residents contribution to production outside the economic territory (Factor income from abroad) - Non- resident contribution to production inside the economic territory (Factor income to abroad)

NATIONAL INCOME AND WELFARE: - GDP is generally considered as an index of welfare but there are at least the following reasons why this may not be correct

1. Distribution of GDP : if GDP of a country rising welfare may not rise if rich becomes richer and poor become poorer(GDP is not uniformly distributed)
2. Non Monetary exchanges: barter system is generally difficult to be counted in developing countries which results in under estimation of GDP.
3. Externalities: pollution during production is not included in the GDP although it decreases the welfare which results in over estimation of GDP.
4. Composition of goods : a diamond when produced is of crores of rupees and increases GDP but welfare of one person increases while milk produced of same amount Tremendously increases welfare of masses.

CALCULATION OF NATIONAL DISPOSABLE INCOME, PRIVATE INCOME, PERSONAL INCOME AND PERSONAL DISPOSABLE INCOME

National Disposable income	Private Income	Personal Income
<p><i>It is the income from all the sources (Earned Income as well as transfer payment from abroad) available to resident of a country for consumption. Expenditure or saving during a year.</i></p> <p>NNPFC + Net Indirect tax + Net current transfer from abroad =Net National disposable income. (Gross National Disposable Income includes depreciation)</p>	<p>Includes factor income as well as Transfer income (Earned income + Unearned income)</p> <p><i>Factor income from net domestic product accruing to private sector includes income from enterprises owned and controlled by the private individual.</i></p> <p><i>Excludes:-</i></p> <ol style="list-style-type: none"> 1. Property and entrepreneurial income of the Gov. departmental enterprise 2. Savings of the Non-departmental Enterprise. <p>Factor Income from NDP Accruing to private sector = NDPFC (-) income from properly entrepreneurship accruing to the govt departmental Enterprises (-) savings of Non departmental enterprises.</p> <p>Private Income Includes</p> <ul style="list-style-type: none"> * Factor income from net domestic product accruing to private sector. + Net factor income from abroad + Interest on National Debt + Current transfer from Govt. + Current transfer from rest of the world. 	<p><i>PI is the income Actually received by the individuals and households from all sources in the form of factor income and current transfers.</i></p> <p>Personal income = Private Income (-) corporation tax. (-) Corporate Savings OR Undistributed profits</p> <p>Personal disposable income</p> <p>Personal income (-) Direct Personal tax (-) Miscellaneous Receipts of the govt. Administrative department (fees and fines paid by house hold.)</p>

MONEY

Meaning of Barter System:- The exchange of goods for goods without the use of money

Drawbacks (Problems or difficulties) of Barter System

1. **Lack of Double Coincidence:-** It is very difficult to find out a person who wants your commodity and you want his commodity.
2. **Lack of Common measure of Value:-** In barter system there are no common measure of Value and proper accountings.
3. **Lack of divisibility:-** Many goods are not divisible, If somebody want to exchange his cow for a pair of shoes, how can he divide his cow.
4. **Difficult in deferred payments:-** There is no stability in the process of the goods, Quality of different units of good also does not remain the same.

Money

Meaning:- Money can be defined as a commodity which is accepted as a medium of exchange and perform the function of measure of value and storage of value.

Functions:-

(A) Primary Function:-

1. **Medium of Exchange:-** Money helps us, buying and selling of goods. So money became the representative of general purchasing power.
2. **Measure of Value:-** Money help, in measuring the exchange value of goods and services. So money serve as a unit of value and money makes possible of keeping accounts.

(B) Secondary Function

3. **Standard of deferred payments:-** Deferred payment means, those payments which are made in future.
4. **Store of Value** Under Barter system, storing of goods is very difficult. But money has completely solved this problem Now, saving are done in terms of money.

Money Supply:- Total Volume of money held by the public at a particular point of time.

R.B.I. has adopted four measures of money supply which are given –

M_1 = Currency notes and coins with the public + demand deposit of all commercial bank + other deposit with RBI

M_2 = M_1 + Savings deposits with Post Office

M_3 = M_2 + Time deposit of all commercial banks

M_4 = M_3 + Total deposit with the Post Office

BANKING

Commercial Bank:- An Institution which performs the function of accepting deposit from the public and making loans and advances to them to earn profit.

Function

1. **Accepting Deposits :-** Commercial banks accept money from general public in the form of different deposits –
 - (i) Saving Banks Deposit Account
 - (ii) Current deposit account
 - (iii) Fixed deposit account
2. **Advancing of Loans:-** Loans and advances are given by commercial bank in the form of (a) Cash Credit Limit (b) term loans (c) Demand loans (d) overdraft facility.
3. **Credit Creation:-** Credit Creation means the Increase in bank deposit. Commercial banks expend their deposits by giving loans and advances.
4. **Agency Function:-**
 - (i) Transfer of Funds from one place to another by demand draft.
 - (ii) Payments of bills on behalf of their customer.
5. **General Utility Services:-** (i) Locker facility (ii) Travelers Cheque (iii) Sale and purchase of foreign exchange.

Central Bank:- A central bank is an apex institution which operates controls directly and regulates the monetary and banking structure of a country.

Function

1. **Bank of Issue:-** Central Bank has the sole right for the issue of currency in the country.

2. **Banker to the govt.:-** As banker to the govt. the central bank makes and receipt payments on behalf of the govt.
3. **Banker's Bank:-** Central bank acts as a baker to commercial bank in various respects like keeps in cash reserve, clearing agreements facility etc.
4. **Control of Credit:-** Central bank controls the money supply and credit in the economy.
5. **Custodian of foreign exchange:-** The Central Bank is the custodian of the country stock of gold and foreign currencies.
6. **Lender of the last resort:-** Whenever Commercial bank face problems of their depositors, the central bank helps them by advancing necessary credit.

Quantitative instruments of Credit Control

1. **Bank Rate:-** The rate at which the central bank of a country gives credit to the commercial banks. For the reduce of money supply or credit contracted, central bank increase in Bank rate and vice- versa.
2. **Open Market Operations:-** If refer to the purchase and sale of govt. securities in the open market by the central bank. By selling of govt. securities, Central Bank reduce the money supply. By buying govt. securities, the central bank increase the money supply.
- 3 **Legal Reserve Ratio:** R.B.I. can influence the credit creation power of commercial banks by making changes in CRR and SLR

Cash Reserve Ratio (CRR): It refers to the minimum percentage of net demand and time deposits to be kept by commercial banks with central bank.

Reserve Bank increases CRR during inflation and decreases the same during deflation

Statutory Liquidity Ratio (SLR): It refers to minimum percentage of net demand and time deposits which commercial banks required to maintain with themselves.

SLR is increased during inflation or excess demand and decreased during deflation or deficient demand.

Let us practice

- Define Money
 - Define Barter system
 - Explain any four drawbacks of the Barter system
 - State the main function of money
 - State the main function of central bank
 - State the main function of commercial bank
 - How the central bank control the money supply.
 - Define Central Bank.
 - Describe how money over comes the problems of barter system?
 - What are the measures of money supply?
 - What do you mean by High powered money?
 - Describe the process of money creation or credit creation by commercial banks.
 - Why only a fraction of deposits is kept as Cash Reserves?
 - Bring out the role of Central Bank as the controller of money supply or credit
 - Explain the various qualitative and quantitative instruments used by the central bank in controlling the money supply during the times of a) excess demand/inflation b) deficient demand/deflation.
1. Calculate the value money multiplier and the total deposit created if initial deposit is of Rs. 500 crores and LRR is 10%.

Ans: Money multiplier = $1/\text{LRR}$ which is equal to $1/0.1=10$

Initial deposit Rs. 500 crores

Total deposit = Initial deposit x money multiplier

$$= 500 \times 10 = 5000 \text{ crores.}$$

2. If total deposits created by commercial banks are Rs.12000, LRR is 25% calculate initial deposit.

Ans: Money multiplier = $1/\text{LRR} = 1/.25 = 4$

Initial deposit = Total deposit / money multiplier = $12000/4 = 3000$

Determination of Income, Employment and Output

Determination of equilibrium level of income:- Equilibrium level of income is determined by the Aggregate demand and Aggregate supply.

Aggregate Demand = Aggregate Supply (AD=AS)

Aggregate Demand:- Total demand of goods and services in an accounting year or expenditure incurred by an economy.

Aggregate Demand = $C+I+G+X-M$

Consumption:- Expenditure on all final goods and services.

$$C = f(Y)$$

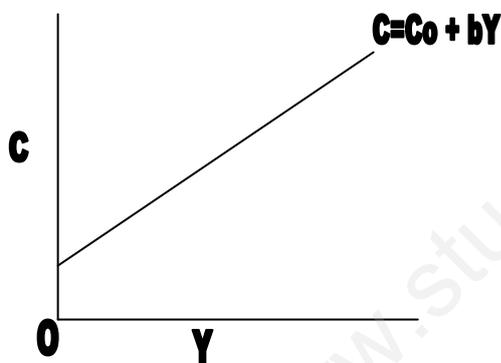
$$C = C_0 + bY,$$

where: C = total consumption expenditure

C_0 = autonomous consumption

b = marginal propensity to consume

Y = level of income

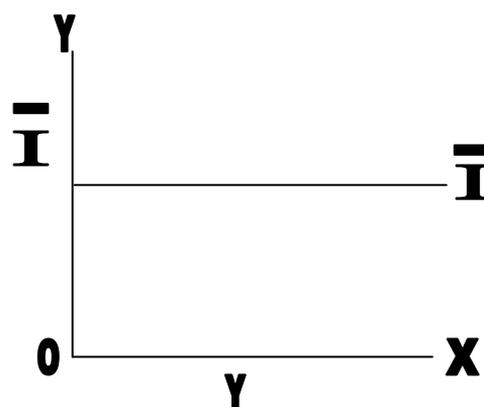


Income(Y)	Consumption (C)
0	5
10	10
20	15
30	20
40	25

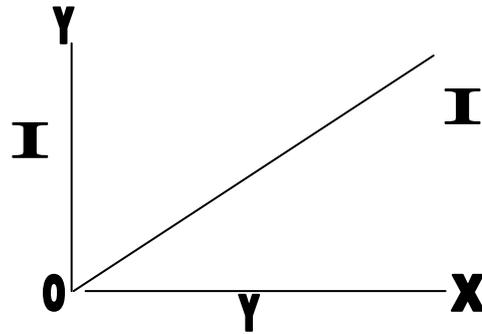
Investment = Expenditure on purchase of Intermediate goods as well produce good.

Investment are two types-

(A) **Autonomous:-** It is fixed not change as change in income.

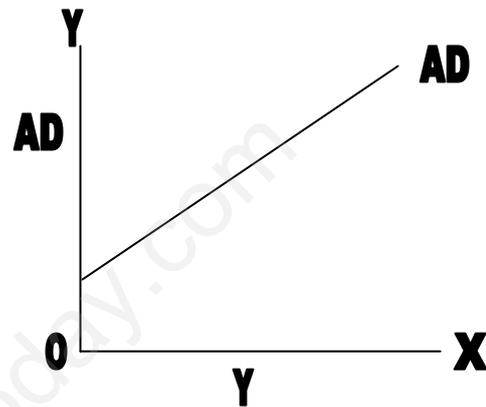


(B) Induced Investment:- Change as change in Income.



Aggregate Demand can be shown with the help of following schedule and diagram.

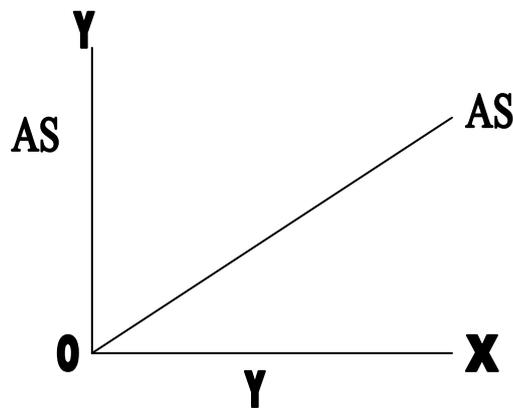
Income	C	I	C+I AD
0	5	10	15
10	10	10	20
20	15	10	25
30	20	10	30
40	25	10	35
50	30	10	40



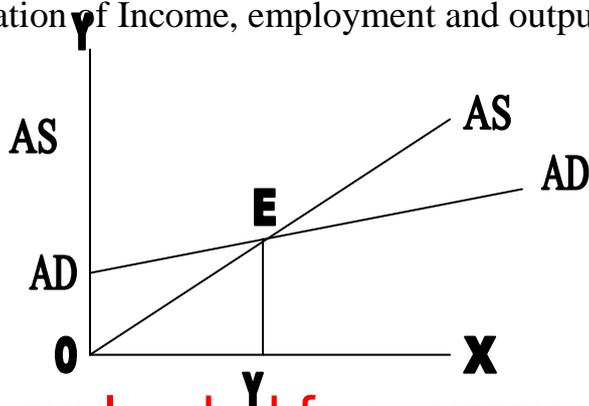
Aggregate Supply:- Total Money value of all final goods and services produced in an economy in an accounting year.

Aggregate Supply = C+S

Income	C	S
0	5	-5
10	10	0
20	15	5
30	20	10
40	25	15
50	30	20



Determination of Income, employment and output



On E point Aggregate demand/ Aggregate supply

OQ is the level of income

Some Basic concepts

APC = Ratio between consumption and Income

$$APC = \frac{C}{Y}$$

$$APS = \frac{S}{Y}$$

$$APC = 1 - APS$$

$$APS = 1 - APC \quad APC + APS = 1$$

MPC = Ratio between change in consumption and change in Income

$$APC = \frac{\Delta C}{\Delta Y}$$

$$APS = \frac{\Delta S}{\Delta Y}$$

$$MPC + MPS = 1$$

$$1 - MPC = MPS$$

$$1 - MPS = MPC$$

Multiplier

It is the ratio between change in Income and change in Investment.

$$K = \frac{\Delta Y}{\Delta I} \quad K = \frac{1}{1 - MPC} = \frac{1}{MPS}$$

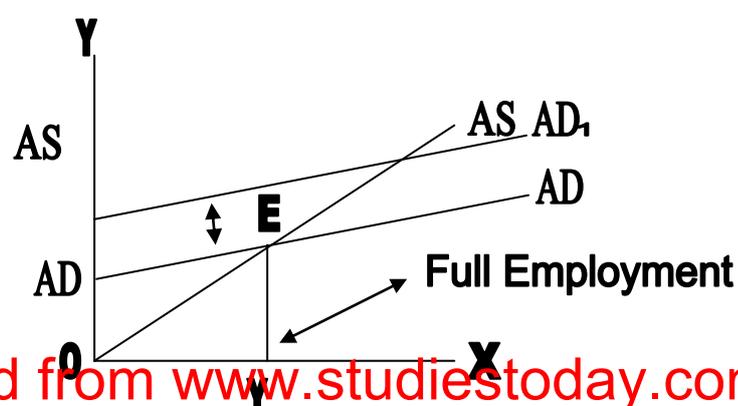
$$\Delta Y = \Delta I \times K$$

Excess Demand

Excess demand refers to situation when aggregate demand is in excess of Aggregate supply at full employment level.

AD > AS at full employment level

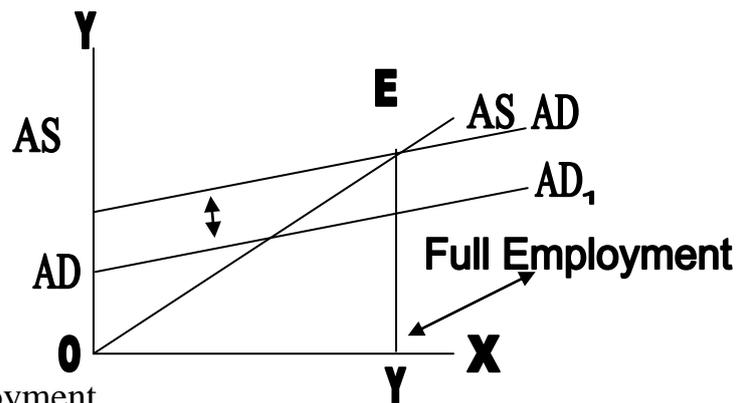
It can be explained with following diagram-



Deficient Demand

If AD is less than AS at the full employment level.

AD < AS at full employment.



Effect of Deficient demand

1. Fall in Income and employment
2. Fall in Level of Output
3. Fall in General price level

Measures to Correct Excess Demand

By using following measures

1. Fiscal Policy-
 - i) Increase Tax and reduce subsidy
 - ii) Reduce Govt. Expenditure

2. Monetary Policy-
 - i) Increase in Bank rate
 - ii) Increase cash reserve ratio (CRR) and statutory liquidity ratio (SLR)
 - iii) Open Market Operations (Selling of Securities)

Measures to Correct Deficient demand

1. Fiscal Policy
 - i) Reduce Taxes and increase subsidy
 - ii) Increase in Govt. expenditure

2. Monetary Policy
 - i) Reduction in Bank rate
 - ii) Reduction in cash reserve ratio (CRR) and statutory liquidity ratio (SLR)
 - iii) Open Market Operations(Purchase of securities)

Questions for Revision

Q.1 Define the following

1. Aggregate Demand
2. Aggregate Supply
3. APC
4. Multiplier
5. Excess demand
6. Deficient demand

Q.2 Explain how the level of Income is determined?

Q.3 Explain with diagram Excess demand and deficient demand

Q.4 Write measure to correct excess demand

Meaning of involuntary unemployment and full employment.

Involuntary unemployment refers to a situation in which people are ready to work at prevailing wage rate, but do not find work.

Full employment refers to a situation in which no one is unemployed i.e....there is no involuntary unemployment.

According to Keynes full employment signifies a level of employment where increase in aggregate demand does not lead to an increase in the level of output and employment.

Increase in demand beyond full employment causes prices to go up.

Investment multipliers and its working.

Investment multiplier explains the relationship between increase in investment and the resultant increase in income.

Investment multiplier is the ratio of change in income to change in investment.

Multiplier (k) = $\Delta y / \Delta I$.

The value of multiplier depends on the value of marginal propensity to consume (MPC).

There is direct relationship between K and MPC.

Multiplier also depends on the marginal propensity to save

There is inverse relationship between multiplier and MPS.

IMPORTANT FORMULAE.

- ❖ $AD=C+I$ (two sector economy).
- ❖ $APC=C/Y$.
- ❖ $APS=S/Y$.
- ❖ $APC+APS=1$
- ❖ $MPC=\Delta C/\Delta Y$
- ❖ $MPS=\Delta S/\Delta Y$
- ❖ $MPS+MPC=1$ AND $1-MPC=MPS$
- ❖ $K=\Delta Y/\Delta C$ or $K=1/MPS$ or $K=I/I-MPC$
- ❖ $C= \bar{c}+b(Y)$
- ❖ $S=-a+(1-b)Y$

-a= negative saving

$(1-b)=MPS$

. $AD=C+I$

Consumption function $C = \bar{c} + b(Y)$

C = Autonomous consumption

Shows marginal propensity to consume due to unit increase in income

In the short period price and rate of interest remaining constant i.e., ex-ante Investment expenditure is uniform / same amount every year.

$I = I$

LET US PRACTICE

- What is the relation between APC and APS?
Ans. $APC+APS=1$
- What is the relation between MPC and MPS?
Ans. $MPS+MPC=1$.

- If APC is 0.7 then how much will be APS?

Ans. $1-0.7=0.3$

- If $MPC=0.75$, what will be MPS?

Ans. $MPC+MPS=1$

$1-0.75=0.25$

- State the important factor influencing the propensity to consume in an economy?

Ans. The level of income (Y) Influences the propensity to consume (c) of an economy.

- What is meant by investment?

Ans. Investment means addition to the stock of capital good, in the nature of structures, equipment or inventory.

- What is the investment demand function?

Ans. The relationship between investment demand and the rate of interest is called investment demand function.

- What is equilibrium income?

Ans. The equilibrium income is the level of income where $AD=AS$ i.e.... $AD=AS$ and planned saving equals planned investment.

- Give the formula of investment multiplier in terms of MPC.

Ans. $K=1/1-MPC$

- What can be the minimum value of investment multiplier?

Ans. One.

- What is the maximum value of investment multiplier?

Ans. Infinity.

- Give the equation of propensity to consume.

Ans. $C=a+by$.

- Explain the working of a multiplier with an example.

Ans. Multiplier tells us what will be the final change in the income, as a result of change in investment. Change in investment results in the change in income. Symbolically:

$$y \quad \Delta I \rightarrow \Delta Y \rightarrow \Delta C \rightarrow \Delta Y$$

The working of a multiplier can be explained with the help of the following table which is based on the consumption that is, $\Delta I=1000$ and $MPC=4/5$.

PROCESS OF INCOME GENERATION.

ROUNDS	ΔI	ΔY	ΔC
1.	1000	1000	$4/5 \times 1000 = 800$
2.	-	800	$4/5 \times 800 = 640$
3.	-	640	$4/5 \times 640 = 512$
4.	-	512	$4/5 \times 512 = 409.6$
$\downarrow \infty$	$\downarrow \infty$	$\downarrow \infty$	$\downarrow \infty$
	TOTAL	5000	4000

As per the table the initial increase in the investment of Rs 1000 there is a total increase in the income by Rs 5000 given $MPC=4/5$. Out of this total increase in the income Rs 4000 will be consumed and Rs 5000 be saved.

The sum of total increase in income is also derived as:

$$\Delta y = 1000 + 800 + 640 + 512 + \dots \dots \dots \text{infinity.}$$

$$1000 + 4/5 \times 1000 + (4/5)^2 \times 1000 + (4/5)^3 \times 1000 + \dots \dots \dots \text{infinity}$$

$$= 1000 [1 + 4/5 + (4/5)^2 + (4/5)^3 + \dots \dots \dots \text{infinity}]$$

$$= 1000 [1/1 - 4/5] = 1000 \times 5/1 = \text{Rs. 5000 cores.}$$

- Differentiate between ex ante and ex post investment.

Ans. Ex ante is the planned investment which the planner intends to invest at different level of income and employment in the economy.

Ex post investment may differ from ex ante investment when the actual sales differ from the planned sales and the firms thus face unplanned addition or reduction of inventories.

- Draw a hypothetical propensity to consume curve from it draw the propensity curve to save curve

Ans. $APC = C/Y$ $APS = S/Y$

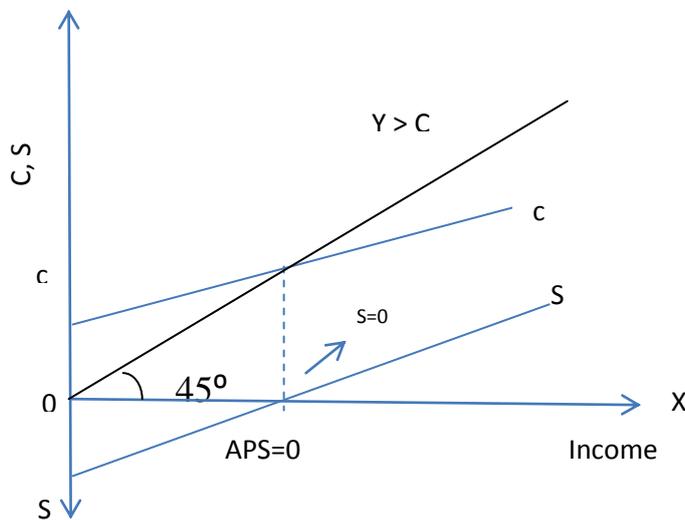
Propensity to save curve

Is drawn from propensity to consume curve

When $y=c$ $APC=1$

Till that point APS is negative at point 's'

When $y > c$ there is a positive saving



- Explain the determination of income and employment with AD and AS. (Give schedule)

$$AD = C + I$$

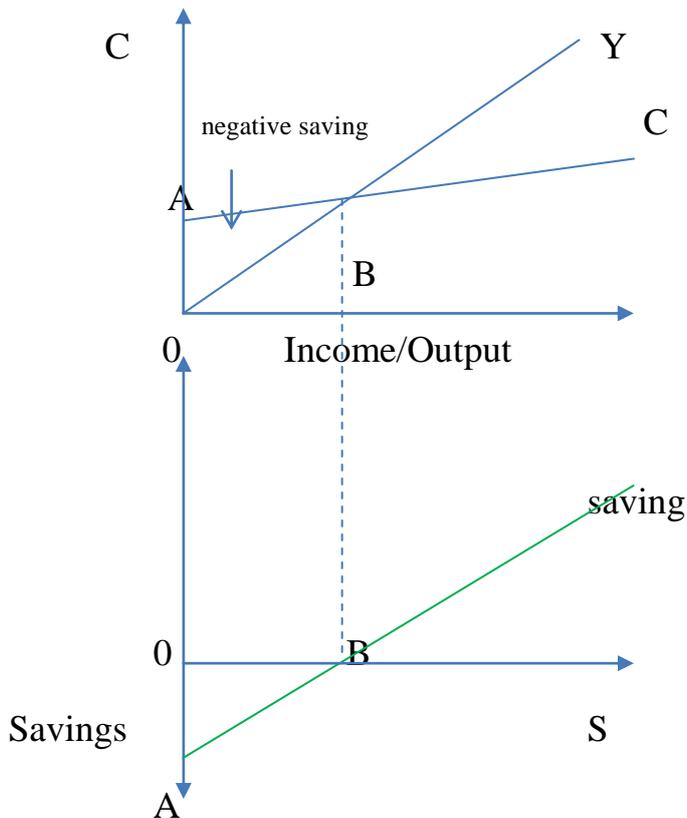
$$AS = C + S \quad AS = Y \text{ (refers to country's national income)}$$

The equilibrium level of income is determined at a point when $AD = AS$.

Equilibrium can be achieved at full employment and even at under employment situation.

It may not be always at full employment condition in an economy.

- Draw a straight line consumption curve. From it derive a saving curve explaining the process. Show on the diagram.
 - a) The level of income at which average propensity to consume equal to one.
 - b) A level of income at which average propensity to save is negative.



C is the consumption curve and OA is the consumption expenditure at zero level of income. Income minus consumption is saving.

When income is 0, the economy's consumption level is OA. The corresponding level of saving is $-OA$.

So $-OA$ is the starting point of saving curve. At OB level of income consumption is equal to income, so saving are zero. so B is another point on saving curve .

Join A and B and extend this line to S, AS is the saving curve.

- The level of income at which APC is equal to one is OB.
- A level of income at which APS is negative OY.

NUMERICALS.

- If in an economy investment increases by Rs 1000 cores to Rs 1200 cores and as a result total income increases by 800 cores calculate capital MPS.

$$\text{Ans. } \Delta I = 1200 - 1000 = 200$$

$$\Delta Y = 800$$

$$\Delta K = \Delta Y / \Delta I = 800 / 200 = 4$$

$$K = 1 / \text{MPS} = 4$$

$$\text{MPS} = 1 / 4 = 0.25$$

$$\text{MPS} = 0.25$$

- IF in an economy the actual level of income is Rs 500crores whereas the full employment the level of income is RS 800 cores. The MPC=0.75 calculate the increase in investment required to achieve full employment income.

Actual income=Rs500 cores

Full empl Income = Rs 800 cores

$\Delta y = 800 - 500 = 300$ cores

$$MPC = 0.75 = \frac{75}{100} = \frac{3}{4}$$

$$K = \frac{1}{1 - MPC} = \frac{1}{1 - 0.75} = \frac{1}{0.25} = \frac{100}{25} = 4$$

We know that $\Delta y = K \cdot \Delta I$

$$300 = 4 \times \Delta I$$

$$\Delta I = 75 \text{ crores}$$

- Calculation of APC and MPC given the level of Income and Consumption

Income	consumption	APC = c/y	MPC = $\Delta c/\Delta y$
0	4	-	-
10	12	1.20	0.80
20	20	1.00	0.80
30	28	0.93	0.80
40	36	0.90	0.80

4. Calculation of APS and MPS given the level of Income and consumption

Income (Rs in crores)	consumption (Rs in crores)	saving	APS	MPS
0	4	-4	-	-
10	12	-2	-0.20	0.20
20	20	0	0.00	0.20
30	28	2	0.07	0.20
40	36	4	0.10	0.20

Clue: $APS = s/y$ $MPS = \Delta s/\Delta y$ $S = Y - C$

- 5. Suppose the consumption equals $c = 40 + 0.75 y$, Investment equals $I = Rs 60$ and $Y = C + I$. Find i) Equilibrium level of income ii) The level of consumption at equilibrium iii) level of saving at equilibrium

Ans: i) $Y = C + I$ $AS = AD$

Substituting the value of c and I we get

$$Y = 40 + 0.75y + 60 \qquad Y = C + I \qquad I = 60$$

$$(Y - 0.75y) = 100$$

$$0.25 Y = 100$$

$$Y = 100 = 10000$$

$$\frac{\text{-----}}{0.25} = \frac{\text{-----}}{25} = 400$$

$Y = 400$ Equilibrium level of Income

ii) Given $c = 40 + 0.75Y$

$$Y = 400$$

$$C = 40 + 0.75(400) = 340$$

$$C = 340$$

iii) $Y = C + S$ So $S = Y - C$

$$S = 400 - 340 = 60$$

$$S = 60 \text{ crores}$$

- In a two sector economy, the saving and investment functions are:

$$S = -10 + 0.2Y$$

$$I = -3 + 0.1Y$$

What will be the equilibrium level of income?

Ans: Equilibrium level of income $S = I$

$$-10 + 0.2y = -3 + 0.1y$$

$$0.2y - 0.1y = -3 + 10$$

$$0.1y = 7$$

$$y = 70$$

- 7. Explain the components of the equation $c = 20 + 0.90y$ and construct a schedule for consumption where income is Rs 200, Rs. 250, Rs 300, Rs 350 and Rs 400.

Components of equation $c = 20 + 0.90y$ explained in $\frac{3}{4}$ mark question number 1

The schedule for consumption is as follows

Y (Income)	$c = 20 + 0.90y$	
200	200	$c = 20 + 0.9 \times 200$
250	245	$= 20 + 180 = 200$
300	290	$c = 20 + 0.9 \times 250$
350	335	$= 20 + 225 = 245$

$$400 \qquad 380 \qquad c = 20 + 0.9 \times 300 = 290$$

$$C = 20 + 0.9 \times 350 = 335$$

$$C = 20 + 0.9 \times 400 = 380$$

- 8. The consumption function is $C = 20 + 0.9y$. The value of Income is given as 100, 200, 300, 400 and 500. Find out the consumption schedule.
- The consumption schedule

Y (Income)	$C = 20 + 0.9 Y$
0	$C = 20$
100	$C = 20 + 0.9 (100) = 110$
200	$C = 20 + 0.9 (200) = 200$
300	$C = 20 + 0.9 (300) = 290$
400	$C = 20 + 0.9 (400) = 380$
500	$C = 20 + 0.9 (500) = 470$

- How is equilibrium output of final goods determined under short run fixed price.

Under short run fixed price, equilibrium output and equilibrium demand at fixed price and constant rate of interest can be found with the help of following formulas

$$Y = \frac{\bar{A}}{1 - b}$$

Y = Value of equilibrium output

\bar{A} = Total Autonomous expenditure

b = MPC

Thus, value of equilibrium output (Y) depends on values of \bar{A} (i.e, $C + I$) and b .

At equilibrium: $AD = AS$

$$Y = \bar{C} + \bar{I} + by$$

$$Y = \bar{A} + by \quad (\bar{A} = \bar{C} + \bar{I} \text{ showing total autonomous expenditure})$$

$$Y - by = \bar{A}$$

$$Y(1-b) = \bar{A}$$

$$Y = \frac{\bar{A}}{1-b}$$

Multiplier

- 1. In an economy an increase in investment leads to increase in national income which is three times more than the increase in investment (calculate marginal propensity to consume)
- 2. In an economy the MPC is 0.95 investment is increased by Rs. 100 crores. Calculate the total increase in income and consumption expenditure
- 3. Explain with numerical example how an increase in investment in an economy affects the level of consumption.
- 4. An increase in investment leads to total rise in national income by Rs. 500 crores. If MPC is 0.9 what is the increase in investment? Calculate.
- In an economy the MPC is 0.8 Investment is increased by Rs.500 crores.
 - Calculate the total increase in income and consumption expenditure.
- If in an economy MPC is 0.75 and its investment is increased by Rs.500 crores.
 - Calculate the total increase in income and consumption expenditure
- Complete the table

Income	MPC	Saving	APS
0	-	-90	-
100	0.6	-	-
200	0.6	-	-
300	0.6	-	-
- 8. In an economy $S = -50 + 0.5Y$ is the saving function (where S=saving and Y=national income) and investment expenditure is 7000. Calculate
 - (i) Equilibrium level of national income
 - (ii) Consumption expenditure at Equilibrium level of N.I
- 9. From the following information about an economy calculate
 - its Equilibrium level of national income and
 - saving at Equilibrium level of N.I
 - Consumption function = $200 + 0.9Y$

- Investment expenditure $I=3000$.
- 10. Disposable income is Rs.1000 crores and consumption expenditure is Rs.750 crores. Find out average propensity to save and average propensity to consume.
- 11. In an economy investment expenditure increased by Rs.700 crores. The marginal propensity to consume is 0.9 calculate total increase in income and consumption expenditure
- 13. In an economy an increase in investment leads to increase in national income which is three times more than the increase in investment calculate marginal propensity to consume.
- 14. The disposable income is Rs.2500 crores and saving is Rs.500 crores find out average propensity to consume
- 15. In an economy MPC is 0.75 if investment expenditure is increased by Rs.500 crores calculate the total increase in income and consumption expenditure
- 16. Complete the following table
- 17. As a result of increase investment by 125 crores national income increased by 500 crores calculate multiplier, MPC and MPS
- 18. Given consumption function $C=100+0.75 Y$ (where C =consumption expenditure and Y =national income) and investment expenditure Rs.2000 .calculate (i) Equilibrium level of national income
(ii) Consumption expenditure at equilibrium level of income
- 19. In an economy $S= -50+0.5Y$ is the saving function (where S =saving and Y =national income) and investment expenditure is 9000 calculate (i) Equilibrium level of national income
(ii) Consumption of expenditure at equilibrium level of national income
- 20. From the following information about an economy calculate (i) Equilibrium level of N.I (ii) saving at Equilibrium level of income consumption function $C=200+0.9Y$ (where C =consumption expenditure and Y =N.I. Investment expenditure $I =5000$)

GOVERNMENT BUDGET

Budget:- Govt. Budget is the annual financial statement of expected receipts and expenditure of the government during next financial year.

Objective of Budget:-

1. **Redistribution of Income and Wealth:-** The govt. redistribute income and wealth through taxation and subsidy by budget.
2. **Reallocation of Resources:-** Govt. use budgetary policy to allocate resources in the manner such that there is a balance between the goals of profit maximization and social welfare.
3. **Economic Stability:-** Government Budget is a tool to prevent economy from the inflation or deflation and to maintain economic stability.
4. **Managing Public Enterprises:-** In the Budget govt. make various provisions to manage public sector industries.
5. **Economic Growth:-**

Structure of Budget:- The Govt. Budget is divided into two parts:-

A) **Revenue Budget:** - It includes 'revenue receipt' and revenue expenditure of the govt.

B) **Revenue Receipts (RR):-** It refers to those monetary receipts which neither create a liability to the govt. nor lead to reduction in asset.

Example: - Taxes, Fees, License and Permit, Escheat.

Following are the main components of revenue receipts:-

1. **Tax:** - Tax is a compulsory payment to govt. without expectation of direct benefit to the tax payers. There are main two type of taxes:-

(i) **Direct Tax:** - If the liability to pay tax (incidence) and its burden (impact) fall on same person, it is termed as Direct tax.

Burden of direct tax cannot be shifted on other person.

Example: - Income tax, Wealth tax, Corporate tax, etc.

(ii) **Indirect Tax:** - If the liability to pay tax (incidence) and its burden (impact) can be on different people, it is called indirect tax.

Example: - Sales tax, Excise tax, custom duty etc.

2. **Non- Tax Revenue:-** Sources other than taxes

(i) Fees: - Paid to govt. for services.

(ii) License and permit: - Paid to govt for granting the permission of doing certain things of activities.

(iii) Fines and Penalties

(iv) Income from Public enterprises

(B) **Revenue Expenditure:** - Those expenditure which do not create any assets and do not reduce any liability of the govt. These are the recurrent expenditure of govt.

Examples: - Salaries, pension, interest payment, subsidy grants to state govt. etc.

B. Capital Budget: - It includes capital receipts and capital expenditure of the govt.

(i) **Capital Receipts:** - It refers to those monetary receipts which either create liability for the govt. or cause reduction in the assets of the government.

- Borrowings
- Recovery of Loans and Advances
- Disinvestment

(ii) **Capital Expenditure:** - The expenditure which either creates any asset or reduces liability of govt. is treated as capital expenditure.

- These are non- recurring type of expenditure.
- Examples: - Expenditure on purchasing assets, land building.
- Payment of loans.

Plan and Non- Plan Expenditure

➤ **Plan expenditure:** - It refers to the expenditure incurred on various projects and development programmes covered under the current five year plan. Example: - exp. On rural development, irrigation.

➤ **Non Plan Expenditure:** - It refers to the expenditures on projects other than current five year plan.

Example:- Interest payments, expenditure of defence services, subsidies.

➤ **Development Expenditure:** - Expenditure incurred on activities which are directly related to economic and social development.

➤ **Non development Expenditure:** - The expenditure incurred on essential services by the govt. Example:- Expenditure on administration, defence collection of tax.

Types of Budget

Balance Budget: - A govt. budget is said to be balanced budget in which total receipts are equal to Total Revenue.

Total Receipts = Total Expenditure

- **Surplus Budget:** - Budget in which govt. receipts are greater than govt. expenditure.
- **Deficit Budget:** - Budget in which govt. expenditure is greater than govt. receipts.
- **Budget Deficit:** - It refers to a situation when Budget expenditure of the govt. is greater than Budget receipts.

Types of Budget Deficit

- A. **Revenue Deficit:** - It is excess of governments revenue expenditure (RE) over revenue receipts (RR) during a Fiscal year.

Implication of Revenue Deficit

- i) Increased revenue deficit shows the warning to govt. to reduce its day to day expenditure.
- ii) Increased revenue deficit raises the loan liability of the govt.

Fiscal Deficit: - Fiscal deficit is the excess of total expenditure (revenue+ capital) over total receipts excluding borrowings (revenue receipts + capital receipts other than borrowings) during a given Fiscal year.

Implication/Significance:-

- Fiscal deficit rises the inflation
- It increases the dependence on foreign country
- It effect the future growth and development
- It indicates greater borrowings and liability which may cause of a country in a debt trap.

Primary Deficit:- It is the difference between fiscal deficit and interest payment.

- Primary deficit shows the total borrowings liability of the government.

Q.1 What is Budget? What are its objectives?

Q.2 Distinguish between Capital Receipts and Revenue Receipts

Q.3 Distinguish between Capital Expenditure and Revenue Expenditure

Q.4 Classify the following between capital expenditure and Revenue expenditure

- i) Subsidy
- ii) Grants to state Govt.
- iii) Payment of loan
- iv) Construction of building

Q.5 What does mean of Revenue Deficit and its implication

Q.6 What does mean of fiscal deficit and its implication.

FOREIGN EXCHANGE

Foreign Exchange:- It means the stock of foreign currency. For example- US Dollar, British Pound etc. are foreign exchange from the view point of India.

Foreign Exchange Rate

It is the price paid in domestic currency in order to get one unit of foreign currency

For example \$1 = Rs. 45

Types of Foreign Exchange Rate

1. Fixed Exchange Rate

When exchange rate is officially declared and it is fixed.

2. Flexible Exchange Rate/ Floating Exchange Rate

The rate which is determined by demand and supply of foreign exchange.

Determination of Exchange Rate/ Equilibrium Exchange Rate

The exchange rate of a country's currency is determined by the demand and supply of foreign exchange.

Sources of demand for foreign exchange:-

People demand for foreign exchange for the following purpose:-

- a) To purchase goods and service from other countries (Imports)
- b) To send gifts and grants to abroad
- c) To purchase financial assets
- d) To speculate the value of foreign currencies.

There is inverse relationship between demand of foreign currencies for foreign exchange and foreign exchange rate.

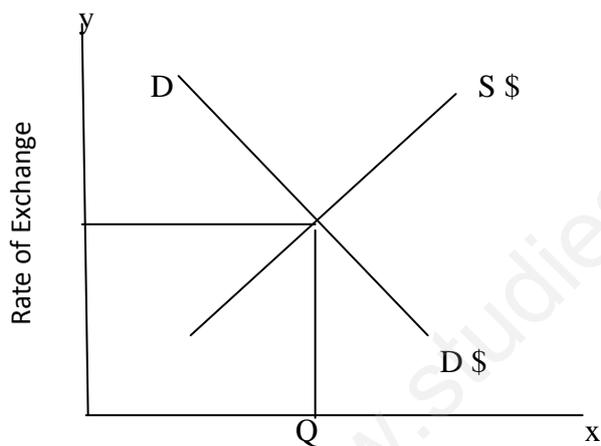
Sources of supply for foreign exchange:-

- a) Exports of the country to the rest of the world
- b) Direct foreign investment in home country
- c) Speculative purchase by the non- residents in the domestic market.
- d) Direct purchase of the goods and services by the non- residents in the domestic market
- e) Gifts and grants of the non- residents.

There is direct relationship between Supply of foreign exchange and foreign exchange rate.

Equilibrium of Exchange rate

It is determined at a point where demand and supply of foreign exchange are equal.



Demand and supply of US\$

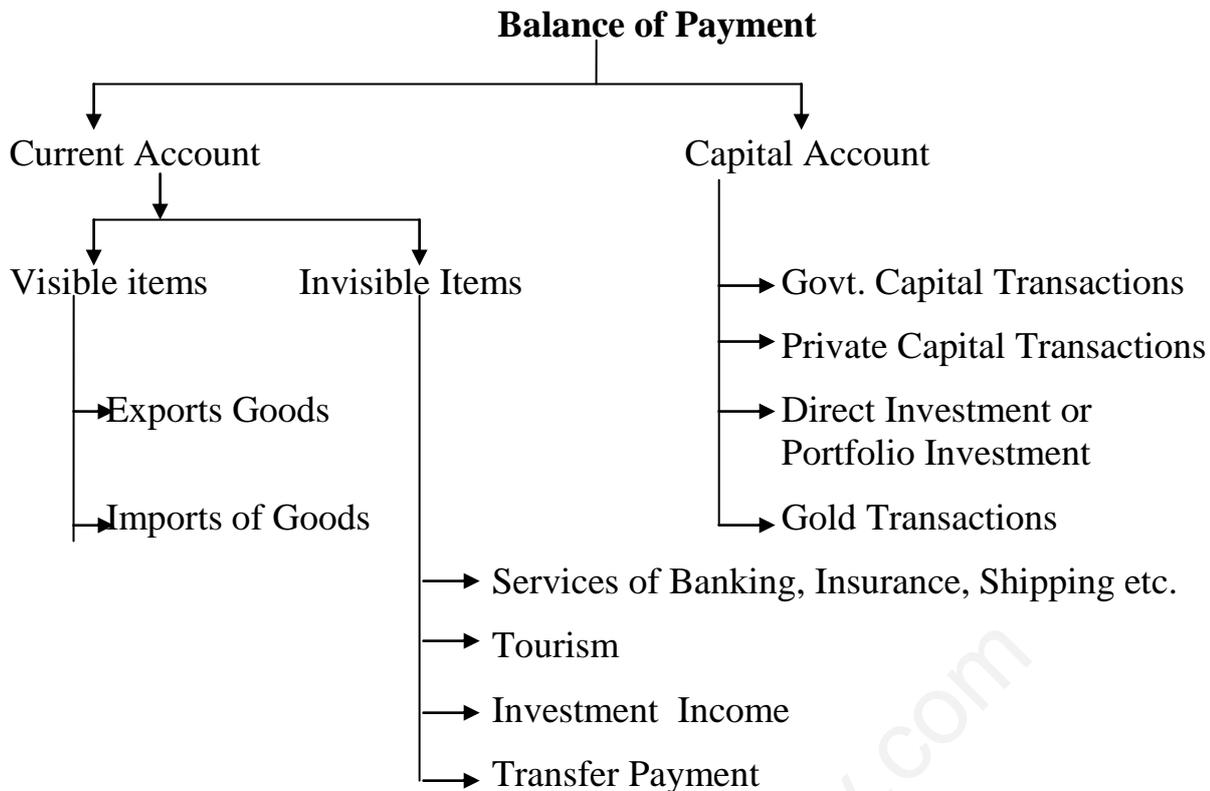
In the diagram Demand Curve (DD) and Supply Curve (SS) intersect each other at the point E. Equilibrium exchange rate is OR determined.

BALANCE OF PAYMENTS

Balance of Payment:- It is a systematic record of all economic transactions between the residents of the reporting country and residents of Rest of the World during a given period of time.

Balance of Trade:- It is a systematic record of transaction of visible items (Export and Import of goods only) between the residents of a reporting country and residents of Rest of the World during a given period to time.

$$\text{BOT} = \text{Value of exports} - \text{Value of imports}$$



Current Account:- The account records imports and exports of goods and service and unilateral transfer.

Capital Account:- It records all international transactions those involve a resident of domestic country changing his asset with a foreign resident or his liabilities to a foreign resident.

Autonomous Items:-

International economic transactions that take place due to some economic motive such as profit maximization. These items also known as above the line items in the BOP.

Accommodating Items:-

Transactions that occur because of other activity in the BOP such as government financing. These items also known as below line items.

VERY SHORT ANSWER QUESTIONS.

1. Define foreign exchange rate.

Ans: Foreign exchange rate is the rate at which currency of one country can be exchanged for currency of another country.

2. What do you mean by Foreign Exchange Market?

Ans: The foreign exchange market is the market where international currencies are traded for one another.

3. What is meant by Fixed Exchange Rate?

Ans: Fixed Rate of exchange is a rate that is fixed and determined by the government of a country and only the government can change it.

4. What is equilibrium rate of exchange?

Ans: Equilibrium exchange rate occurs when supply of and demand for foreign exchange are equal to each other.

5. Define flexible exchange rate.

Ans: Flexible rate of exchange is that rate which is determined by the demand and supply of different currencies in the foreign exchange market.

6. Define Spot exchange rate.

Ans: The spot exchange rate refers to the rate at which foreign currencies are available on the spot.

7. Define forward market.

Ans: Market for foreign exchange for future delivery is known as the forward market.

8. What is meant by balance of payments?

Ans: Balance of payments refers to the statement of accounts recording all economic transactions of a given country with the rest of the world.

10. What do you mean by balance of trade?

Ans: Balance of trade is the difference between the value of imports and exports of only physical goods.

11. The balance of trade shows a deficit of Rs. 600 crores, the value of exports is Rs.1000 crores. What is value of Imports?

Ans: Balance of Trade = Exports of goods – import of goods

$$\text{Import of good} = \text{Export of goods} - (\text{B.O.T})$$

$$= 1000 - (-600)$$

$$= \text{Rs. } 1600.$$

12. What is the balance of visible items in the balance of payments account called?

Ans:- Balance of trade.

14. List two items of the capital account of BOP account.

Ans:- i) external assistance ii) commercial borrowing iii) foreign investment

15. Which transactions bring balance in the BOP account?

Ans:- Accommodating transactions bring balance in the BOP account.

16. Define autonomous items in BOP.

Ans:- Autonomous items in BOP refers to international economic transaction that take place due to some economic motive such as profit maximization.

17. What is the other name of autonomous items in the BOP?

Ans:- The other name of autonomous items in BOP is above the line item.

18. When does a situation of deficit in BOP arises?

Ans:- A situation of deficit in BOP arise when autonomous receipts are less than autonomous payments.

ANSWER QUESTIONS (3 / 4 MARKS)

1. Why does the demand for foreign exchange rise, when it price falls?

Ans:- With a fall in price of foreign exchange , the exchange value of domestic currency increases and that of foreign currency falls. This implies that foreign goods become cheaper and their domestic demand increases. The rising domestic demand for foreign goods implies higher demand for foreign exchange. So there is inverse relationship between price and demand for foreign exchange.

2. When price of a foreign currency falls, the supply of that foreign currency also fall why?

Ans: When price of a foreign currency falls it makes exports, investment by foreign residents costlier as a result supply of foreign currency falls.

3. Distinguish between autonomous and accommodating transaction of balance of payment account.

Ans: Autonomous transactions are done for some economic consideration such as profit, such transactions are independent of the state of B.O.P. Accommodating transactions are under taken to cover the deficit/surplus in balance of payments.

4. Give two examples explain why there is a rise in demand for a foreign currency when its price falls.

Ans: When price of foreign currency falls, imports are cheaper. So, more demand for foreign exchange by importers.

Tourism abroad is promoted as it becomes cheaper. So demand for foreign currency rises.

5. Distinguish between fixed and flexible foreign exchange rate.

Ans: When foreign exchange rate is fixed by Central Bank/government, it is called fixed exchange rate. When foreign exchange rate is determined by market forces/mechanism, it is flexible exchange rate.

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