

MEFA UNIT-I

MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS

Economics: Economics is a study of human activity at individual and national level

→ Earlier it was considered as science of wealth

→ Everyone involved in earning money and spending this money to satisfy our wants and needs. such activities of earning and spending money are called economic activities

Managerial: It is a science and art of getting thing done through people informally organized groups

→ It is necessary that every organization is well managed to achieve its goals

Dr. Alfred Marshall: Economics is a study of man's action

in the ordinary business of life. It acquires how it gets his income and how he uses it

Prof Lionel Robbins: The science which studies human behaviour has a relationship between ends & scarce means which have alternative uses

Adam Smith father of The study of nature and uses of national wealth

Salient features of Economics:

- Unlimited wants
- Scarce resources
- Alternative uses
- Choice

Types of Economics: They are 2 types of economics

10/11/8

1. Micro economics
2. Macro economics

10/11/21

Micro Economics	Macro Economics
1. It studies decisions made by individuals and business concern regarding the distribution of resources and prices of goods. It studies individual economic unit.	It studies aggregate economic unit, it looks at economy as a whole. It studies factors of production from a national point of view.
2. It deals with determination of price and output in the individual market.	It deals with determination of general price level and national output in the country.
3. The focus is on price	The focus is on income
4. Aims at efficient allocation and use of resources	Aims at full employment of resources.

Managerial Economics

Douglas: It is the application of economic principles and methodology to the decision making process within the form of organization.

Pappas & Hirschey: It applies economic theory and methods for business and administrative decision making.

Discussion of Managerial

→ It refers to the application of economics to solve managerial problems like minimizing cost and maximizing productivity.

- Direct utilization of scarce resources in goal oriented manner
- Facilitates forward planning
- Examines how an organization can achieve its aims and objectives most efficiently by finding optimum solutions to the economic issues.

Nature of Managerial Economics

1. close to microeconomics

2. operates against the backdrop of macroeconomics

3. Normative statements

4. Prescriptive actions

5. Applied in nature

6. Offers scope to evaluate each alternative

7. Interdisciplinary

8. Assumptions and limitations

Scope of Managerial Economics

Where we have to use

Concepts &
Techniques of
managerial economics

Applied to

1. Decision making
2. Input + Output decisions
3. Pricing decision
4. Profit related decision
5. Investment decision
6. Economic forecasting and forward planning (internal and external factors)

Optimal solution &

Solving problems

Demand: Demand means the desire for any product or service that a person wishes to buy at a given price.

Features of Demand:

- Desire for an object
- Willingness ~~for~~ to pay ^{for} it
- Ability to pay the specified price for it
- Price, quantity demanded, time these three are important for the demand

Types Of Demand:

1. Individual and Market demand
2. firms Product Vs Industrial products
3. Autonomous Vs derived demand
4. Durable and Non-Durable demand
(Non-Durable)
5. short term and long term demand
6. joint demand and composite demand
Product has many uses
7. direct and indirect demand
but it has indirect things to buy
8. Total market and segment market demand
particular persons

Demand function: A demand function is a mathematical relationship between the quantity demanded for the commodity and its determinants.

Mathematical formula for demand function

$$Q_d = f(P, I, T, P_R, E_P, E_I, S_P, D_C, A, O)$$

f = factors

P = Price of the product

I = Income of the consumer

T = Tastes and preferences of the consumer

P_R = prices of related goods which may be substitutes/complements

-entary

E_P = Expectations about the price in future

E_I = Expectations about the income in future

S_P = size of the population

D_C = Distribution consumers over different regions

A = Advertising effect

O = any other factor capable of effecting demand.

Law Of Demand:

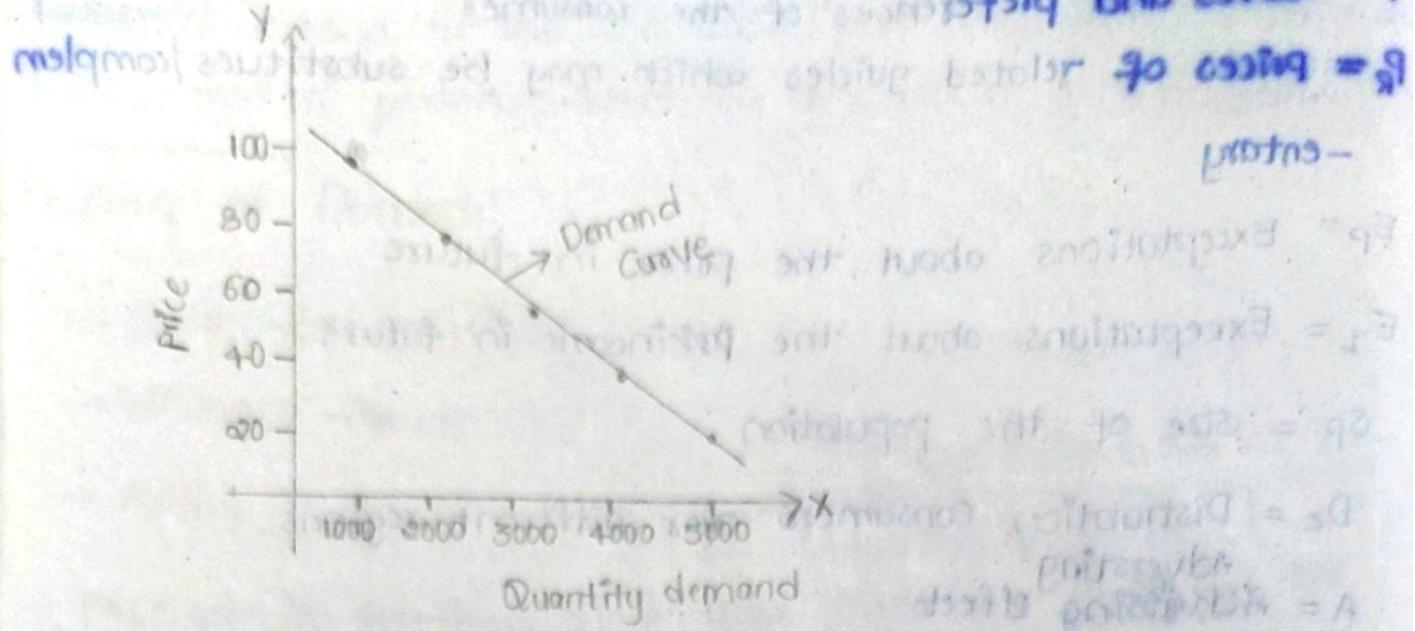
The law of demand states that other things remaining equal the quantity demanded of a commodity increases when its price decreases and decreases when its price increases.

Features of Law of demand

- It shows the relation b/w price and quantity demanded of a commodity in the market.
- Price is inversely related to quantity demanded.

Demand Schedule & Demand Curve

Price	Quantity demanded
100	1000
80	2000
60	3000
40	4000
20	5000



15/11/21

Assumptions: (Imaginations)

1. Consumers income should not change
2. Consumers tastes and preferences should not change
3. No change in the fashion and latest trends
4. Prices of related goods should not change
5. No expectations in future prices and income
6. The climate and weather conditions don't change

Exceptions:

1. Giffen's paradox - about the necessary items
Demand never changes
2. Veblen's effects - symbol of status related products
Demand tends to increase.
Ex:- cars, phones, bike.
3. Fear of shortage -
4. Speculation - Demand constant (future expectations)
5. Ignorance - don't have any fear and expectation

5. Necessities:

16/11/21

* Demand Schedule:

Demand Schedule is a table or a statement

Elasticity of Demand: Proportionate change in quantity demanded at different prices in a given time period.

If a demand schedule is shown on a graph it is called Demand Curve.

* Inferior goods and Normal goods:

Normal goods hold a direct relationship

with consumer income which means that demand for these goods increases with an increase in the income of the buyer. Hence in this instance the bicycle is an inferior good (purchased when income is low), and car is normal good, purchased when income is high).

Ex:- Giffen's paradox (Inferior good)

* Elasticity of Demand:

Elasticity of Demand is defined as the responsiveness or sensitiveness of demand to a given change in the price of the product.

Types of Elasticity of Demand:

1. Price elasticity of Demand
2. Income elasticity of Demand
3. Cross elasticity of Demand
4. Advertising / promotional elasticity of Demand.

$$Q = bP$$

1. Price elasticity of Demand:

It is the responsiveness of Quantity demanded for a product to a given change in price.

$E_d = \frac{\text{proportionate change in the Quantity demanded for product A}}{\text{proportionate change in the price of product B}}$

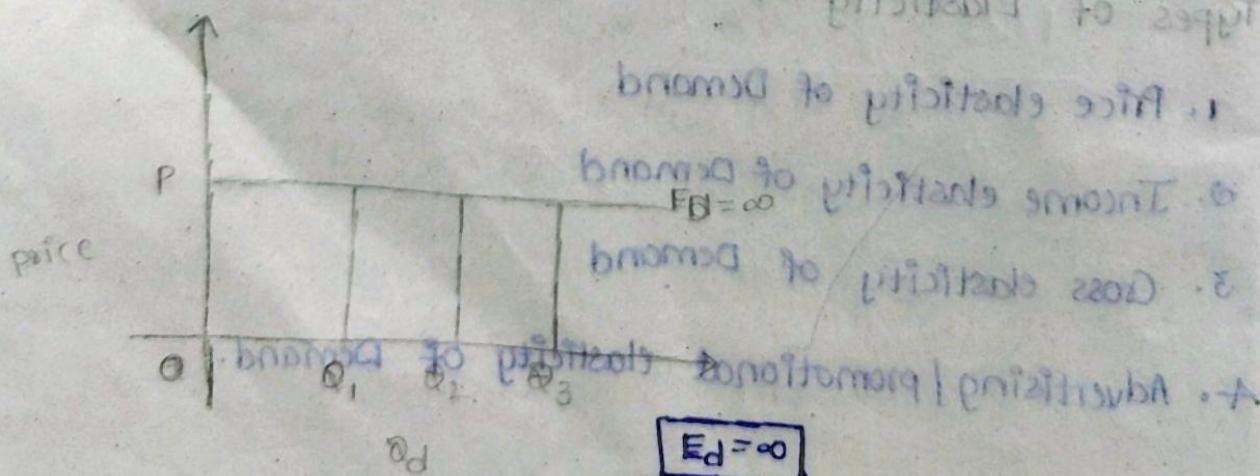
Types of price elasticity of Demand

- 1) perfectly elastic demand
- 2) perfectly inelastic demand
- 3) Relatively elastic demand
- 4) Relatively inelastic demand
- 5) Unitary elasticity of demand

i) perfectly elastic demand:

A small change in price leading to an infinite change in Quantity demanded is known as perfectly elastic demand
 (or) Infinite elasticity of Demand

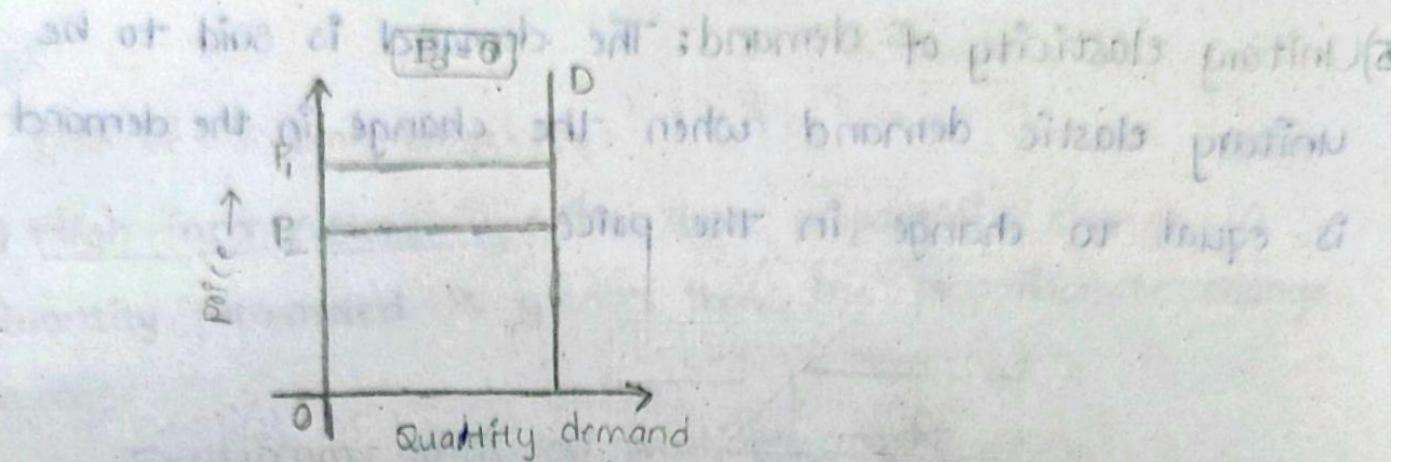
In this case the demand curve is parallel to the horizontal axis



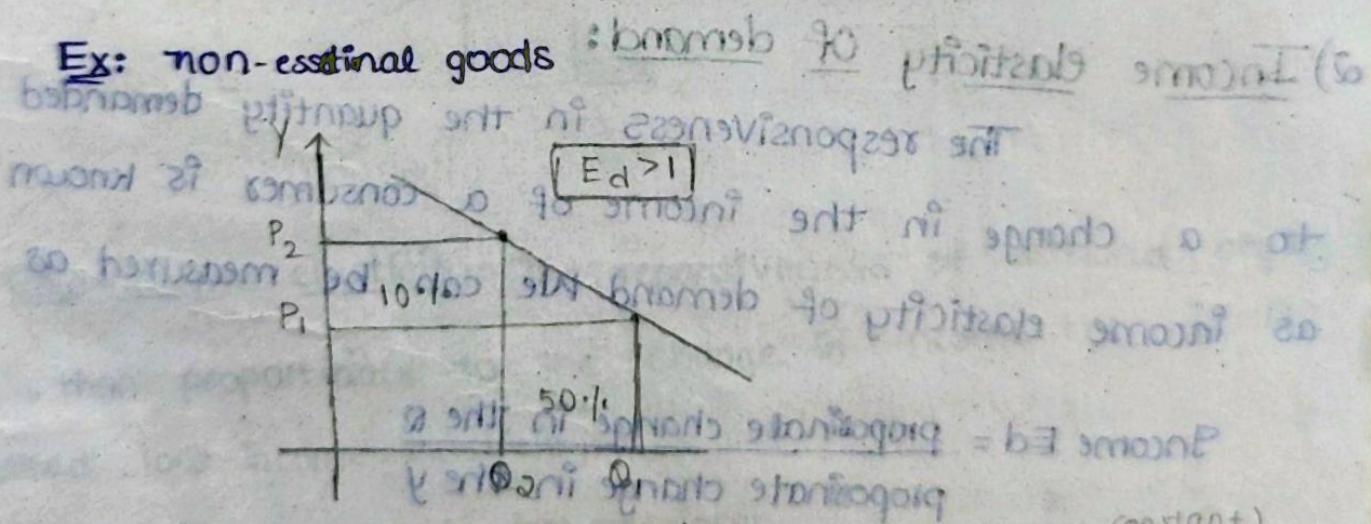
Ex:- Seasonal products

o) perfectly inelastic demand: when a significant change in price leads to little or no change in quantity demanded then the elasticity is said to perfectly inelasticity demand

Ex:- daily usage commodity, vegetables, fruits etc--



3) Relatively elastic demand: The demand is said to be relatively elastic demand when the change in the demand is more than change in the price.



4) Relatively inelastic demand: When the change in the demand is less than change in the price then the elasticity is said to be relatively inelastic demand

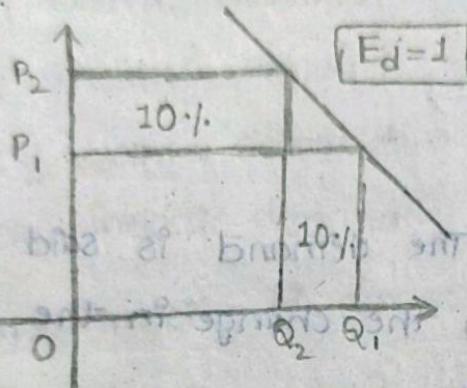
Ex:- essential and necessary goods np zboog soman

~~Ed < 1~~ ~~Huberg 10/2022 Ex-2~~

Q) Explain Price elasticity of demand when the price falls.

Price fall leads to increase in quantity demanded with result in increase in total expenditure. If following graph is drawn then

5) Unitary elasticity of demand: The demand is said to be unitary elastic demand when the change in the demand is equal to change in the price.



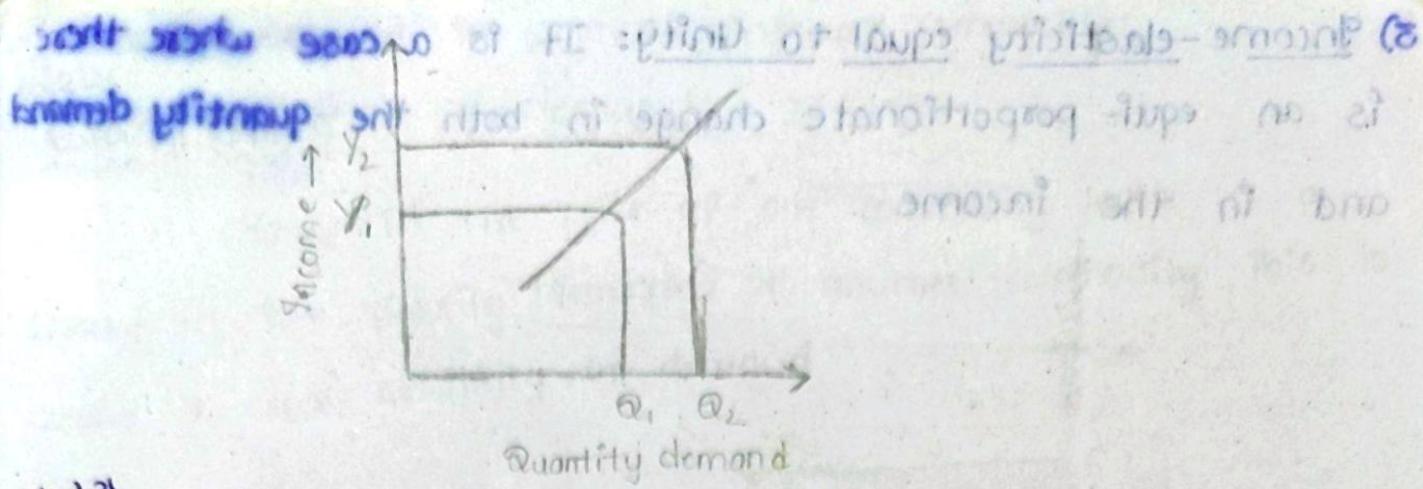
2) Income elasticity of demand: The responsiveness in the quantity demanded to a change in the income of a consumer is known as income elasticity of demand. We can be measured as

$$\text{Income } Ed = \frac{\text{proportionate change in the } Q}{\text{proportionate change in the } Y}$$

Q = Quantity demanded

Y = Income

→ Income elasticity of demand is positive in case of normal goods. In case of inferior goods it will be negative

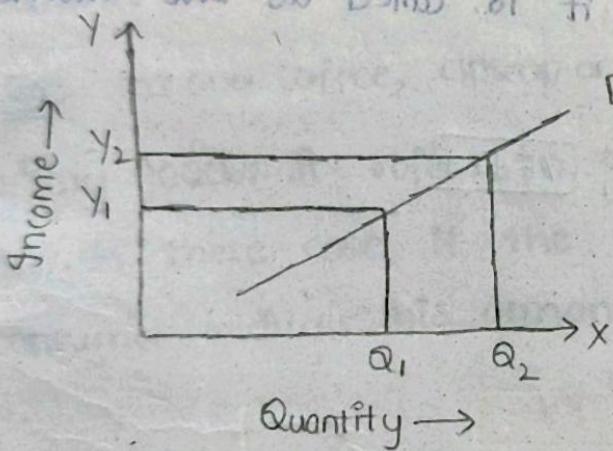


19/11/21

Types of Income elasticity:

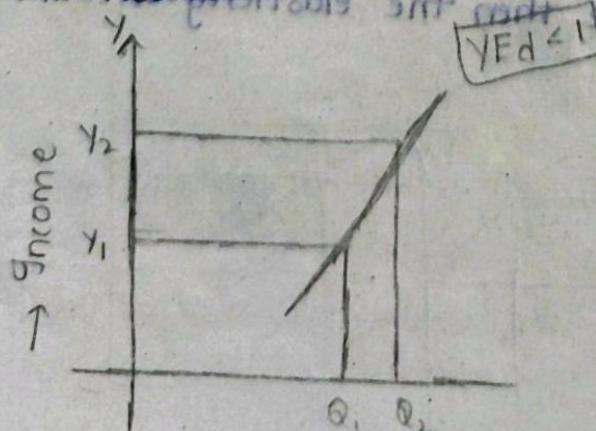
- i) High-income elasticity: In these proportionate change in quantity demanded is greater than the proportionate change in income.

Ex: Luxury goods (or) prestigious goods

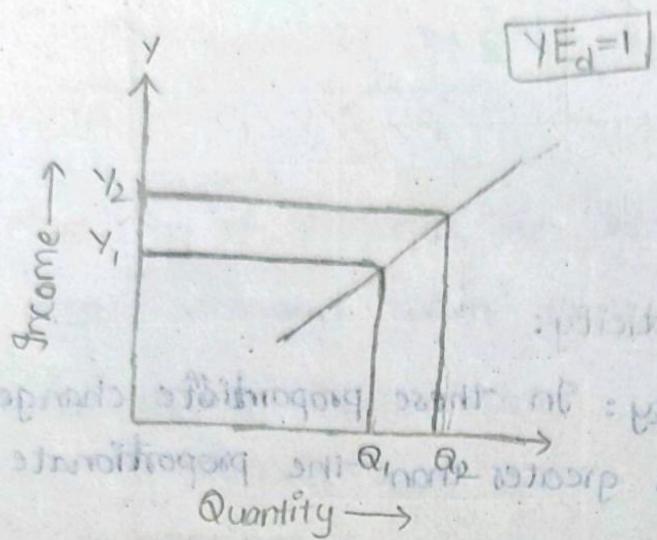


- ii) Low-income elasticity: The responsiveness of demand being less than proportionate to the change in income then it is called low-income elasticity

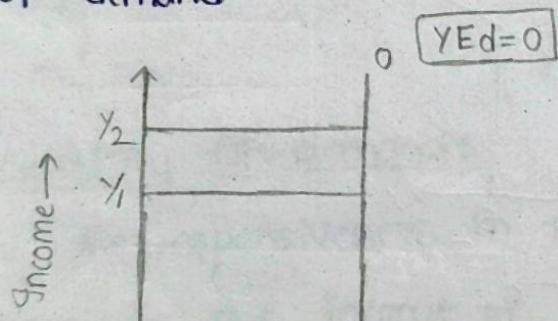
Ex:- necessities (or) groceries



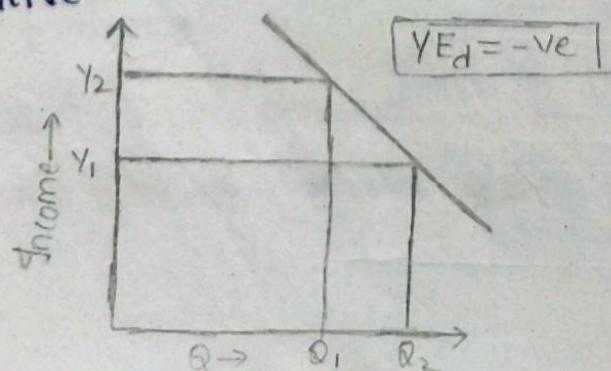
3) Income-elasticity equal to Unity: It is a case where there is an equi-proportionate change in both the quantity demanded and in the income.



+4) Zero-Income elasticity: If the responsiveness of demand to a change in income is zero, it is called as zero income elasticity of demand.



5) Negative-Income elasticity: If the demand falls in relation to a rise in the income then the elasticity of the demand will be negative.



~~What happens~~ in case of inferior commodities

~~adult~~
~~Cross elasticity of demand:~~

A change in the price of one commodity leads to a change in the quantity demanded of another commodity. This is called a cross elasticity of demand.

Cross elasticity =
$$\frac{\text{proportionate change in the quantity demanded of commodity } X}{\text{proportionate change in the price of commodity } Y}$$

Substitutes: These goods refers to those that can be consumed in the place of each other. If the price of one good increases, the consumer shifts his demand to the other good.

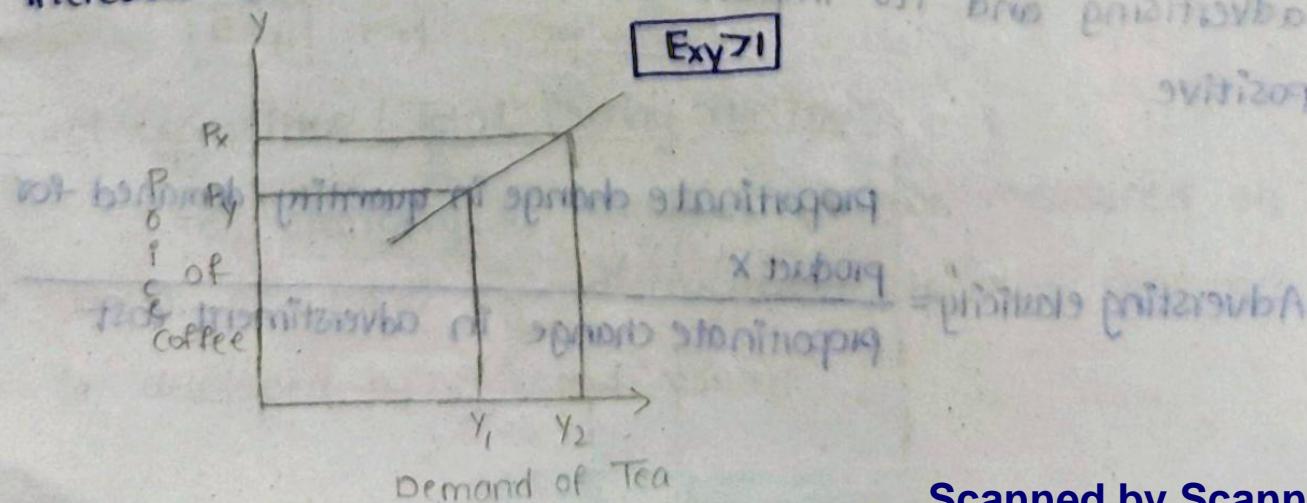
Ex: tea and coffee, closeup and cigarette

Complimentary goods: It refers to those goods that are consumed together. In these case if the price of the good increases then consumer reduces his demand for the complimentary goods well.

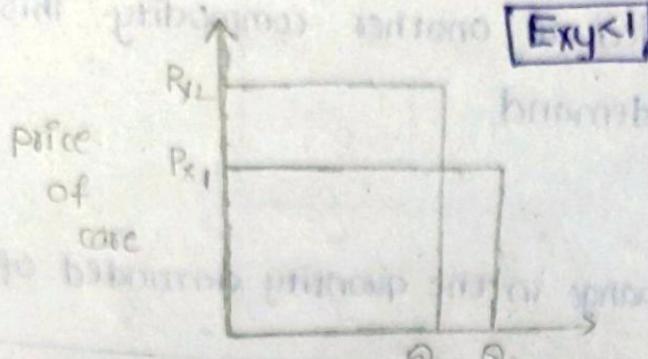
Ex: Car and petrol, pencils and Notebooks

a. Incase of substitutes: Cross elasticity of demand is positive

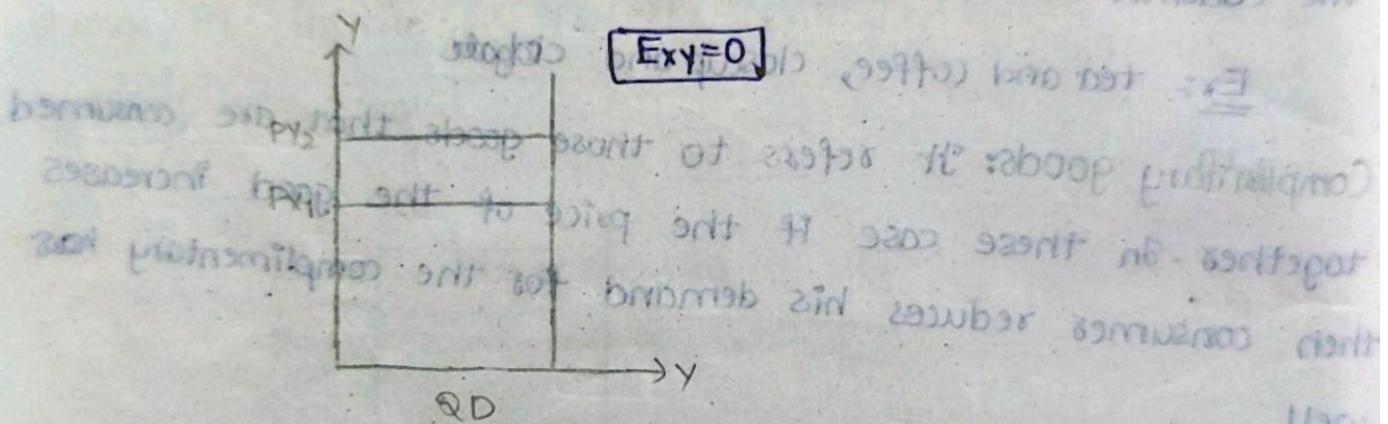
Ex: When the price of coffee increases, quantity demanded of tea increases. Both are substitutes



b. In case of complements: cross elasticity is negative because increase in the price of one commodity leads to decrease in the quantity demanded of another and vice-versa



c. In case of unrelated commodities: cross elasticity of demand is zero. A change in the price of one product will not effect the quantity demanded of another.



d. Advertising / promotional elasticity of demand

Advertising refers to the increase in the sales revenue because of change in the advertising expenditure. It is a direct relationship between the amount of money spent on advertising and its impact on sales. Advertising is always positive.

$$\text{Advertising elasticity} = \frac{\text{Proportionate change in quantity demanded for product } X}{\text{Proportionate change in advertisement cost}}$$

20/11/21

Methods to measure price elasticity of Demand:

1) Proportionate / Percentage Method:

According to this method elasticity of demand is measured as

$$E = \frac{\text{proportionate change in Quantity demand}}{\text{proportionate change in price}}$$

$$= \frac{\Delta Q}{Q} - \frac{\Delta P}{P}$$

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

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

Q = Quantity

P = Price

ΔQ = change in Quantity

ΔP = change in price

Problem:

P	Q
10	50
11	40

$$\Delta Q = 50 - 40 = 10$$

$$\Delta P = 11 - 10 = 1$$

$$P = 10$$

$$Q = 50$$

$$E = \frac{10}{1} \times \frac{10}{50} = 2$$

$$E = 2$$

$$e > 1$$

horizontal axis / time / interest (E)

2) Total expenditure / Total Outlay methods:

The elasticity of demand can be measured on the basis of total expenditure made by the consumer. It is developed by Alfred Marshall.

Total exp = price \times Quantity

$$TE = P \times Q$$

a) Unitary elasticity:

P Q TE

5 6 30
6 5 30

$$P \uparrow Q \downarrow \Rightarrow TE$$

$$e=1$$

b) More elastic:

P Q TE

5 10 50
4 15 60

$$\frac{Q_1 - Q_2}{Q} = \theta$$

$$P \uparrow Q \downarrow \Rightarrow TE \uparrow$$

$$e > 1$$

$$\frac{Q_1 - Q_2}{Q} =$$

$$\frac{Q_1 - Q_2}{Q} =$$

$$\frac{Q_1 - Q_2}{Q} = 3$$

c) Less elastic:

P Q TE

5 10 50
4 12 48

$$P \downarrow Q \uparrow \Rightarrow TE \downarrow$$

$$e < 1$$

Q	Q
Q2	Q1
Q1	Q2

$$Q_1 - Q_2 = \Delta Q$$

$$Q_1 - Q_2 = \Delta Q$$

$$Q_1 = Q$$

$$Q_2 = \theta$$

3) Geometric / point / Arc Method

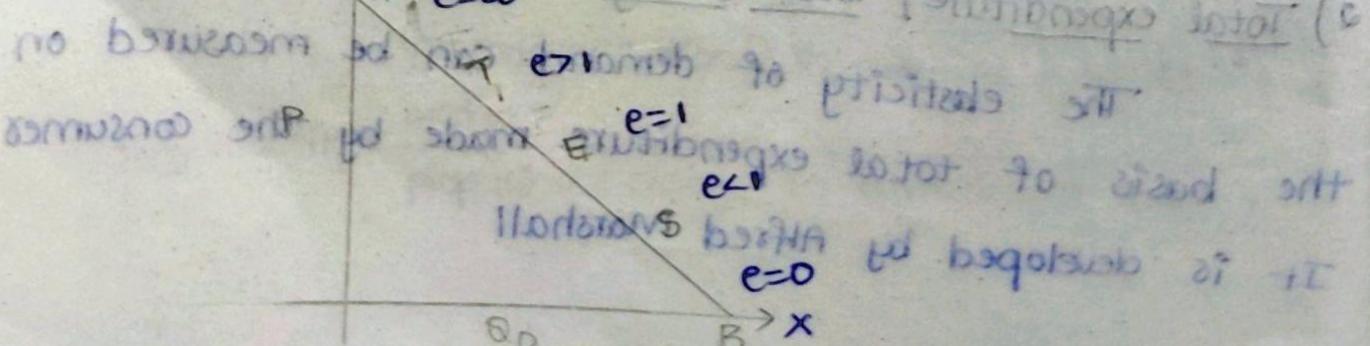
The elasticity can be measured by taking a point on a straight line demand curve.

$$e = \frac{\text{lower segment (side)}}{\text{upper segment (side)}}$$

$$y \uparrow e = \infty$$

$$L < 3$$

$$y = 3$$



$$\text{At A } e = \frac{AB}{O} = \infty \quad e = \infty$$

$$\text{At T } e = \frac{TB}{TA} = \frac{3}{1} > 1 \quad e > 1$$

$$\text{At E } e = \frac{EB}{EA} = \frac{2}{2} = 1 \quad e = 1$$

$$\text{At S } e = \frac{SB}{AB} = \frac{1}{3} < 1 \quad e < 1$$

$$\text{At B } e = \frac{OB}{AB} = 0 \quad e = 0$$

Factors influencing elasticity of Demand

- 1) Nature of commodity
- 2) Availability of substitutes
- 3) Variety of uses
- 4) postponement of Demand
- 5) Amount of money spent
- 6) Time factor or duration of life
- 7) Range of prices.

Importance of elasticity of demand

1. price fixation
2. production - it depends on demand
3. distribution
4. Internal Trade -
5. Public finance -
6. Nationalization

Demand forecasting

It is an objective assessment of the future course of demand. The information about the future is essential for both newforms and those planning to expand the scale of their production.

In short demand forecasting is an estimate of future demand for the product.

It is essential for a firm to produce required quantities at the right time.

Types of demand forecasting

Based on the timespan and planning requirements of business, demand forecasting can be classified into

1. Short term demand forecasting
 2. Long term demand forecasting
1. Short term demand forecasting: It is limited to short periods, usually for one year. It relates to policies, regarding sales, purchase, price and finances.
2. Long term demand forecasting: In long term forecasting, the business man should know about long term demand for the product. Such as planning of a new plant or expansion of an existing unit.

Methods of forecasting

The methods of forecasting is broadly divided into survey method and statistical method.

Survey Method

a) Opinion Survey method

This method is also known as sales force composite method (or) collective opinion method under this method the company ask if sales man to submit estimation of future sales in the respective territories.

b) Expert Opinion Method (or) Delphie Method

In this method a panel is selected to give suggestions to solve the problem in hand. Both internal and external experts can be the members of panel.

c) Consumers interview Method:

In this method the consumers are contacted personally to know about their habits and preferences regarding the consumption of the product.

Statistical Method: a) Time Series analysis (or) Trend projection methods:

A well established firm would have accumulated data, these data are analyzed to determine the nature of existing trend.

b) Baro Metric technique:

Simple trend projections are capable of forecasting turning points under this method present

events are used to predict the directions of change in future such as personal income, agricultural income, bank deposit, employments etc--

c) Regression and (or) Relation Method

Based on past data, future data is forecasted under this method.

Concept of Supply:

The quantity of a commodity which is offered by a seller for selling at a particular price during a given period of time is known as supply.

Determinants of Supply:

1. Cost ↑ ↓

2. Price of the commodity ↑ ↑

3. No of firms ↑ ↑

4. Taxation ↑ ↓

5. Technology ↑ ↑

6. goal of the firm ↑ ↑

7. Future expectations ↑ ↑

8. Price of related goods ↑ ↑

↑ ↑

↑ ↑

Law of Supply:

The law of supply states that, other things remaining the same, the quantity supplied of a commodity is directly related to its price, in other words when there is a rise in the price of commodity the quantity supplied of it in the market increases and vice versa.

Assumptions:

- No change in the state of technology
- No change in the price of factor of production
- No change in the number of firms
- No change in the goals of firm
- No change in the sellers expectations regarding future prices
- No change in the Taxation
- No change in the price of other goods

Exceptions:

- 1) Agricultural products
- 2) Goods for auction
- 3) Expectation of change in prices
- 4) Supply of labour

Supply Schedule:

It is a tabular representation of various combinations of price and quantity supplied by the go

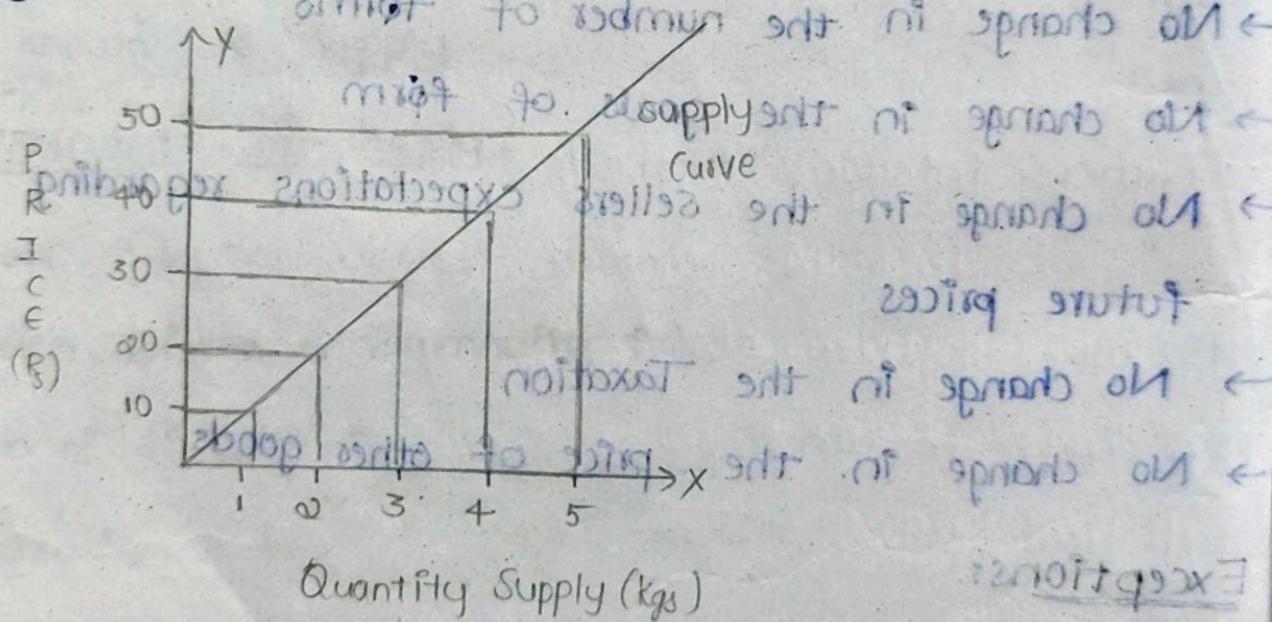
or producers during a period of time.

Price (in Rs)	Quantity Supply (kgs)
10	1
20	2
30	3
40	4
50	5

Supply Curve:

It is graphical representation of supply schedule.

Schedule



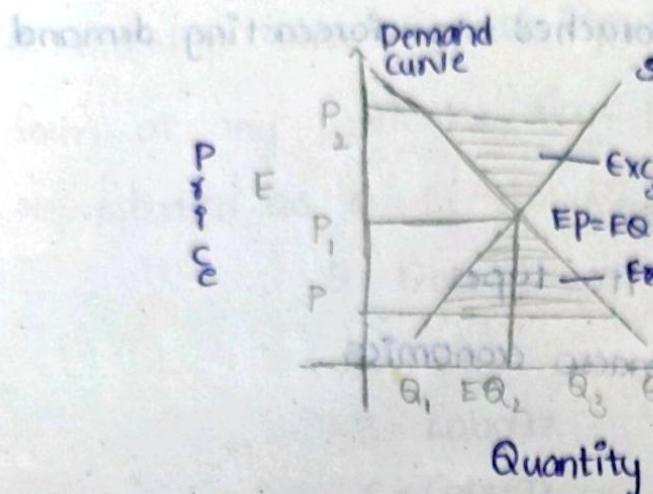
Market

Market Equilibrium or Law of Supply & Demand

Supply and demand curves intersect at the equilibrium price. This is the price at which we would predict the market would operate.

The equilibrium price is the price where the plans of consumers and the plans of producers agree.

When the amount consumers want to buy the product, quantity demanded and it is equal to quantity supply. This common quantity is called the equilibrium quantity. The word equilibrium means balance.



Questions from Unit-1

1. Define marginal economics explain its nature and scope?
2. Discuss the importance of marginal economics in decision making
3. What is marginal economics explain its focus areas
4. Explain the role of marginal economics in a business firm
5. Define demand and explain the factors that influence the demand of a product
6. State the law of demand explain its expectations. What are the various factors that determine the demand for a mobile phone
7. Explain the various factors that influence the demand for computer
8. What is meant by elasticity of demand how do you measure it.

9. Write about the types of elasticity of demand. Illustrate your answer with examples.
10. What are the needs for demand forecasting. Illustrate all the methods of the demand forecast.
11. What are the possible approaches to forecasting demand for new products?
12. Define managerial economics.
13. Define demand and explain its types.
14. Define micro economics and macro economics.
15. State the law of demand.
16. What is giffens paradox?
17. Explain elasticity of demand.
18. Explain the measurements of elasticity graphically.
19. Explain price elasticity of demand.
20. Explain income and cross elasticity of demand.
21. What is the need for demand forecasting?
22. Describe the concept of law of supply.

Cost: The amount we spend for the product.

Profit: The amount we get after deducting cost from total revenue.

Expenditure: The amount spent by a consumer on a particular good.

Revenue: The amount received by a producer from the sale of a particular good.

Surplus: The amount left over after deducting cost from total revenue.

Shortage: The amount less than what is demanded at a particular price.

Surplus: The amount left over after deducting cost from total revenue.

Shortage: The amount less than what is demanded at a particular price.

Surplus: The amount left over after deducting cost from total revenue.

Shortage: The amount less than what is demanded at a particular price.

29/11/21

UNIT-2

Theory of production & Cost Analysis

Production Function: The production function express a functional relationship b/w physical inputs and physical outputs of a form at any particular time period. so it is mathematically represented as $Q = f(A, B, C, D)$

Q = Quantity of Output

A = Land

B = Labour

C = Capital

D = Organization

→ Here the output becomes the depended variable and inputs are the independent variables

→ In order to express that one quantitative relationship b/w inputs and output production function has been expressed in the mathematical equation has $y = a + b(x)$

→ which shows that there is a constant relationship b/w applications of input(x) and the amount of output(y) is produced.

Coff-Douglas Production function: Production function of the linear homogenous types is tested by C. W. Coff and P. H.

Douglas in 1928

The Mathematical Equation is $y = (A K^x L^{1-x}) q$

y = Output

K = Capital

L = Labour

A = α (positive constant)

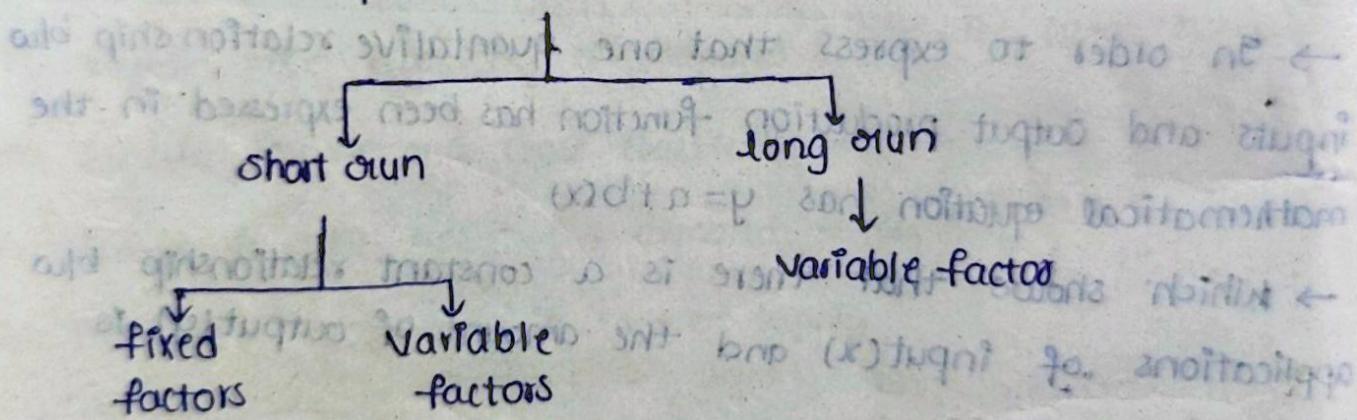
Assumptions:

1. The function assumes that output is the function of two factors that is capital, labour
2. It is a linear homogenous production function of the first degree
3. There are constant returns to scale
4. All inputs are homogenous
5. There is perfect combination
6. There is no change in technology

Law of Production:

Types of production: There are three types of production

production Function



Ex: equipment
building

Ex:- Raw material
Investment

1. Total Product: It is the sum of total quantity of output produced by all the units of variable factors along with sum units of fixed factors used in the process of production.

$$(Individual quantity) \times n = A$$

a. Average Product: It refers to the output per unit of variable factor.

$$A.P = \frac{T.P}{Q}$$

b. Marginal Product: It refers to additional product which can be derived by employing one more unit of variable factor.

$$M.P = \frac{\Delta T.P}{\Delta Q} \text{ or } T.P_n - T.P_{n-1}$$

F.F	V.F	T.P	A.P	M.P
1	1	20	20	-20
1	2	50	25	30
1	3	90	30	40
1	4	116	29	26

→ production analysis in economics theory considers two types of input, output relationships

1. When quantities of certain inputs are fixed and other are variable

2. When all inputs are variable

→ These two types of relationships have been explained in the form of law.

1. Law of variable proportions

2. Law of returns to scale

1. Law of Variable Proportions: As we increase the quantity of only one input keeping other factors constant, then the total product initially increases at increasing rate then at decreasing rate and finally at a negative rate.

Assumptions: The theory is related to short term production function.

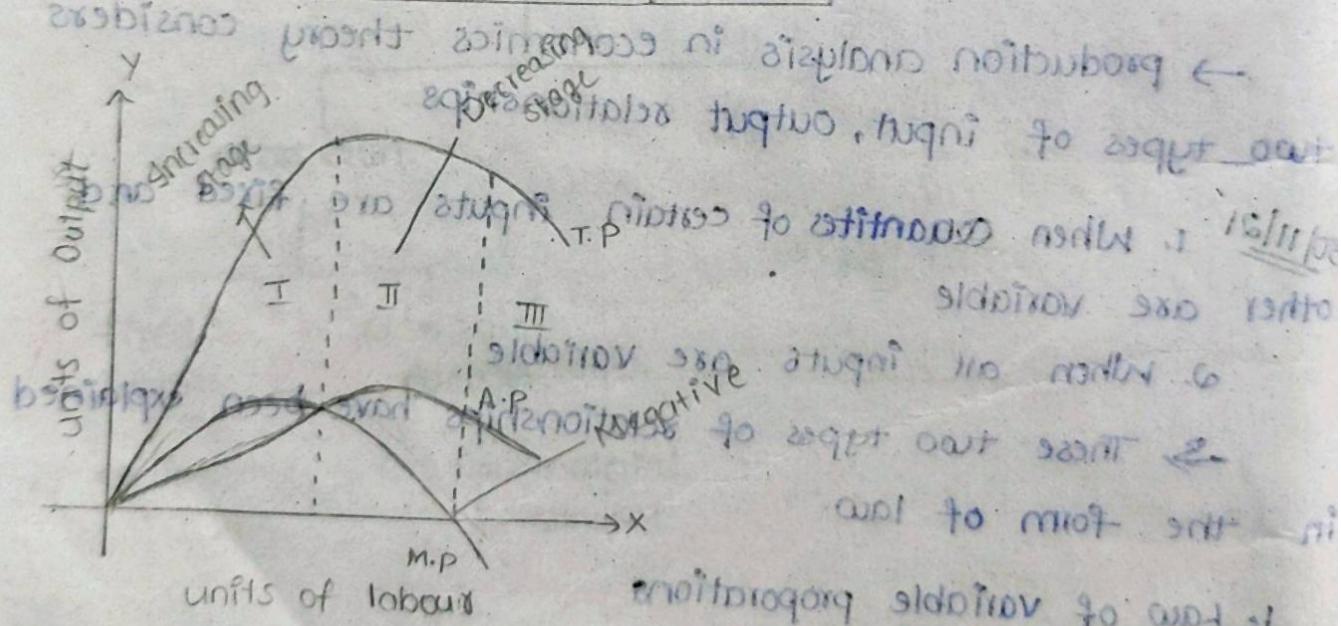
→ Two factors of production fixed, Variable

→ Technology remains constant

→ The law applies on field only

→ If there is any improvement in technology the average and marginal output will not decrease but increase.

F.F land	V.F Labour	T.P	A.P	M.P
1	1	100	100	100
1	2	210	105	110
1	3	330	110	110
1	4	420	105	90
1	5	490	98	70
1	6	540	81.6	50
1	7	588	84	-2



→ If $TP = \text{Max}$ then $M.P = 0$

2. Law of Returns to Scale: This law explains how a ~~single~~ simultaneous increase in all the inputs effects the total output at its various level.

→ So the concept of variable proportion is a short run phenomenon as fixed factors cannot be changed and other factors can be changed. On the other hand in the law of returns to scale all the factors can be made as variable in the long run

Iso-Quant [Iso-product / equal product Curve] - Longrun

equal quantity

Iso means equal and quant means quantity so isoquants are the curves which represent the different quantities of combinations of inputs producing a particular quantity of output. We want to get constant output.

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

L = Labour
K = Capital

Inputs = Factors
L = Labour
K = Capital

Assumptions:

- Only two factors of production
- Two factors can substitute each other upto some limit

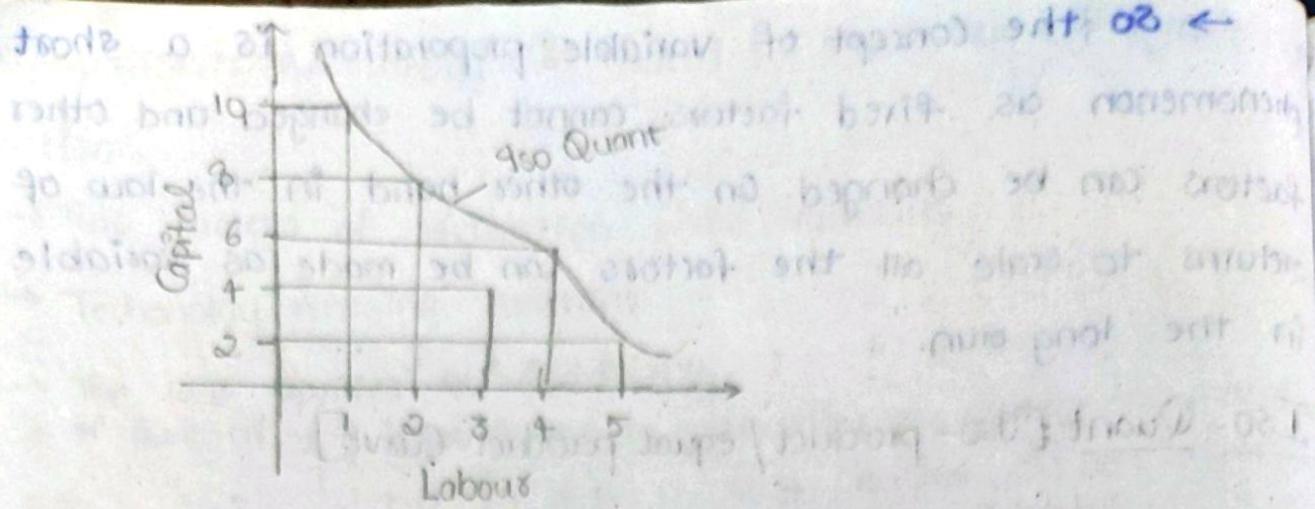
Ex:

Combinations	Labour	Capital	Quantity
A	1	10	50
B	2	7	50
C	3	4	50
D	4	5	50
E	5	1	50

Q = f(L, K)

L = Labour
K = Capital

L = Labour
K = Capital



Iso Cost:

$$T_C = WL + RK$$

T_C = Total Cost

W = wage

L = Labour

R = Cost of Capital

K = Capital

$$(1, 1) \neq 2$$

$$C = \$12$$

$$L = \$2$$

$$K = \$3$$

→ Iso cost line represents the price of factors along with the amount of money an organization is willing to spend on factors. That means it shows different combinations of factors that can be purchased at a certain amount of money.

Least Cost factor Combination:

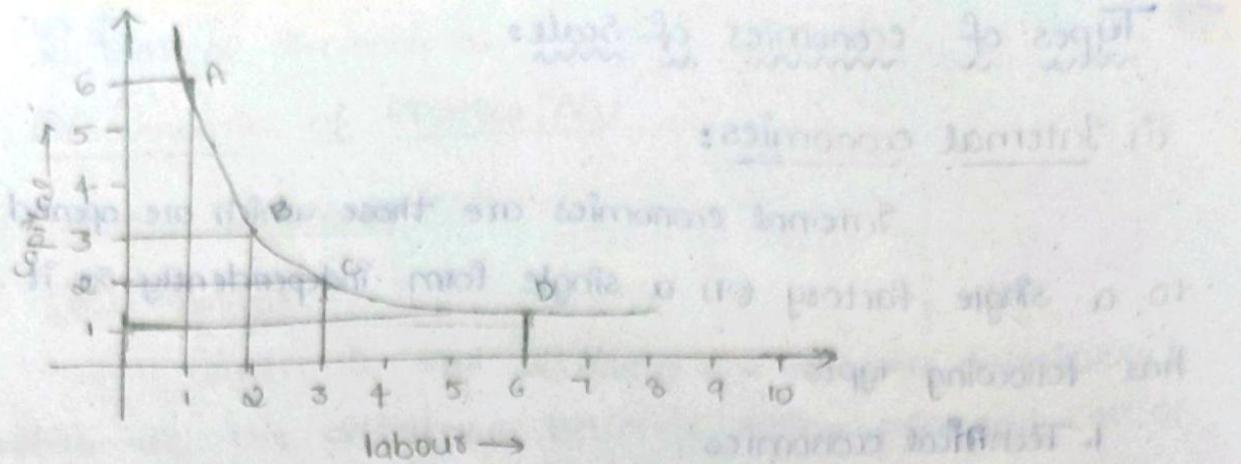
Combination	Labour	Capital	Total Cost
A	1	6	20
B	2	3	13
C	3	2	12
D	6	1	15

$$T_C = WL + RK$$

$$L = \$2$$

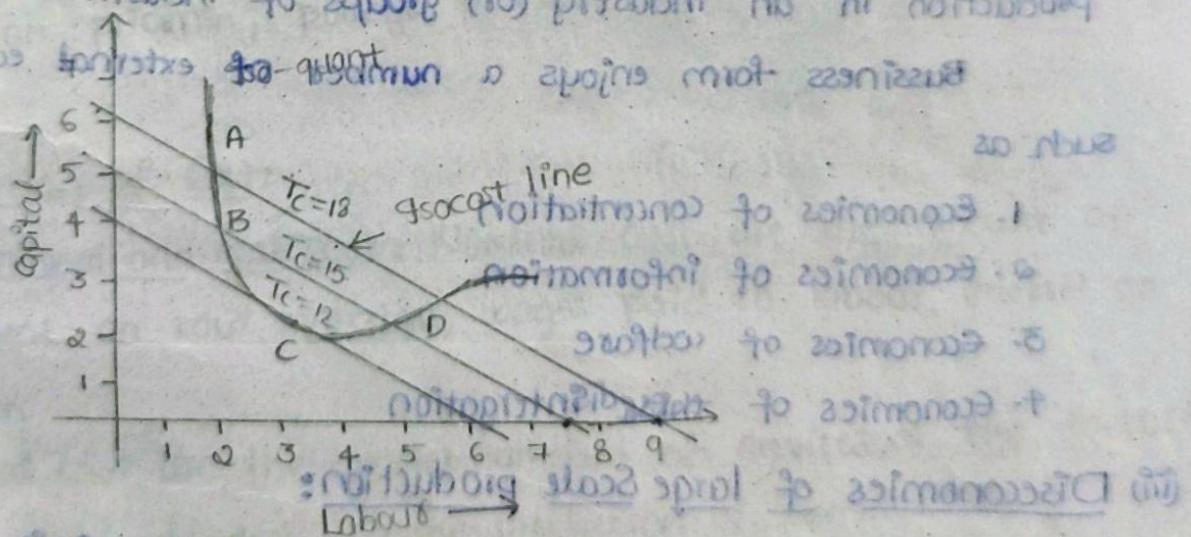
$$K = \$3$$

$$Q = 300$$



Producers equilibrium | Firm's Equilibrium

The optimum position of the producer can be found with the help of isoproduct curve. This curve shows different combinations of two factors of production at the same output. The producer is said to be in equilibrium when he secures maximum output with the least cost combination of factors of production.



Economies of Scale: (Increasing input maximum output)

Economies of scale are fast advantages reaped by companies when production become affectant.

Companies can achieve economies of scale by increasing production and lowering costs. This happens because costs of spread over a large no of goods.

Types of economies of Scale:

(i) Internal economies:

Internal economies are those which are opened to a single factory (or) a single firm independently so it has following types.

1. Technical economies

2. Marketing economies

3. Financial economies

4. Risk bearing economies

5. Economies of research

6. Economies of welfare

(ii) * External economies:

External economies are those benefits which are shared in by a no of firms are industries when the scale of production in an industry (or) groups of industries increases. Business form enjoys a number of external economies such as

1. Economies of concentration

2. Economies of information

3. Economies of welfare

4. Economies of ~~these~~ disintegration

(iii) Diseconomies of large Scale production:

Internal and external diseconomies are the limits to large scale production. It is possible that expansion of a firm's output may lead to rise in costs and thus result in economies instead of economies.

(iv) Internal Diseconomies

1. Financial diseconomies

2. Marketing diseconomies

3. Technical diseconomies

v. Diseconomies of Risktaking:

vi. External Diseconomies:

vi. Cost Analysis: Profit is the ultimate aim of any business. Profits are the difference between selling price and cost of production.

vii. Cost Concepts:

A managerial economist must have a clear understanding of different cost concepts for clear business thinking and proper application.

Cost Analysis: Costs are the expenses incurred for producing goods and services. Costs are important as they have wide range of implications on pricing policies, profits, wage, dividend policies and so on.

Classification of Cost:

1. Nominal and real cost: Nominal costs are the amount of

money spent on raw materials, wages paid to labour, interest on capital etc.

Real costs are the actual amount of services of the factors of production expended in the production of commodities.

2. Explicit and Implicit Cost: Explicit costs are the cost payable to the factors of production hired from outside.

Implicit costs are the cost payable to the self-owned factors of production.

3. Opportunity Cost or Alternative Cost: These are the costs which is defined as the next best alternatives foregone.

which we missed in the past.

4. direct and indirect cost: Direct cost are costs that can be directly attributable to a particular product such as ~~labour~~
cost, material cost, transport etc.

But there are certain cost which cannot be directly
attributable to any single product or process.

5. past and future cost: Cost that are already incurred over
the years and recorded in the account books already are called
past cost.

Future cost are cost that are likely to be incurred.

6. Accounting cost and Economic Costs:

Accounting cost that are recorded in the account books of
the company.

Economic cost include both accounting and implicit cost of
self-owned factors of production.

7. Out of pocket cost and book cost:

8. historical or irrelevant cost or sunk cost and Replacement cost:

Cost that are already incurred and they is no chance
of adjusting are called historical cost.

Replacement cost mostly take the form of depreciation
cost.

9. Incremental Cost: It can be defined as additional costs
to be incurred for producing additional quantity of output.
These costs are very much relevant in the managerial decision
making particularly in the short run.

9. Joint cost: Some times commodities are produced jointly,
which case the costs for each one of the products cannot
be ascertained those costs are called joint cost.

10. Shutdown Cost (or) Abandonment Costs: Costs those are associated with suspension of plant operations temporarily (or) permanently which include removal of temporary labours (or) permanent works, withdrawal off storage cost etc--.

* Break even Analysis: No profit No loss

The study of cost-volume-profit relationship is often referred as break even analysis. Break even point is the point at which total revenue is equal to total cost. It is the point of no profit, no loss. In its broad determine the probable profit at any level of production.

Assumptions:

1. All costs are classified into two, fixed and variable costs.
2. Fixed costs remained constant at all levels of output.
3. Variable costs vary proportionality with the volume of output.
4. Selling price per unit remains constant inspite of combination or change in the volume of production.
5. There will be no change in operating efficiency.
6. There will be no change in the general price level.
7. Volume of production is the only factor effecting the cost.
8. Volume of sales and volume of production are equal. Hence there is no unsold stock.

9. There is only one product or in the case of multiple products, scale mix remains constant.

Important factors: BEP

1. fixed costs (or) expenses: Expenses that do not vary with the volume of production.

Ex:- Manager's salary, Rent, Taxes, Insurance etc.

Q. Variable cost: Expenses that vary in direct proportion to the volume of production or sales are called variable expense. Ex:- electric power, fuel, packing the materials etc.

3. Contribution Cost: Contribution is the difference b/w sales and variable cost and it contributes towards fixed cost and profit

$$\text{Contribution} = \text{Sales} - \text{Variable costs}$$

$$\text{Contribution} = \text{fixed cost} + \text{profit}$$

4. Margin of Safety: It is the excess of sales over the break even sales

$$\text{Margin of Safety} = \frac{\text{Break present Sales} - \text{Break even sales}}{\text{Break even sales}}$$

$$= \frac{\text{Profit}}{\text{PV ratio}}$$

5. Angle of Incidence: This is the angle b/w sales line and total cost line at the break even point

6. Profit Volume Ratio: It is usually called PV ratio. It is one of the most useful ratios for studying the profitability of business

$$\text{BE sales} = \frac{\text{Fixed expenses}}{\text{PV ratio}}$$

$$\text{PV ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

7. Break even point: It refers to the point of no profit, no loss if sales go up beyond the break even point, organization makes a profit. If they come down a loss is incurred

$$\text{Break even point (in units)} = \frac{\text{Fixed expenses}}{\text{Contribution per unit}}$$

$$\text{Break even point (in rupees)} = \frac{\text{Fixed expenses}}{\text{Contribution}} \times \text{Sales}$$

Problems on BEA

1. From the following particulars, calculate

- (i) Break even point in terms of sales value and units
- (ii) Number of units that must be sold to earn a profit of

rupees 90,000

₹

fixed factory overhead costs

60,000

fixed selling overhead costs

12,000

variable manufacturing cost per unit

3

variable selling cost per unit

24

selling price per unit

₹ 36

Sol

$$(i) \text{ Break even point} = \frac{\text{Fixed Cost}}{\text{Selling Price per unit} - \text{Variable cost per unit}}$$

$$\text{Fixed cost} = ₹ 60,000 + ₹ 12,000 \\ = ₹ 72,000$$

$$\text{Variable cost} = ₹ 12 + ₹ 3 \\ = ₹ 15$$

$$\text{BEP} = \frac{72,000}{24 - 15} = \frac{72,000}{9} = 8,000 \text{ units}$$

$$\text{BEP (Sales values)} = 8,000 \times 24 = ₹ 192,000$$

(ii) Number of units must be sold to earn profit of ₹ 90,000

$$90,000 = \frac{\text{fixed cost} + \text{Desired profit}}{\text{Selling price per unit} - \text{Variable cost per unit}}$$

$$= \frac{72,000 + 90,000}{24 - 15} = \frac{1,62,000}{9} = 18,000 \text{ units}$$

Q. From the following data you are required to calculate

(i) PV ratio

(ii) BE sales with the help of PV ratio

(iii) Sales required to earn a profit of ₹4,50,000

Fixed expenses ₹90,000

Variable cost per unit

Direct material per unit ₹5

Direct labour per unit ₹2

Direct overhead costs

100% Direct labour = ₹2

Selling price per unit ₹12

Sol:-

$$(1) \text{ PV ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$\text{contribution} = \text{sales} - \text{variable cost}$$

$$= 12 - 9 = 3$$

$$= \frac{3}{12} \times 100 = 25\%$$

$$(ii) \text{ Break even sales} = \frac{\text{fixed expenses}}{\text{PV ratio}}$$

$$= \frac{90,000}{25} = \frac{90,000 \times 100}{25}$$

(iii) Sales required to earn profit of ₹4,50,000

$$\text{BE sales} = \frac{\text{fixed expenses} + \text{Desired profit}}{\text{PV ratio}}$$

$$= \frac{90,000 + 4,50,000}{25} = \frac{135,000}{25} = 5,400$$

$$= \frac{5,40,000}{25} \times 100$$

$$= 20,80,000$$

3. From the following data you are required to calculate Break even point and net sales values at these point.

Direct material cost per unit

Direct labour cost per unit

Fixed overhead

variable overheads @ 60% on direct labour

Selling price per unit

Trade discount

if sales are 10% and 25% above the break even volume, determine the net profits

Sol:- Given

Selling price per unit = 25

Net selling price = 24

Trade discount $(\frac{25 \times 4}{100}) = -\frac{1}{24}$

Variable cost per unit = 18

Contribution = Sales - Variable cost

$$\text{Contribution per unit} = 24 - 18 \\ = 6$$

(b)

$$BEP = \frac{\text{fixed expenses}}{\text{Contribution}}$$

$$= \frac{8,333,000}{6} = 1,388,833 \text{ units}$$

③ Break even sales = $\frac{F}{P\%}$

$$P\% = \frac{\text{cont}}{\text{sales}} \times 100$$

$$= \frac{4}{24} \times 100 = 25\%$$

$$= \frac{50000}{25} \times 100$$

$$= ₹ 2,00,000$$

④ profit when sales are 10% above the break even volume

sales 10% above

$$\text{sales} = 2,00,000 \times \frac{10}{100} = 20,000$$

$$\text{sales} = 2,00,000 + 20,000$$

$$= 2,20,000$$

✓ contribution = P% of sales

$$= 2,00,000 \times \frac{25}{100}$$

$$= 50,000$$

✓ contribution = fixed expenses + profit

$$\text{profit} = 50,000 - 50,000$$

$$= 5000$$

profit when sales are $\frac{25}{100}$ above the break even volume

$$\text{sales} = 2,00,000 \times \frac{25}{100} = 50,000$$

$$\text{sales} = 2,00,000 + 50,000$$

$$= 2,50,000$$

$$\begin{aligned}
 \text{contribution} &= \text{P.V. ratio} \times \text{sales} \\
 &= \frac{25}{100} \times 250,000 \\
 &= 62,500 \\
 \text{profit} &= 62,500 - 50,000 \\
 &= 12,500
 \end{aligned}$$

When sales increased to 25% = ₹ 12,500

+ From the following particulars find out Break even point

variable cost per unit

Fixed expenses

selling price per unit

What should be the selling price per unit, if the break even point be brought down to 6000 units

Sol:-

Given

$$\begin{aligned}
 \text{Contribution} &= \text{Sales} - \text{Variable cost} \\
 &= 20 - 15 \\
 &= 5
 \end{aligned}$$

$$\text{BEP} = \frac{\text{Fixed expenses}}{\text{Contribution}} = \frac{54,000}{5} = 10,800$$

What should be the selling per unit if the BEP brought down to 6000 units

$$\text{BEP} = \frac{\text{fixed expenses}}{\text{Contribution}}$$

$$\frac{54,000}{\text{Contribution}} = 6,000$$

$$\text{Contribution} = \frac{54,000}{6,000} = 9$$

$$\text{Contribution} = \text{Sales} - \text{V.C}$$

$$\text{Sales} = \text{Contribution} + \text{V.C}$$

$$= 9 + 15 = 24$$

5. The fixed amount to surpass ₹50,000/- and the percentage of variable cost to sales is given to be 66 2/3%. If 100% capacity sales are ₹3,00,000, find out the Break even point and the % sales when it occurs. Determine profit at 80% capacity

Sol: Given fixed amount = 50,000

$$\text{Variable cost} = 66 \frac{2}{3}\% = 66 \times \frac{2}{3} = \frac{200}{3} = \frac{180}{18} = \frac{100}{10}$$

$$\text{Selling price} = 3,00,000$$

percentage of variable cost to sales =

$$\text{Percentage of contribution to sales} = \frac{100 - 200}{1} = \frac{100 - 66.6}{3}$$

$$= \frac{300 - 200}{3} \geq \frac{100}{3}$$

$$P.V \text{ ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$= \frac{100}{3} \times \frac{1}{100} \times 100$$

$$= \frac{100}{3} = 33 \frac{1}{3}$$

$$\text{Break even point} = \frac{50,000}{\frac{100}{3}} \times 100$$

$$= \frac{50,000}{100} \times 3 \times 100$$

$$= 1,50,000$$

At 100% capacity the sales are = Rs. 3,00,000

$$\text{Hence BEP occurs at} = \frac{1,50,000}{3,00,000} = 50\% \text{ Capacity}$$

$$\text{At 80% capacity sales} = 3,00,000 \times \frac{80}{100}$$

$$= 240,000$$

$$C-V + P = C = 240,000$$

$$+ 95 = 31 + P =$$

Contribution at 80% capacity = $2,40,000 \times \frac{100}{3} \times \frac{1}{100}$

$$= \text{Rs } 80,000$$

Profit = Contribution - Fixed cost

$$= 80,000 - 50,000$$

Profit 80% Capacity = 30,000

6. From the following information calculate by how much the value of sales must be increased by the company to Break even

Sales	$\frac{300,000}{0.6} = 500,000$	₹
Fixed Cost	$500,000 - 300,000 = 200,000$	₹
Variable Cost	$300,000 - 200,000 = 100,000$	₹

Sol:

$$\begin{aligned}\text{Contribution} &= \text{Sales} - \text{Variable Cost} \\ &= 3,00,000 - 2,00,000 \\ &= 1,00,000\end{aligned}$$

$$\begin{aligned}\text{BEP} &= \frac{\text{Fixed Cost} \times \text{Sales}}{\text{Contribution}} \\ &= \frac{1,50,000}{1,00,000} \times 3,00,000 \\ &= 4,50,000\end{aligned}$$

Hence sales increased by the company to get Break even

$$\begin{aligned}\text{are} &= ₹ 4,50,000 - 3,00,000 \\ &= ₹ 1,50,000\end{aligned}$$

7. A Company is making a loss of ₹ 40,000 and relevant information is as follows

Sales

1,20,000

Variable cost

60,000

fixed cost

1,00,000

lose can be made good either by increasing the sales price or by increasing sales volume. What are break even sales if

- present sales level is maintained and the selling price is increased.
- if present selling price is maintained and sales volume is increased. What would be the sales if a profit of 1,00,000 is required?

Sol :- Break even sales : $\frac{\text{fixed expenses}}{\text{P.V ratio}}$

$$= \frac{1,00,000}{\frac{20}{50}} \times 100 = 2,00,000$$

(a) contribution = sales - variable cost
 $= 1,20,000 - 60,000$
 $= 60,000$

$$\text{P.V} = \frac{60,000}{1,20,000} \times 100 = 50\%$$

(b) desired sales = $\frac{\text{Fixed cost} + \text{Desired profit}}{\text{P.V ratio}}$

$$= \frac{1,00,000 + 1,00,000}{\frac{20}{50}} \times 100 = 4,00,000$$

8. Calculate + of at the compound interest for 2 years

- Amount of fixed expenses
- The number of units to break even
- The number of units to earn profit of rupees 40,000

The selling per unit can be assumed as ₹100

The company sold in two successive periods 7000 units and 9000 units and has incurred a loss of ₹10,000 and earned ₹10,000 as profit respectively

	period 1	period 2
Sales	₹ 7,00,000	₹ 9,00,000
Profit/Loss	(-) ₹ 10,000	₹ 10,000

Thus for an additional sales of rupees 2,00,000 there is an additional contribution of ₹ 20,000 which has wiped off the loss of 10,000 of period-1 and earned a profit of 10,000 in period-2.

$$P.V \text{ ratio} = \frac{\text{change in contribution}}{\text{sales}} \times 100$$

$$= \frac{20,000}{2,00,000} \times 100$$

$$= 10\%$$

$$\text{Contribution of period-1} = 7,00,000 \times \frac{10}{100}$$

$$= 70,000$$

$$\text{Fixed cost} = \text{Contribution} - \text{Profit}$$

$$(i) \quad \text{Fixed cost} = 70,000 - (-10,000)$$

$$= 80,000$$

$$\text{Break even point} = \frac{80,000}{10} \times 100$$

$$= 800,000$$

$$(ii) \quad \text{No of units} = \frac{\text{Break even sales}}{\text{Selling price per unit}}$$

$$= \frac{8,00,000}{100} = 8000 \text{ units.}$$

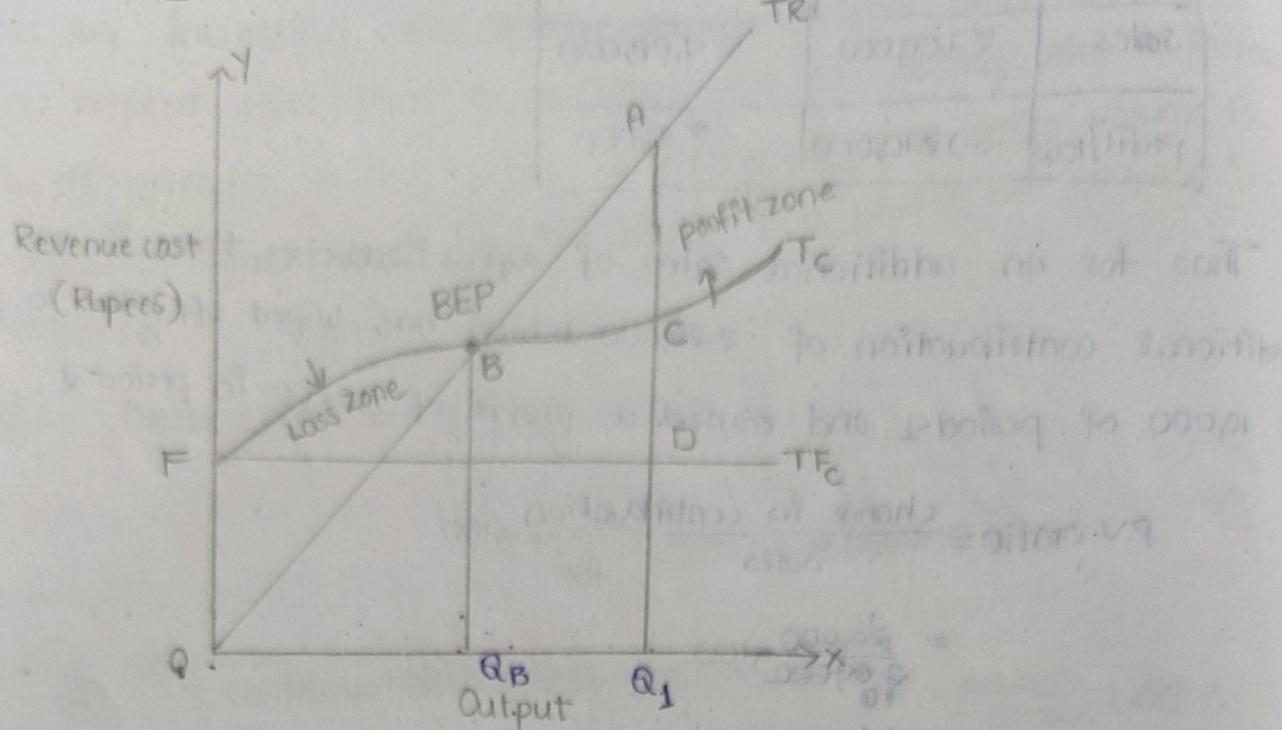
(iii) Number of units to earn a profit of 40,000

$$= \frac{\text{fixed cost} + \text{Desired profit}}{\text{P.V ratio}}$$

$$= \frac{80,000 + 40,000}{10} \times 100$$

$$= \frac{1,20,000}{10} \times 100 = 12,00,000$$

Break even chart



- * At output level of OQ_B the total revenue is equal to total cost i.e where the farm is neither getting profit nor loss.
- * Hence OQ_B is the Break even quantity of output
- * At output level less than OQ_B that farm is suffering losses and beyond that it is reaping profit. At point B the farm is leaving the loss zone and entering the profit zone.
- * In figure At OQ_1 output, the total revenue is AQ_1 and total cost is CQ_1 .

$$\text{The net profit is } AQ_1 - CQ_1 = AC$$

$$= \frac{600,00,00}{20} =$$

Output to get fitting is more than 30 units to maximum.

Net profit = $\frac{600,00,00 + 600,00,00}{20}$

$$= \frac{1200,00,00}{20} =$$

15/12/21

UNIT-3

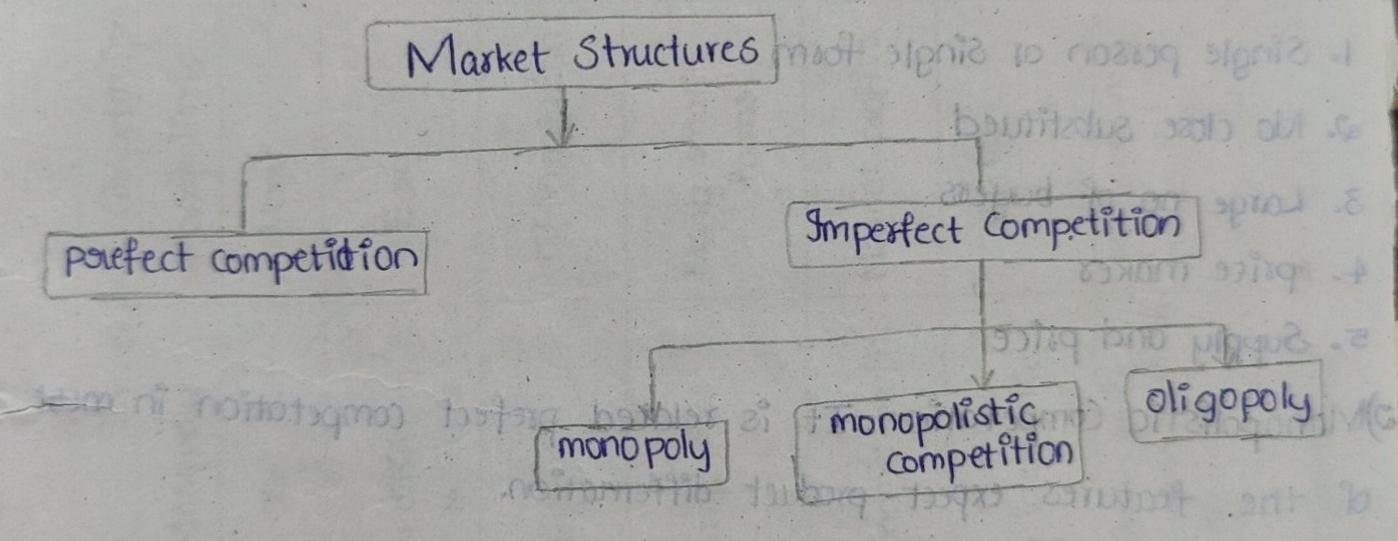
Introduction to Markets Theories of the Form

Intr. and Pricing Policies

Market: Market is a place where buyers and sellers meet, goods and services are offered for the sale and transfer of ownership occurs.

Different Market Structures

Market structure describes the competitive environment in the market for any good or service.



Perfect Competition:

perfect competition refers to a market structure where competition among the sellers and buyers prevails in a perfectly competitive market. In a perfectly competitive market a single most perfect form. The market price prevails for the commodity which is determined by the forces of the total demand and total supply in the market.

Characteristics:

1. A large no of buyers and sellers
2. Homogenous product

3. Free entry and exist

4. perfect knowledge

5. Indifference

6. Non-existance of transport cost

7. perfect mobility of factors of production

Imperfect Competition:

1) Monopoly: The word monopoly means single selling or single seller. It is a form of market organization in which there is only one seller for the commodity. There are no close substitutes for the commodity sold by the seller.

Characteristics

1. Single person or single firm

2. No close substituted

3. Large no of buyers

4. price maker

5. Supply and price

2) Monopolistic competition: It is related perfect competition in most of the features except product differentiation.

Characteristics

1. Existences of many firms

2. product differentiation

3. Large no of buyers

4. free entry and exist of firms

5. selling cost

6. Imperfect knowledge

3) Oligopoly: Oligopoly means few sell like monopoly. It is the form of imperfect competition where there are few firms in the market producing either a homogenous product or close substitute of another.

Characteristics

1. few firms
2. inter dependence
3. advertising and selling cost
4. price rigidity
5. Indeterminate demand curve

Differences Among the Market Structures

	Prefect Competition	Imperfect Competition		
		Monopoly	Monopolistic	Oligopoly
1. Number of firms	Many	one	Many	few
2. Freedom of entry	Free easy to enter	very difficult to enter	Easy	Difficult
3. Nature of Product	undifferentiation	unique	Differentiation	undifferentiation (or) differentiation
4. Average size of forms	Many small forms	Large size	Many small forms	few large forms
5. profit making possibility	Normal profits	Economic profits	Normal profits	Normal profits
6. possible consumer demand	perfectly elastic	very inelastic	elastic	inelastic
7. Government intervention	price floors and selling	Taxation, price setting and nationalization	May block new entries	unregulated
8. sellers control over price	None	Substantial	low	Moderate to substantial

Price determination Under Perfect Competition
The price or validity of commodity under perfect competition is determined by the demand and supply of the commodity

The classification of time into 4 periods to determine price under perfect competition as follows.

1. Very short period (or) Market period

2. Short run period

3. Long run period

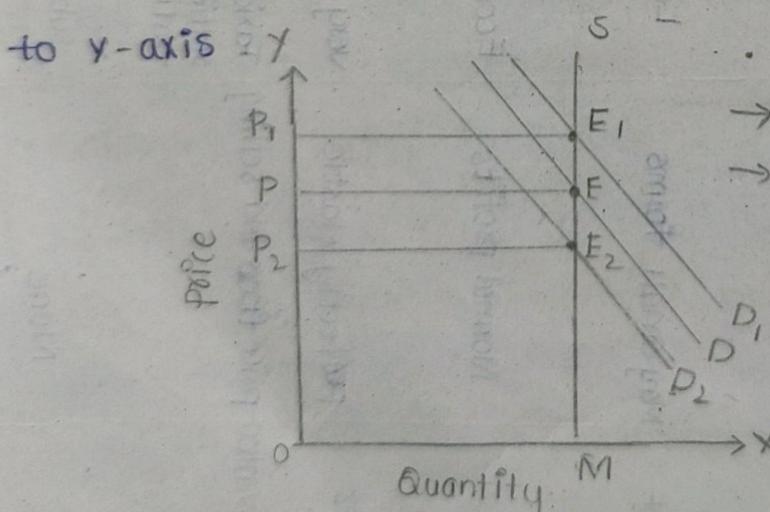
* Price determination in the very short period (or) Market under this period goods are classified into

1. perishable goods

2. Non-perishable (or) durable goods

perishable goods:

In very short period the supply of perishable goods like fish, vegetables etc... cannot be increased and it cannot be decreased also as a result the supply curve is parallel to y-axis



→ Supply remains constant
→ demand may ↑ (or) ↓
depend on demand price may ↑ (or) ↓

In the figure quantity is represented on x-axis and price is on y-axis MS is the very short period supply curve of perishable goods D₁ Demand curve it intersects supply curve at E the price is OP the quantity exchanged is OM

D_1 represent increase in demand where price is E_1 . But price increases to $O P_1$

$\rightarrow D_2$ to D_3 is the demand curve represents decrease in demand where equilibrium price is at P_2 and but price falls at $O P_3$

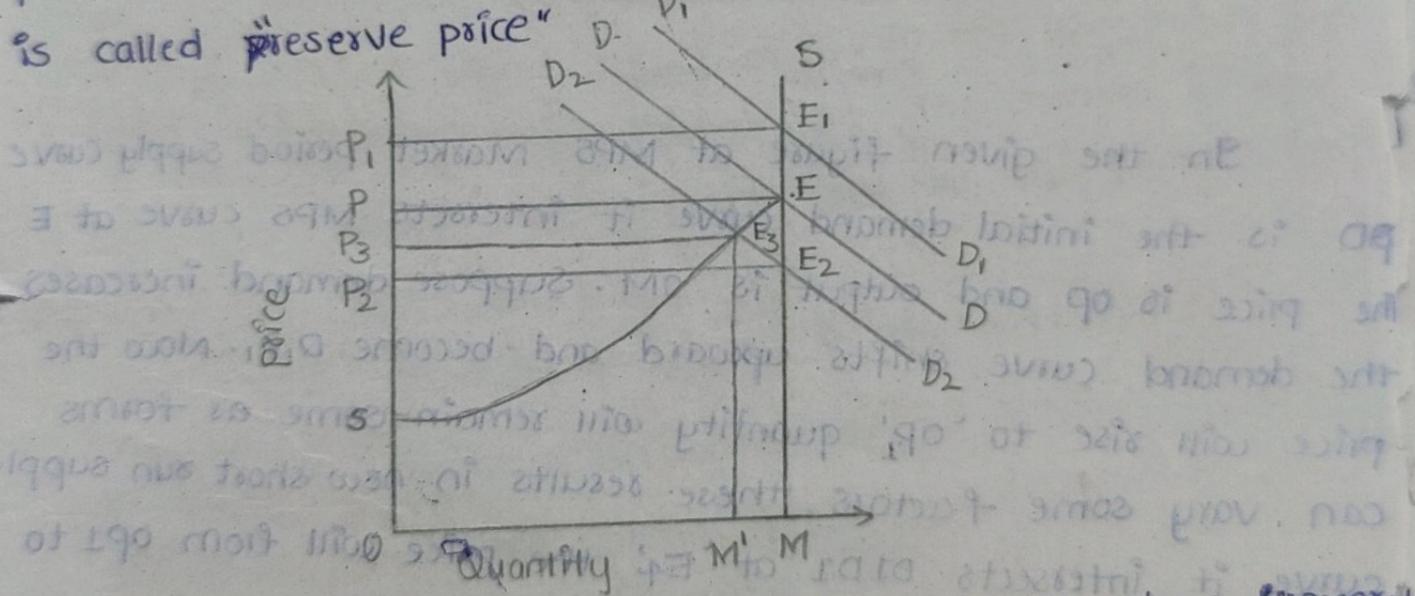
\rightarrow The price determined in very short period is called market price

Non perishable goods (or) durable goods

In very short period the supply of non perishable goods like cloth, pen, watches etc-- cannot be increased but if price falls preserving some stock can decrease they supply

If price falls too much the hole stock will be held back from the market and carry over to the next market period. The price below which the seller will refuse to sell

is called "reserve price"



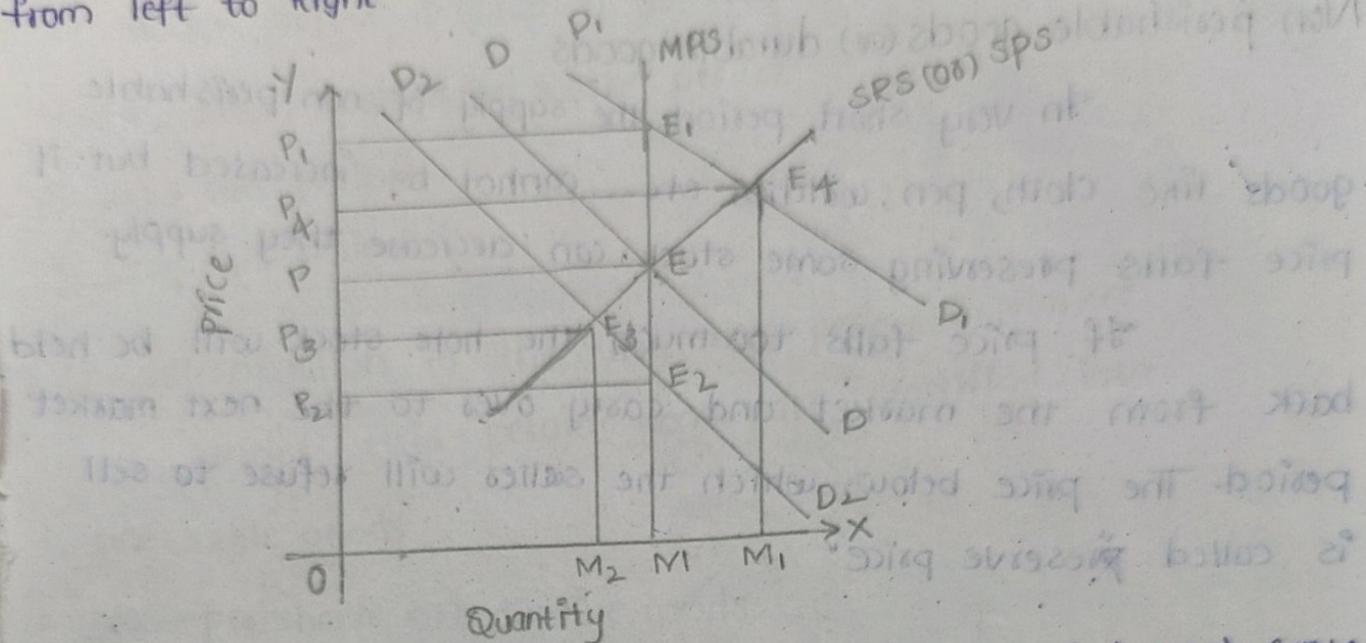
In the given figure SES supply curve its slopes upward upto the point E from E it becomes a vertical straight line this is because the quantity existing with the sellers is OM the maximum output they have is OM at point as Nothing is offered for sale It means that the seller with hold the entire stock

If the price is OS "reserve price"

price determination in the short period

short period is a period in which supply can be increased by altering the variable factors. In these period fixed cost will remain constant. The supply is increased when price rises and vice-versa. So the supply curve slopes upward ($S \uparrow P \downarrow$)

from left to Right



In the given figure at MPS Market period supply curve D_0 is the initial demand curve it intersects MPS curve at E i.e. price is $O P_1$ and output is $O M_1$. Suppose demand increases the demand curve shifts upward and become $D_1 D_1$. Now the price will rise to ' $O P_1'$ quantity will remain same as forms can vary some factors, these results in new short run supply curve if intersects $D_1 D_1$ at ' E_4 ' the price will from $O P_1$ to $O P_4$.

If the demand decreases D_0 curve shifts downward and becomes $D_2 D_2$ it intersects MPS curve at E_2 and price will fall to $O P_2$. In the short period the supply curve is SRS or SPS curve intersects SPS at E_3 the short period price is higher than the market price.

price determination of the long period: (Normal price)

Market price may fluctuate due to sudden change either on the supply side or on the demand side. The temporary change in the supply and demand may cause changes in market price. In the absence of such disturbances causes the price tends to come back to a certain level which is called as normal price.

In order to describe how long run normal price is determined it is useful to refer to the market period and short period also.

The market period is so short that no adjustment in the output can be made. Here cost of production has no influence on price.

A short period is sufficient only to allow the firms to make only limited output adjustments. In the long period supply conditions are fully sufficient to meet the changes in demand so that all factors are alterable and the new forms may enter as old firms leave the industry.

→ They are 3 stages of returns in the long run

1. Increasing returns (or) decreasing cost

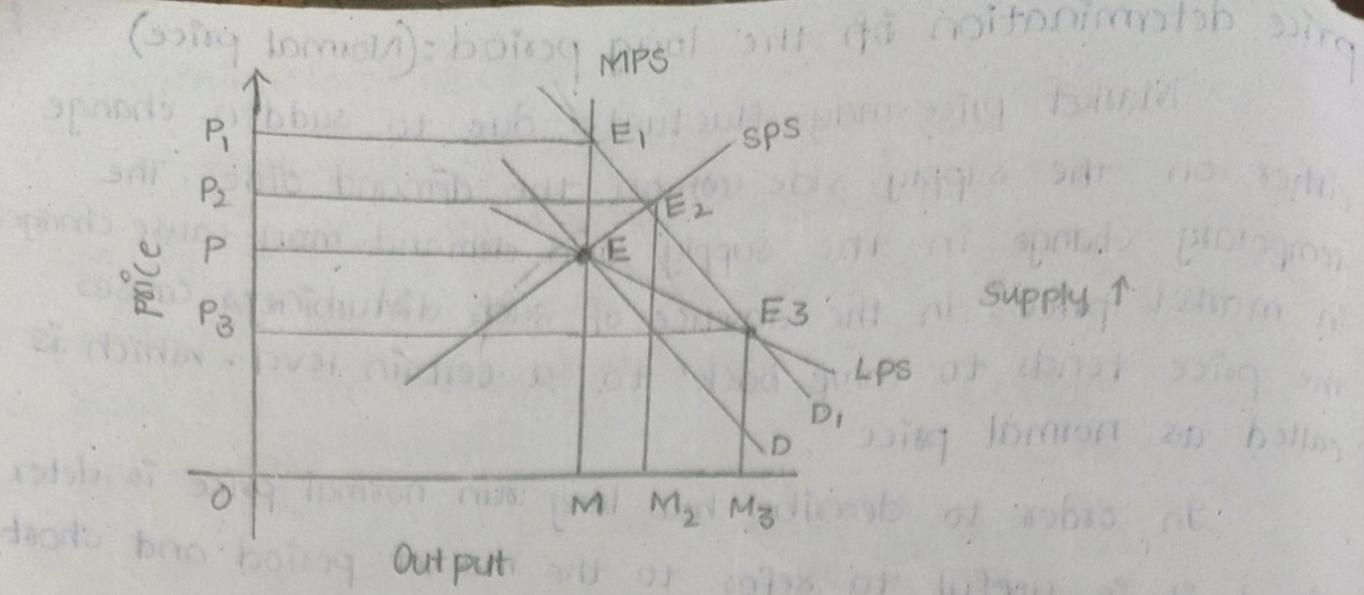
2. Constant returns (or) Constant cost

3. Diminishing returns (or) increasing cost

Determination of long period Normal price in decreasing cost industry:

At this stage average cost falls due to an increase in the output. So the supply curve at these stages will slope downward from left to right.

Upward



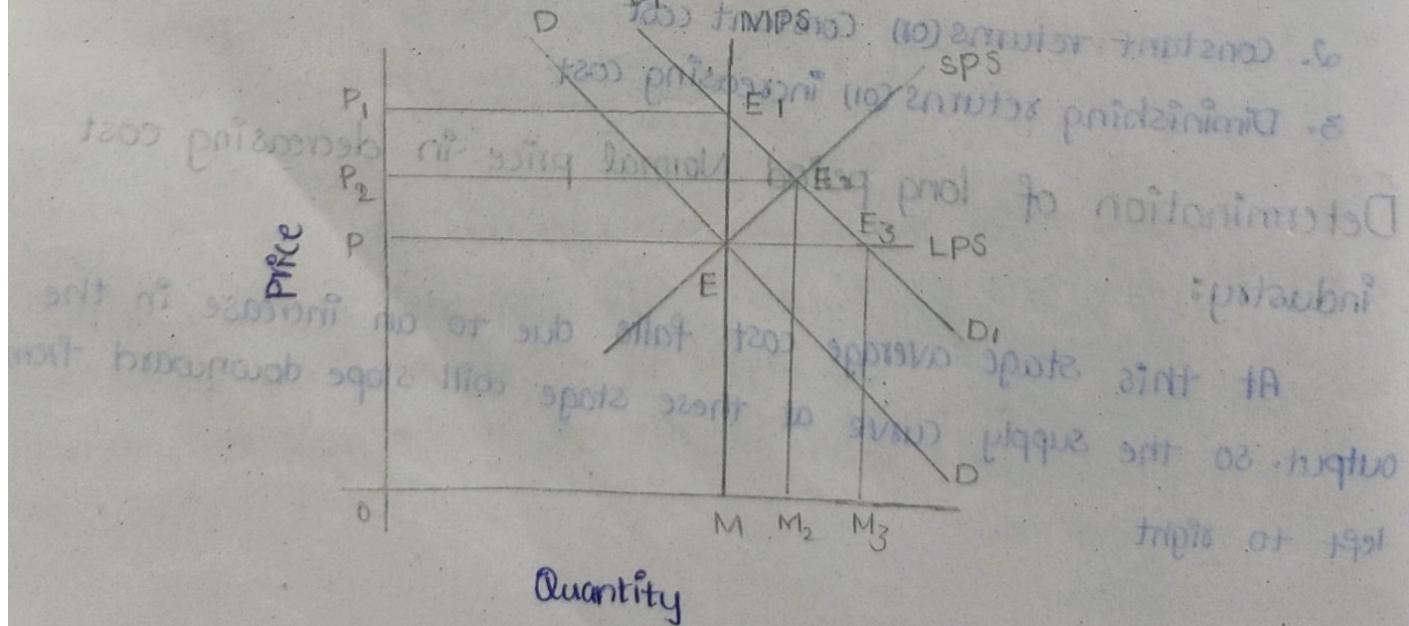
In the diagram MPS represents Market period Supply. D is demand curve. DD curve cuts MPS, SPS and MPS at point E.

At point E supply is OM and price OP. If demand increases from DD to D₁D₁ market price is OP₁ in the short price OP₂.

In the long period supply increases to OM₃ so price has fallen to OP₃, which is less than the price of market period.

Determination of Long period Normal Price in Constant Cost Industry

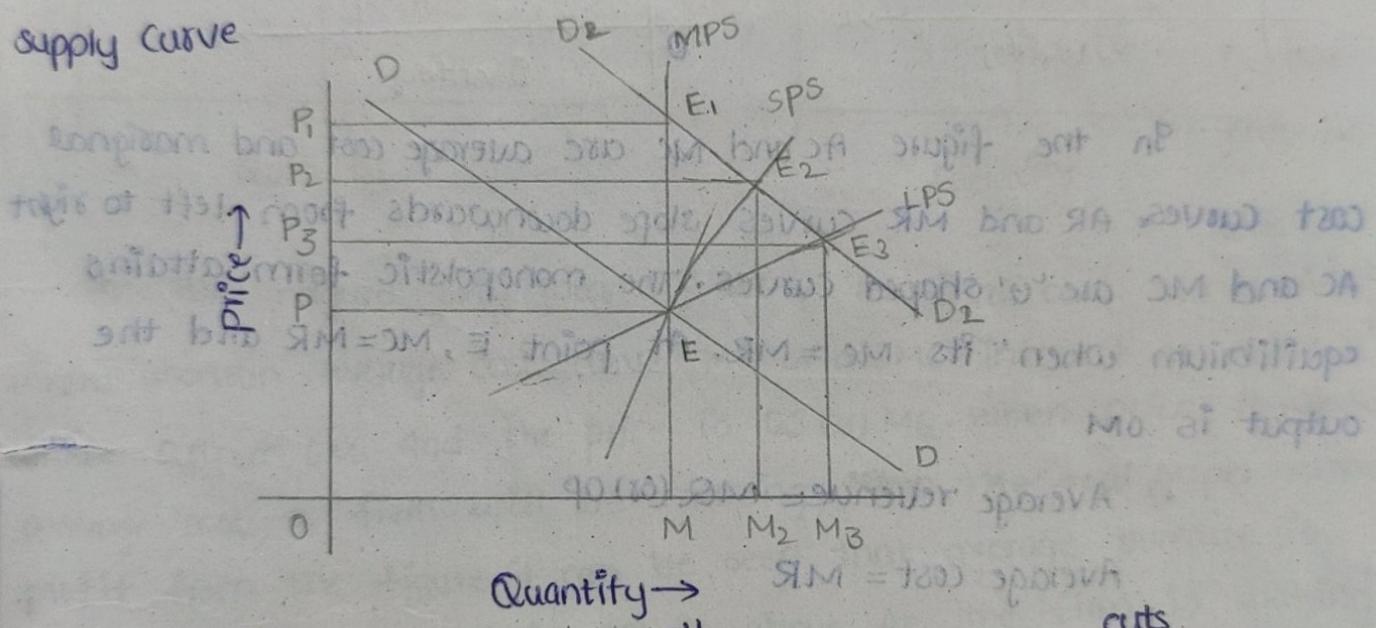
Average cost is constant price is constant if no fall or rise in output. In these case average cost doesn't change even though the output increases. Hence long period supply curve is horizontal to x-axis.



In the figure LPS is horizontal to x-axis at point E the output is 'OM'. And price is OP. If demand increases from DD to D₁D₁ market increases to OP₁ in the short period supply increases and hence the price will OP₂. In the longrun supply is adjusted fully to meet increased demand. The price remains constant at OP because costs are constant at OP and market is perfect market.

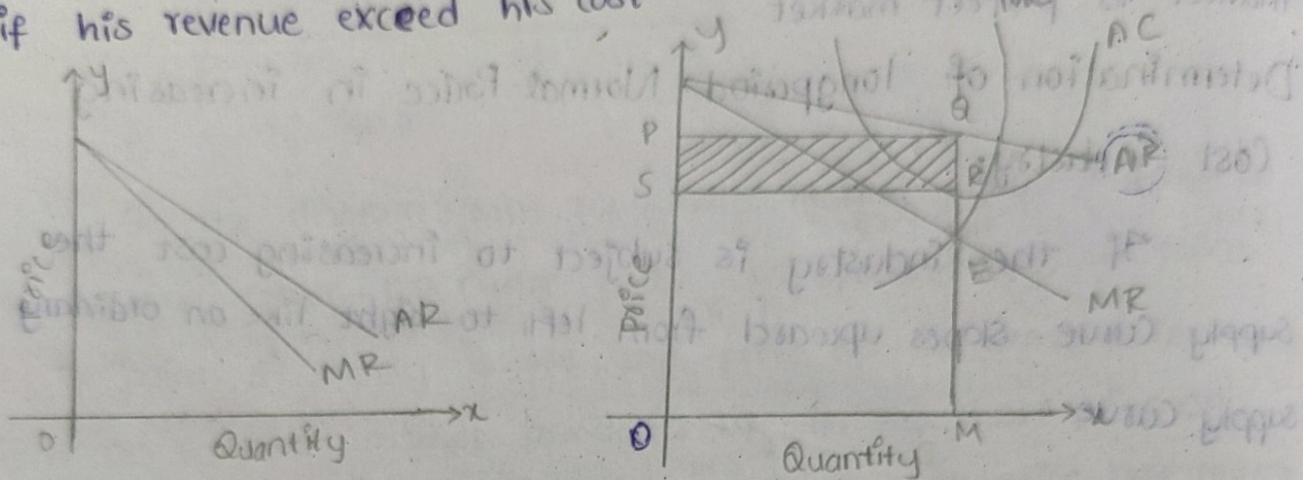
Determination of longperiod Normal Price in increasing Cost industry:

If the industry is subject to increasing cost the supply curve slopes upward from left to right like an ordinary supply curve



In the figure DD cuts the supply curve MPS at E hence the price is 'OP' and output is 'OM' if demand increases from DD to D₁D₁ in the market period supply will not change but the price increases to OP₁. In the short period price supply increases to OM₂ and price increases to OP₂. In the long period supply increases to OM₃ and price increases to OP₃. but this price is less than the price increase in market period and short period

Pricing Under Monopoly: The monopolistic form obtains equilibrium when its marginal cost equal to marginal revenue. The monopolist always decides to make maximum profits. He doesn't increase his output if his revenue exceed his cost.



In the figure AC and MC are average cost and marginal cost curves. AR and MR curves slope downwards from left to right. AC and MC are 'U' shaped curves. The monopolistic form attains equilibrium when its $MC = MR$. At point E, $MC = MR$ and the output is OM.

$$\text{Average Revenue} = MQ \text{ or } OP$$

$$\text{Average Cost} = MR$$

$$\text{Profit per unit} = \text{Average Revenue} - \text{Average Cost}$$

$$\text{Profit per unit} = MR - AC$$

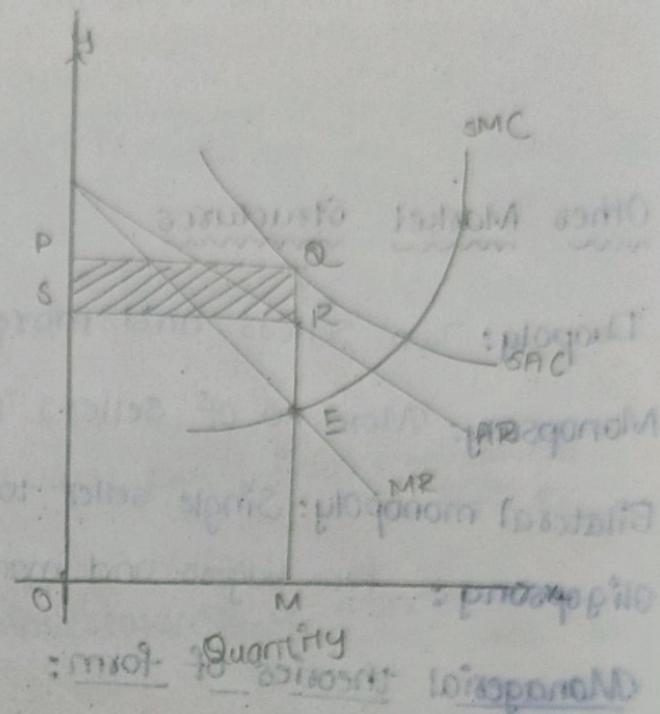
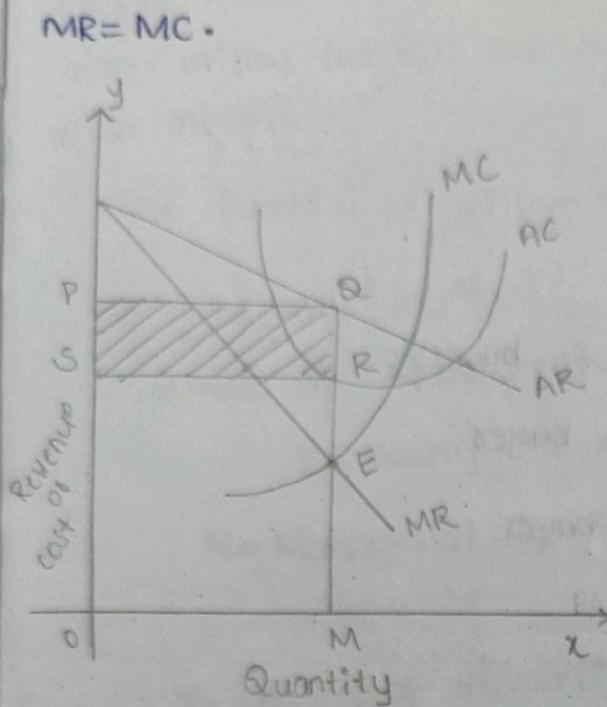
If $AR > AC$ that is abnormal supernormal profits. If $AR = AC$ normal profit.

If $AR < AC$ loss

Price determination Under Monopolistic form

shortrun Equilibrium of the form:

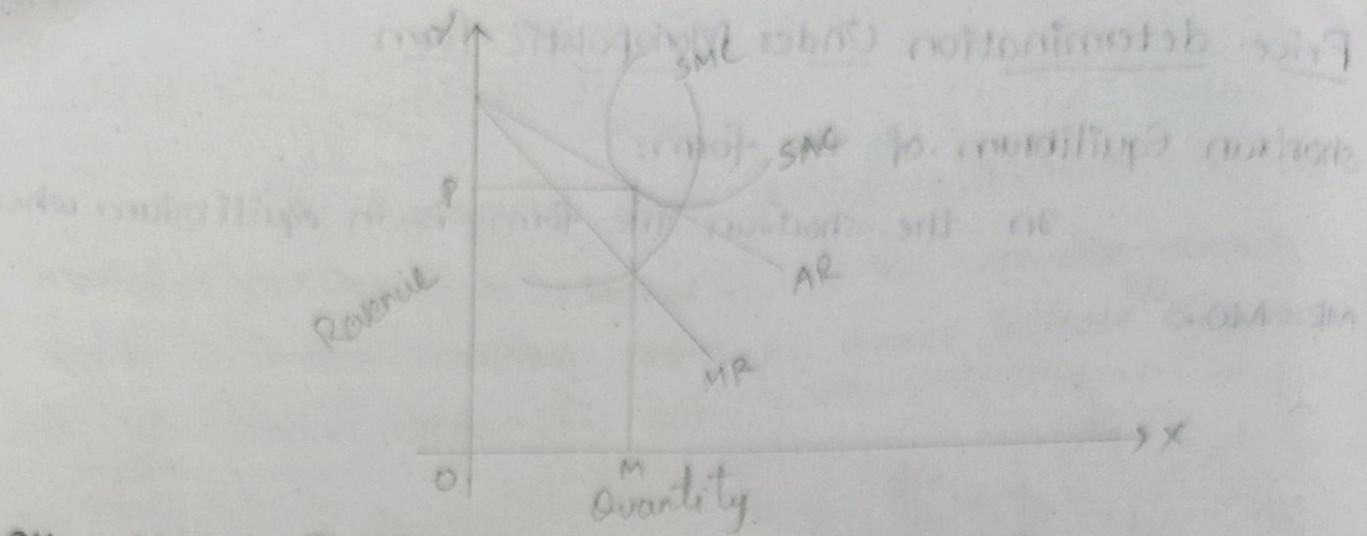
In the shortrun the firm is in equilibrium when $MR=MC$.



In the figure SMC means shortrun marginal cost curve SAC means shortrun Average cost curve MR and SMC intersect at point E where output OM. And the price is OS (or) MQ. When price is above average cost a firm will be making ~~more~~ super normal profit. From the figure it can be seen that average revenue is above the average cost. As AR is above AC the firm is making abnormal profits in the shortrun that is QR. If the demand and cost conditions are less ^{our} favorable the monopolistically competitive firm may incur loss in the shortrun as shown in the Fig iii) And MQ is ^{the average cost} and OS is the price per unit at equilibrium output OM where the price is less than the average cost of production.

Longrun Equilibrium of the form:

A monopolistically competitive firm can attain equilibrium where $MC=MR$ and $AC=AR$



Other Market Structures

Duopoly: Two sellers and more no of buyers

Monopsony: More no of sellers & single buyer

Bilateral monopoly: Single seller to single buyer

Oligopsony: Few buyers and many sellers

Managerial theories of form:

Marries Model: According to Marries, there are three main objectives of a firm:
 1. Profit maximization
 2. Shareholder welfare
 3. Managerial welfare

According to Marries, share holders strive for attaining profit and market share and managers strive for better salary, job security and growth. These objectives can be attained by maximizing the balanced growth of the firm.

The balanced growth of the firm relies mainly on the growth rate of demand for the firm's products and capital supply to the firm.

Marries found that firms face two difficulties:

i) Managerial

ii) Financial difficulties

William Son's Model:

It combines profit maximization and growth maximization objectives. According to this model managerial utility function makes use of discretionary power of maximizing their own utility function and maintains maximum profits for satisfying share holders.

The function of williamson's model is

$$x_n = f(R, N, Y_A)$$

Where x_n = Manager's utility function

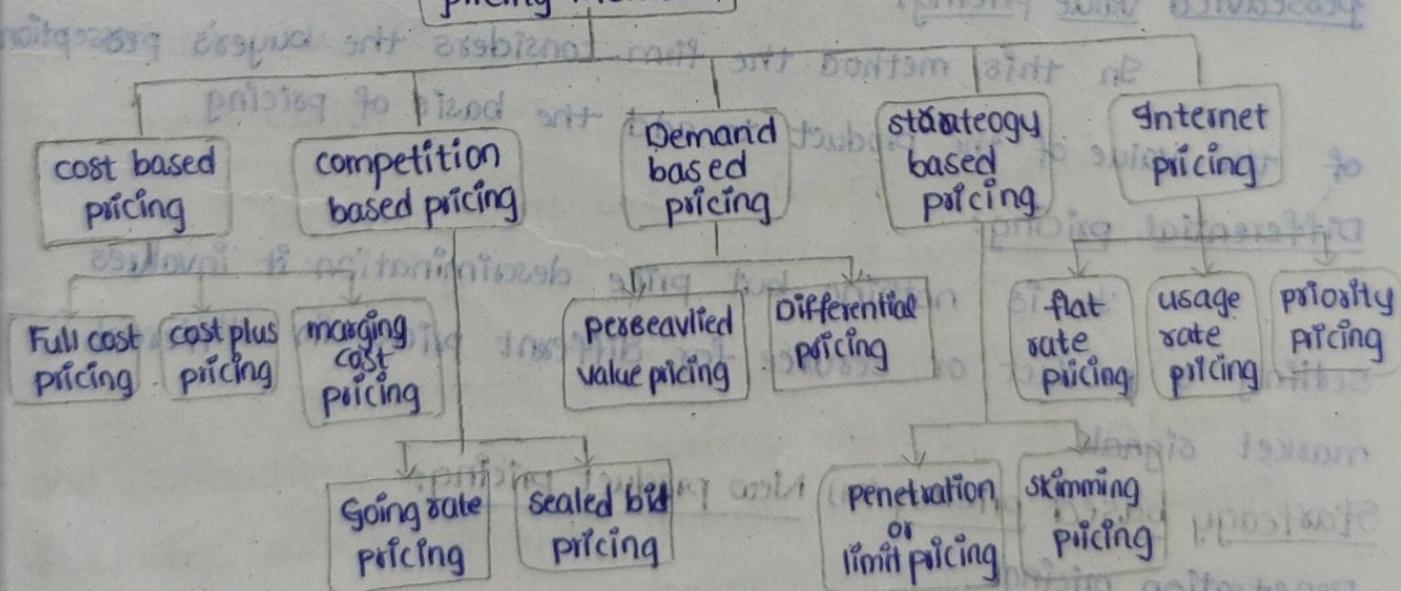
R = salary for manager

N = Managerial emoluments (salary, profit, from employment or office)

Y_A = power of discretionary investments of managers

The utility function of the managers relies on salary, job security, status and power

pricing methods



P Cost based pricing:

Full Cost (or) Average Cost pricing:

Under this method price just equals the average cost

Cost plus pricing:

In this method some markup is added to the average cost in arriving at the price

Managerial cost pricing:

In this method price is said equal to the managerial cost

Competition based pricing:

Going rate pricing:

In this method, firm prices its new product according to the prevailing prices of comparable products in the market

Sealed-bid pricing:

It is quite popular method in case of construction activities

Demand based pricing:

Perceived value pricing:

In this method the firm considers the buyer's perception of the value of the product to add the basis of pricing

Differential pricing:

It is nothing but price discrimination it involves selling a product or service for different prices in different market signals

Strategy based pricing (or) New product pricing:

Penetration pricing:

Under this method, firms sell their new product at a low price in the beginning in order to catch the attention of consumers, once the product image is established the sellers slowly starts increase the price to get good profits in future

Skimming pricing:

Under this strategy the new product is priced very high in the beginning, and its price is reduced gradually as it phases low demand from buyers. This strategy may be beneficial for products, which are fancy but of poor quality and insignificant use over a period of time.

Internet based pricing:

Flat-rate pricing:

Flat rate pricing is a pricing model where a business charges a fixed rate for a service instead of charging by the hour or for use of service.

Usage rate (or) usage sensitive:

The utility traffic is divided into two sections, the provider first charges for the service connection and then for the usage in terms of price per unit.

Priority Pricing:

The consumer's priority for service quality determines the price of internet services. Thus the price increases with the quality of internet service.

Business Cycle:

Business cycle are species of fluctuations in the economic activities if it is an organized communities

The Business cycle is an alternative expression and contractions in overall business activity as evidenced by fluctuations such as the gross product, the index of industrial production & employment and income deposit.

Phases of Business Cycle:

A business cycle is completed when it goes through a single boom and single contraction in sequence. The time period to complete this sequence is called the length of the business cycle.

1) Expansion:

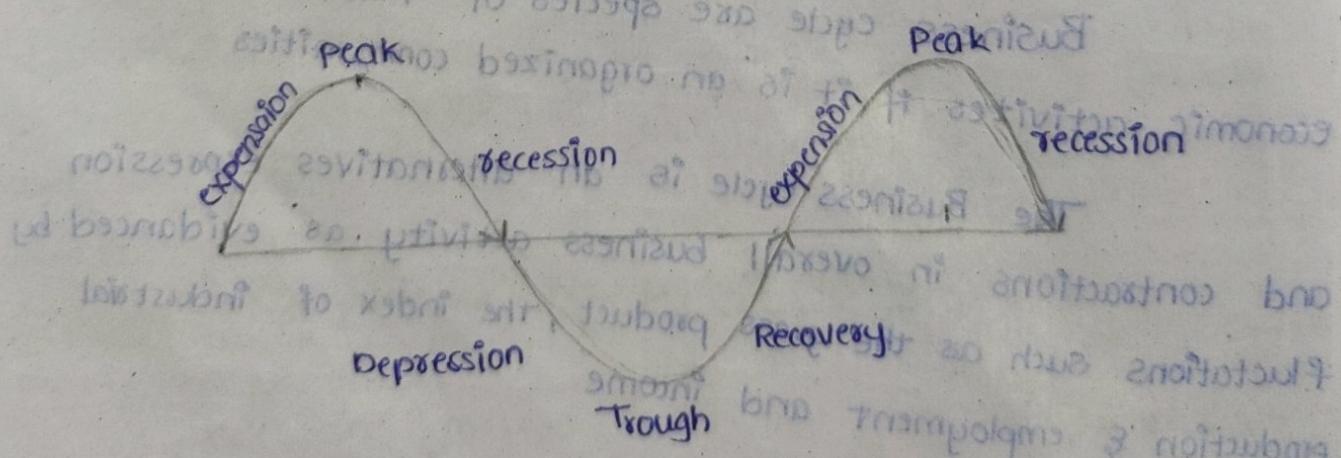
In this stage there is an increase in positive economic indicators such as employment, income, output, profits, demand and supply of goods and services. This process continues as long as economic conditions are favorable for expansion.

2) Peak:

The economy then reaches a saturation point or peak, which is the second stage of business cycle. The maximum limit of growth is attained. The economic indicators don't grow further. This stage marks the reversal point in the trend of economic growth.

3. Recession:

In this stage the demand for goods and services starts declining rapidly and steadily. Producers don't notice the decreasing in demand and go on producing which creates excess supply in the market so that prices tend to fall.



4. Depression: There is a drastic rise in unemployment. The growth in the economy continues to decline and this falls below the steady growth line, the stage is called depression

5. Trough:

In this stage there is further decline until to reach their lowest point. It is the negative saturation point for an economy.

6. Recovery:

In this phase there is a turn around in the economy and it begins to recover from the negative growth rate. The population develops a positive attitude towards investment and employment and production starts increasing.

Types of Business Organizations

Sole trader: Sole trader is the simplest oldest and natural form of business organization. It is also called as sole properties ship which means there is only one trader who is the owner of the business.

Features [Advantages]

1. It is easy to start to start and easy to close.
2. He introduces his own capital, he may borrow if necessary.
3. He enjoys all the profits and in case of loss, he alone suffers.
4. He has high degree of flexibility to shift from one business to the other.
5. Business secrets can be guarded well.
6. He can be directly in touch with the customers.
7. He can take decisions very fast and implement them promptly.

8. Rates of tax like income tax and so on are comparatively very low.

Disadvantages:

1. Unlimited liability
2. limited amount of capital
3. No division of labour
4. Uncertainty
5. Inadequate for growth and expansion
6. More competition
7. Low bargaining power

Partnership is an improved form of sole trader in certain aspects. These are like minded persons with resources, they can come together to do the business and share the profits/losses of the business in an agreed ratio.

Features / Advantages:

1. Relationship
2. Two or more persons
3. Agreement
4. Carried on by all or any one of them acting for all
5. Unlimited liability
6. Personal contact with the customers
7. Flexibility

Disadvantages:

1. formation of partnership is difficult
2. lack of harmony
3. limited growth
4. Instability
5. lack of public confidence

Joint Stock Company: The joint stock company emerges from the limitations of partnership such as unlimited liability, limited resources and uncertain duration and so on.

The main principle of the joint stock company is to provide opportunity to take part in business with a low investment it means people come together to earn their livelihood while investing in the stock of company jointly.

The concept of joint stock company of organization is "An association of many persons who contribute money or money's worth to a common stock and employing it for a common purpose".

Features:

1. Artificial person
2. Separate legal existence
3. Voluntary association of persons
4. Limited liability

5. Capital divided into shares

6. Transferability of shares

7. Common seal

8. Ownership and management separated

9. The name of the company ends with "limited".

Disadvantages:

1. Formation of company is long drawn procedure
2. High degree of government interference
3. Indecision in decision making
4. Lack of initiative
5. Lack of responsibility and commitment

public Enterprises: public enterprises occupy an important position in Indian economy today. Its investment of over 10,000 crore is in heavy and basic industry and infra-structure like power, transport etc.

Need for Enterprises:

Public enterprise is an undertaking owned and operated by the central or state government. The basic aim of these enterprises is to provide goods and services to the citizens at a reasonable price.

1. Economic growth
2. Avoiding exploitation
3. Creating employment opportunity
4. Utilization of natural resources
5. Government revenue

Forms of Public Enterprises

1. Departmental Undertaking:

Departmental undertaking function as a part of government departments each department of the government has a minister who controls the operations of this enterprise. Normally a managing director is appointed to control this enterprises IAS officers are posted as the managing directors.

Ex:- Civil, strategic industries, Railway department

2. Statutory Corporations:

It is a body, which is formed by the government by passing an act in the legislature. The main aim of creating this corporations is to simplify the process of governance. These bodies are autonomous.

3. Government Company:

According to the Indian Companies Act 1956 govt company means any company which have not less than 51% paid up share capital held by the central or state government

Capital held by the central or state government
is the capital which is held by the central or state government for the purpose of carrying out its functions. It includes all the assets owned by the government such as land, buildings, machinery, equipment, vehicles, etc. It also includes all the expenses incurred by the government in the course of its business (salaries, wages, rent, electricity, water supply, telephone, etc.).
The cost of production (market service, labor, raw materials, etc.)
to produce and cost of distribution (labor, raw materials, etc.)
are included in the cost of capital.

Capital can be divided into:
1. Fixed Capital: It is required for the long term use of business.
2. Working Capital: It is required for the day-to-day running of business.

Working capital is required for conducting day-to-day business. It includes all the expenses of production. It is also known as working capital.

If we want to increase our efficiency for conducting business then it is necessary to invest in fixed assets. It is used for future expansion of business. It is also known as investment.

Trade receivables
Trade payables
Inventory
Bank balance

Long-term effects on profit and loss statement

discrete risk

different outcome

29/01/22

UNIT-5

Capital and Capital Budgeting

Capital: ①

~~Capital is the very important aspects of an enterprises without enough capital, no enterprise can run its business smoothly and achieve business objectives~~

The total capital required by an enterprise depends upon factors like cost of fixed assets (land, buildings, machinery etc...), cost of current assets (cash, and bank balance, stock etc.), cost of promotion (market service, legal advice etc...), cost of financing and cost of intangible assets (good will, patents, etc.).

Types of Capital:

Capital can be broadly divided into

1. fixed Capital: It is required to meet the long term needs of the business
2. Working Capital: It is required for conducting day to day business operations. It is also known as short term capital

Capital Budgeting: ③ Introduction.

It means planning for capital assets. It involves decision on investment of a firm's funds in long term activities in expectation of future benefits over a series of years.

features and significances: ⑥ Features:-

1. Large Investments
2. Long term commitment
3. long term effect on profitability
4. greater risk
5. national importance

Capital Budgeting Process

1. Identification of investment proposals
2. screening the proposals
3. evaluation of various proposals
4. establishing priorities
5. final approval
6. Implementation of proposals
7. performance review

Cash Inflows and Outflows:

No costs and benefits associated with the investment must be measured in terms of cashflows.

a) costs are cash outflows
 b) benefits are cash inflows

Evaluation methods:

The methods of appraising capital expenditure proposals can be classified into 2 broad categories:

1. Traditional methods
2. modern (or) Discounted cashflow techniques

1. Traditional methods (or) non-discounting methods:

This methods are based on principles of to determine the desirability of an investment project will help the company to decide upon the on the basis of useful life and expected returns.

(i) payback period method (PBP):

It is the most popular and widely recognize traditional method it is defined as the number of years required to recover the original cash outlay invested in a project

4000	000,00	IV
4000	000,00	V
4000	000,00	VI
4000	000,00	VII

$$PBP = \frac{\text{cash outlay (or) original cost of the project}}{\text{Annual cash inflow}}$$

Merits:

- It is one of the earliest methods of evaluating projects.
- It is simple to understand and to compute. It is one of the widely used method in small scale industry sector.

Demerits:

- This method fails to take into account the cash flows received by the company after the payback period.
- It doesn't take into account the interest factor involved in an investment.

- The cost of the project is ₹ 50,000. Annual cash inflows for the next 4 years is ₹ 25,000. What is the payback period?

1st method:

Sol: Cost of the project is ₹ 50,000

Annual cash inflow ₹ 25,000

$$PBP = \frac{\text{cost of the project}}{\text{Annual cash inflow}} = \frac{50,000}{25,000} = 2 \text{ years}$$

2nd method:

The are projects which require an equal investment of ₹ 50,000 and are expected to generate net cash flows as under:

Year	Project I	Project II
End of I year	₹ 5,000	10,000
End of II year	15,000	12,000
End of III year	10,000	18,000
IV	-	25,000
V	12,000	8,000
VI	6,000	4,000

Calculate PBP for each project

Sol: PBP for project - I

Year	CF	CCF Cumulative
I	25,000	25,000
II	15,000	40,000
III	10,000	50,000
IV	-	50,000
V	12,000	62,000
VI	6000	68,000

Year	CF	CCF
I	10,000	10,000
II	12,000	22,000
III	18,000	40,000
IV	25,000	65,000
V	8000	73,000
VI	4000	77,000

$$PBP = 4 \text{ years}$$

$$3 \text{ years} = ₹ 40,000$$

$$= \frac{50,000 - 40,000}{5,000} \times 12 = 10$$

$$= \frac{10,000}{5,000} \times 12$$

$$\frac{10}{5} = 2 \text{ years} = 24 \text{ months}$$

$$= 4.8$$

$$PBP = 3 \text{ years } 4 \text{ months } 8 \text{ days}$$

∴ Project II is selected because it generated the investment within min time period

* The A project with the shortest payback period will be given the highest rank and taken as the best investment

Accounting or Average rate of return method (ARR):

It is an accounting method which uses the accounting information repeated by the financial statements to measure the probability of an investment proposal

$$ARR = \frac{\text{Avg net income after taxes}}{\text{Avg investment}}$$

$$\text{Avg net income} = \frac{\text{Total income after tax}}{\text{No of years}}$$

$$ARR = 12.4\%$$

$$IAR$$

$$\text{Avg investment} = \frac{\text{Total investment}}{2}$$

1. The investment of project X is 80,000/- and project Y while is 1,20,000/- the expected life of the project X is 4 years and Y is 5 years. calculate each project ARR

	1	2	3	4	5	
Years	1	2	3	4	5	
X-CF	8000	6000	6000	4000	1000	
Y-CF	12000	12000	8000	4000	4000	
	8000	6000	6000	4000	1000	

$$8000 + 6000 + 6000 + 4000 + 1000 = 26000$$

Sol: Calculate of ARR for the project X

$$ARR = \frac{ANI}{AI} \times 100$$

$$ANI = \frac{TI}{\text{No of years}}$$

$$= 8000 + 6000 + 6000 + 4000$$

$$= \frac{24000}{4}$$

$$AI = \frac{1}{2} [\text{Total Investment}]$$

$$= \frac{80,000}{2}$$

$$ARR = \frac{6000}{40,000} \times 100$$

$$ARR = 15\%$$

calculate of ARR for project Y

$$ANI = \frac{AI \times \text{No of years}}{\text{No of years}} = \frac{12000 \times 5}{5} = 12000$$

$$= \frac{12000 + 12000 + 8000 + 4000 + 1000}{5}$$

$$= \frac{40000}{5} \\ = 8000$$

$$AI = \frac{1}{\alpha} [\text{Total Investment}]$$

$$= \frac{6}{120000} \times 120000$$

$$= 60000$$

$$ARR = \frac{\frac{4}{3}}{120000} \times 100$$

$$= 13.33\%$$

Project X should be accepted because it has higher rate of return.

2. Discounted Cash flow method (DCF):

The traditional method doesn't take into consideration the time value of money. The DCF methods are based on the concepts that a rupee earned today is more worth than a rupee earned tomorrow. This methods take into consideration profitability and also time value of money.

i) Net present value method: (NPV)

$$NPV = I - CA$$

The NPV takes into consideration the time value of money. It is a present value of future returns discounted at the required rate of return - The present value of the cost of investment.

$$NPV = \sum_{t=1}^n \frac{C_t}{(1+k)^t}$$

Where C is investment, k = cost of the capital / discounting rate

C₁, C₂, C₃, ..., C_n cashflows in different years.

NPV = present value of cash inflows - Original investment.

* According to NPV technique if a project's NPV is less than zero then one should select the project.

Merits:

1. It recognizes the time value of money
2. It is based on the entire cash flows generated during the useful life of the asset
3. It is consistent with the objective of maximization of wealth of the owners

Demerits:

1. It is difficult to understand and use
2. It doesn't give solutions when the comparable projects are involved in different amounts of investment

12) Information: Cost of the project Rs. 60000 - Life of the project 4 years

Years 1 2 3 4
CF 15000 20000 30000 20000

cost of capital at @ 10% calculate NPV

* scientific

$$I = \text{Ans} - 1.10$$

$$I = 1.10$$

	15000	0.9090	13635
1	15000	0.9090	13635
2	20000	0.826	16520
3	30000	0.751	22530

	20000	0.683	13660
4	20000	0.683	13660

	20000	0.683	13660
4	20000	0.683	13660

	20000	0.683	13660
4	20000	0.683	13660

	20000	0.683	13660
4	20000	0.683	13660

	20000	0.683	13660
4	20000	0.683	13660

$$NPV = PVFC - OI$$

$$= 66,345 - 60,000$$

$$NPV = 6345 > 0$$

Accept project X has NPV is greater than zero

Cost of the project is ₹ 60,000 Life of the project is 5 years
discount rate is @10%.

Years	1	2	3	4	5
CF	50,000	50,000	50,000	50,000	1,90,000

calculate payback period, ARR, and NPV

Sol: payback project

cost of the project is ₹ 60,000

Year	CF	CCF
1	50,000	50,000
2	50,000	1,00,000
3	50,000	1,50,000
4	50,000	2,00,000
5	1,90,000	3,90,000

$$PBP = 4 \text{ years}$$

Other terms profit on benefit ratio is also in bottom row

ARR:

$$ARR = \frac{ANI}{AI} \times 100$$

$$ANI = \frac{\text{Present value of net cash inflows}}{\text{No. of years}}$$

$$= \frac{50,000 + 50,000 + 50,000 + 50,000 + 1,90,000}{5}$$

$$= \frac{3,90,000}{5} = 78,000$$

$$AI = \frac{1}{5} [2,00,000]$$

$$= 1,00,000$$

$$ARR = \frac{-18,000}{1,00,000} \times 100$$

$$= -18\%$$

NPV:

Year	CFAT	PVF@10%	PVCFA
1	50,000	0.909	45450
2	50,000	0.826	41300
3	50,000	0.751	37550
4	50,000	0.683	34150
5	1,90,000	0.6209	117971
$\sum PVACFA =$			2,76421

$$NPV = PVCFA - OI$$

$$= 2,76,421 - 2,00,000$$

$$= 76421$$

Accept project x has $NPV > 0$

Profitability Index: (PI)

The method is also called as benefit cost ratio
this method is obtained with a slight modification of the
NPV method

PI = Present value of future cashflows / Original Investment

If the PI is more than 1 then the proposal is accepted
else rejected.

Merits:

1. It requires less computational work than other methods
2. It helps to accept or reject investment proposal on the basis of value of the index.

Demerits:

1. It is somewhat difficult to understand, some people may feel that no limitation for index number due several competitors involved in the competition
1. Calculate NPV and profitability index for project X initially costing ₹ 50,000 if it has 10% cost of capital, it generates following cash flows

Year	Cash Flow	PV @ 10%	PVCF
1	90000	0.909	81810
2	80000	0.826	66080
3	-10000	0.751	52510
4	60000	0.683	40980
5	50000	0.620	31050
			$\sum PV = 272490$

$$NPV = PVCFAT - OI$$

$$= 272490 - 50000$$

$$= 222490$$

$$PI = \frac{PVCFAT}{OI}$$

$$\text{OI to solar project} = \frac{272490}{50000}$$

$$\text{OI to solar project} = \frac{272490}{50000} = 5.4498$$

The project X is accepted as $PI > 1$

Internal Rate of Return (IRR)

This technique is also known as yield on investment, marginal productivity of capital, marginal efficiency of capital and time adjusted rate of return etc.

The IRR is usually the rate of return that a project earns this not a predetermined rate rather it is to be trial and error method. The process is continued till the net present value becomes zero or negative

$$IRR = L + \frac{P_1 - Q}{P_1 - P_2} \times D$$

where L = Lower discount rate

P_1 = present value of cash inflows at lower rate

P_2 = present value of cash inflows at higher rate

Q = Actual investment

D = Difference in discount rates

Merits:

1. It considers the time value of money

2. It takes into account the cash flows over the entire useful life of the asset

Demerits:

1. It is very difficult to understand

2. It involves very complicated computational work

*. When any project generates uneven cashflow, the IRR can be find out by trial and error method. If the calculated present value of the expected cashflows is lower than the present value of cashout flows a lower rate should be tried and vice-versa.

These process can be repeated unless the NPV becomes zero

or negative.

1. A project costs ₹2,000 and is expected to generate cash inflows of suppose ₹16,000, 14,000, 12,000, at the end of each year for next 3 years. calculate IRR

Sol: Let us take first trial by taking 10% as discounting factor randomly. A positive NPV at 10% will calculate as

Year	CF	PVCF@10%	PV	PV@18%	PV
1	16,000	0.909	14544	0.847	13552
2	14,000	0.826	11564	0.7181	10052
3	12,000	0.751	9012	0.608	7308
$\Sigma PV = 35120$			$\Sigma PV = 30912$		

$$NPV = 35120 - 32,000 = 3120 > 0$$

$$\frac{16,000}{0.008} = \frac{P_1 - Q}{P_1 - P_2} \times D$$

$$IRR = 10 + \frac{P_1 - Q}{P_1 - P_2} \times D$$

$$IRR = 10 + \frac{35120 - 32000}{35120 - 30912} \times (18 - 10)$$

$$= 10 + \frac{3120}{4208} \times 8 = 15.93\%$$

$$IRR = 10 + 0.741 \times 8 = 15.93\%$$

$$IRR = 15.93\% > 10\%$$

A positive NPV at 10% indicates that the projects true rate of return is higher than 10%. so another trial is taken random at 18%. At 18% NPV is negative so the projects IRR is b/w 10% and 18%. so we get IRR at 16%. the project can be accepted as IRR is more than cost of capital ($16\% > 10\%$)

Decision Rule:

When IRR is used to make accept or reject decisions, the decision criteria is as follows

If the $IRR >$ Cost of capital, accept the project

If the $IRR <$ Cost of capital, reject the project

1. A project requires an initial investment of ₹ 20,000/- with a useful life of 5 years. The projected cash inflows for each year are as follows:

Sol: year 1 2 3 4 5

CIF 7000 9000 8000 6000 10000

calculate the payback period and ARR

Sol:

Year	CIF	CCF	NPV	IRR
1	7000	7000		
2	9000	16000	2 years = 16,000	
3	8000	24000	= $\frac{20,000 - 16,000}{8000} \times 12$	
4	6000	30000	= $\frac{4000 \times 12}{8000}$	
5	10000	40000	= $\frac{8000 + 6}{8000}$ = 6 months	

$$ARR = \frac{ANI}{AI} \times 100 = \frac{200,500 + 9,000}{20,000} \times 100 = 10.5\%$$

$$ANI = \frac{TI}{\text{No of years}} = \frac{200,500 + 9,000}{5} = 40,100$$

$$= 8000 \times 10.5\% = 840$$

$$AI = \frac{20,000}{10.5\%} = 10,000$$

$$ARR = \frac{8000}{10,000} \times 100 = 80\%$$

$$ARR = 80\%$$

→ If depreciation and scrap value

$$\text{Depreciation per annum} = \frac{\text{Cost of asset} + \text{Installation cost} + \text{charge - scrap value}}{\text{Life of asset in years}}$$

$$AI = \frac{(TI - \text{scrap value})}{2 \times \text{scrap value}}$$

1. A machine cost ₹ 60,000/- with an economic life of 6 years annual cash flows are expected to be ₹ 5,000/- the machine has no scrap value and is depreciated under straight line method calculate ARR

$$\text{Sol: } \text{ARR} = \frac{\text{ANI}}{\text{AI}} \times 100$$

Method Annuity

Type of cash inflow annuity

$$\text{Depreciation per year} = \frac{CA + I e - SV}{\text{Life of asset}}$$

$$= \frac{60,000 + 10,000}{6}$$

$$\text{ARR} = \frac{\text{ANI}}{\text{AI}} \times 100$$

$$\text{Annual cash inflow} = \text{cash inflow} - \text{Depr} = \text{ANI}$$

$$= 25,000 - 10,000$$

$$\text{ANI} (\text{COPACPAT}) = 15,000$$

$$\text{AI} = \frac{(\text{TI} - \text{Scrap value}) + \text{Scrap value}}{2}$$

$$= \frac{60,000}{2} = 30,000$$

$$\text{ARR} = \frac{\text{ANI}}{\text{AI}} \times 100$$

$$= \frac{15,000}{30,000} \times 100 = 50\%$$

A machine cost ₹ 1,00,000 and has no scrap value after 5 years it is depreciated on straight line bases the expected cashflow are as follows

Year	1	2	3	4	5
CF	50,000	40,000	60,000	30,000	30,000

calculate ARR

Sol: Type of cash inflow: mixed stream

total factor

Year	CF	Depreciation	Profit After Tax PAT
1	50,000	20,000	30,000
2	40,000	20,000	20,000
3	60,000	20,000	40,000
4	50,000	20,000	10,000
5	30,000	20,000	<u>10,000</u>
	<u>2,10,000</u>		<u>1,10,000</u>

$$\text{Depreciation} = \frac{C + I - L - S}{\text{No of years}} = \frac{1,00,000}{5} = 20,000$$

$$ARR = \frac{ANI}{AI} \times 100$$

$$ANI = \frac{1,10,000}{5} = 22,000$$

$$AI = \frac{1,00,000}{5} = 20,000$$

$$= 22,000 - 20,000 = 2,000$$

$$= 50,000$$

$$ARR = \frac{ANI}{AI} \times 100$$

$$= \frac{22,000}{20,000} \times 100 =$$

$$= 110\% = 110 \times 100 =$$

$$= 110\% = 110 \times 100 =$$

$$= 110\% = 110 \times 100 =$$

4. A project receives an initial investment of ₹ 1,00,000 at a cost of capital of 20%. The annual CIF's generated by the project during its five years of economic life are ₹ 30,000/- calculate IRR.

IRR

Sol: Type of CIF's : Annuity

Method: Trial & error

PV factor

5. Determine IRR, NPV and PI from the following data - Project cash inflow

Investment

Rs 2,50,000

project CIF

0.8

year 1

40,000

0.64

2

60,000

3

75,000

4

85,000

5

70,000

6

50,000

Sol: year

CIF

PV@10%

PVCFAT

PV@15%

PVCFAT

40,000

40,000

60,000

75,000

85,000

70,000

50,000

3

4

5

6

0.909

0.826

0.751

0.683

0.621

0.564

0.471

0.393

0.322

36,360

49,560

43,470

58,055

56,305

28,200

21,600

19,170

16,910

0.869

0.756

0.657

0.572

0.497

0.432

0.347

0.275

0.205

34,760

45,360

34,790

48,260

21,600

2,34,405

49,275

58,910

65,595

Original Inv

2,50,000

NPV@10%

21,970

ARR = 1.61%

IRR = 10.91%

NPV = 21,970

so IRR is between 10% and 15%.

$$\begin{aligned}
 \text{IRR} &= 10 + \frac{P_1 - Q}{P_1 - P_2} \times D \\
 &= 10 + \frac{\text{Rs} 71,970 - \text{Rs} 50,000}{\text{Rs} 71,970 - \text{Rs} 34,405} \times (15 - 10) \\
 &= 10 + \frac{21,970}{37,565} \times 5 \\
 &= 10 + 0.92\% \\
 &= 12.92\%
 \end{aligned}$$

The project can be accepted as IRR (12.92%) > cost of capital (10%).

$$PI = \frac{PV(CFAT)}{OI} = \frac{\text{Rs} 71,970}{\text{Rs} 50,000} = 1.43 > 1$$

6. from the following find payback period, ARR, IRR, NPV and PI. OI 5,00,000
life of the project 5 years discounting factor 10%.

Year	1	2	3	4	5
CIF	2,00,000	2,00,000	1,50,000	1,50,000	2,00,000

Year	CIF	CF	PVF@10%	PVF@25%
1	2,00,000	2,00,000	0.909	0.8
2	2,00,000	4,00,000	0.826	0.64
3	1,50,000	5,50,000	0.751	0.512
4	1,50,000	7,00,000	0.683	0.327
5	2,00,000	9,00,000	0.621	0.209

$$\text{Payback Period} = \frac{\text{Rs} 5,00,000}{\text{Rs} 9,00,000} \times 12 = 6.67 \text{ years}$$

$$\text{PBP} = 2 \text{ years } 8 \text{ months}$$

$$\begin{aligned}
 \text{ARR} &= \frac{\text{ANF} \times 100}{\text{AI}} \quad \text{ANF} = \frac{\text{CF}}{\text{No of years}} \\
 &= \frac{9,00,000}{5} = 1,80,000
 \end{aligned}$$

$$\text{AI} = \frac{1}{2} [5,00,000] = 2,50,000$$

$$\text{ARR} = \frac{1,80,000}{2,50,000} \times 100 = 72\%$$

$$NPV = PVCFAT - OI$$

$$= \frac{1700000}{6,86,300} - 5,00,000$$
$$= 1,86,300 > 0$$

$$PT = \frac{PVCFAT}{OI} = \frac{6,86,000}{500,000} = 1.372 > 0$$

so IRR between 10% and 25%.

$$IRR = L + \frac{P_1 - Q}{P_1 - P_2} \times D$$

$$= 10 + \frac{686,300 - 5,00,000}{6,86,300 - 4,55,650} \times (25 - 10)$$

$$= 10 + \frac{1,86,300}{2,30,650} \times (15)$$

$$= 10 + (0.807) \times 15$$

$$= 10 + 12.11$$

$$= 22.11\%$$

IRR is 22.11%

Introduction to Financial Accounting

Book keeping and Accounting:

Book keeping: It involves the chronological recording of financial transactions in a set of books in a systematic manner.

Accounting: Accounting is concerned with the maintenance of accounts giving stress to the design of the system of records, the preparation of reports based on the recorded day and interpretation of the reports.

Definition of Accounting

Accounting system is a means of collecting summarizing analyzing and reporting in monetary terms, the information about the business.

Branches of Accounting:

Financial accounting: The purpose of this is to ascertain time the financial results that is profit or loss in the operation and financial position that is assets, liabilities and equative position at the end of the period.

Cost accounting: The purpose of this branch is to ascertain time the cost of a product (any operation or project) and the costs incurred for carrying out activities.

Management accounting: It aims to assist the management in taking correct policy decision.

Inflation accounting: It is concerned with the adjustment in the value of asset and profit in light of changes in the price level.

Human resource accounting: It is a branch of accounting which seeks to report the importance of human resources in a company's earning process and total assets.

Functions of Accounting

1. Designing Work:

a. Recording work

b. Summarizing work

c. Interpretation work

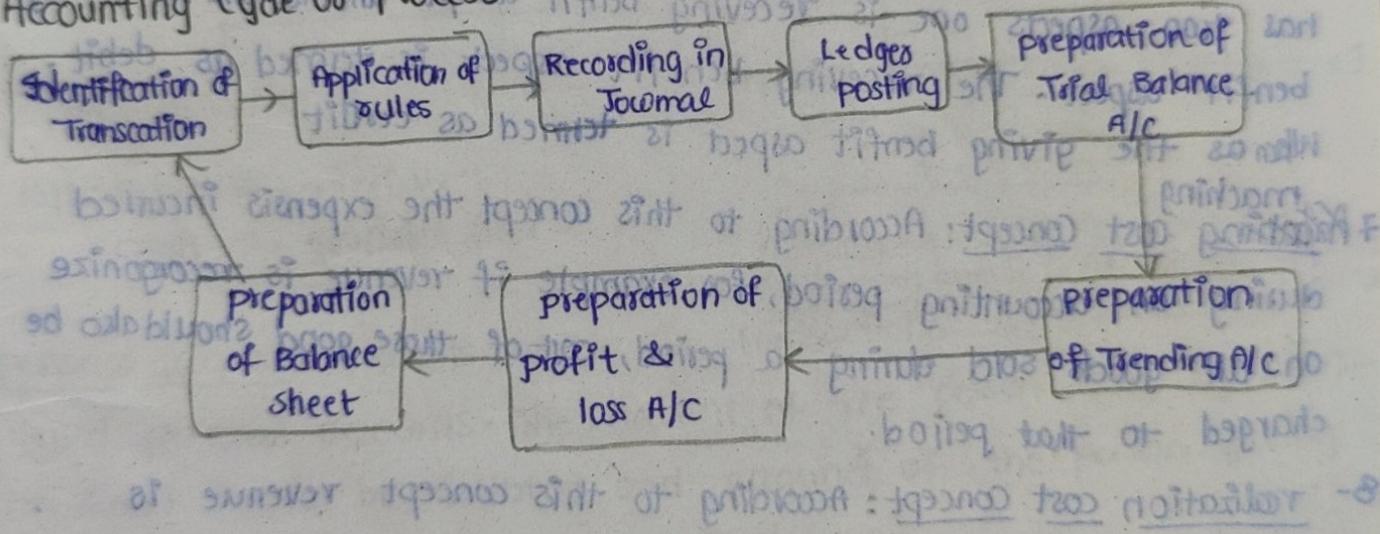
d. Reporting work

e. Preparation of budget

f. Taxation work

g. Auditing work

Accounting Cycle or Process



This cycle of accounting begins with identification of the transaction after identification it is recorded in journal according to rules of double entry book keeping and the posted into ledgers. At the end of the financial year from this ledgers, trial balance is prepared. This trial balance helps in the preparation of trading, profit and loss account and balance sheet. This process gets repeated every year. Therefore it is called as "accounting cycle".

Business Concepts

1. Business entity concept: In this concept business is treated as separate from the proprietor.

2. Going Concern Concept: This concept relates with the long life of business the assumption is that business will continue to exist for unlimited period.
3. Money measurement Concept: In this concept only those transactions are recorded in accounting which can be expressed in terms of money.
4. Cost Concept: According to this concept asset can be recorded at its cost in the book of account but in balance sheet the depreciation of asset can only be detected.
5. Accounting period Concept: Usually 1 year period is considered to know the result of an investment or effect made by business man this period is called accounting period.
6. Dual aspect Concept: According to this concept every business transaction has two aspects one is receiving benefit accept another one is giving benefit aspect. The receiving benefit aspect is termed as debit whereas the giving benefit aspect is termed as credit.
7. Matching cost Concept: According to this concept the expenses incurred during the accounting period, for example if revenue is recognized on all goods sold during a period, cost of those goods should also be charged to that period.
8. realization cost concept: According to this concept revenue is recognized when a sale is made.
- Accounting Conventions
1. full disclosure
2. materiality
3. Consistency
4. Conservatism

Advantages from accounting:

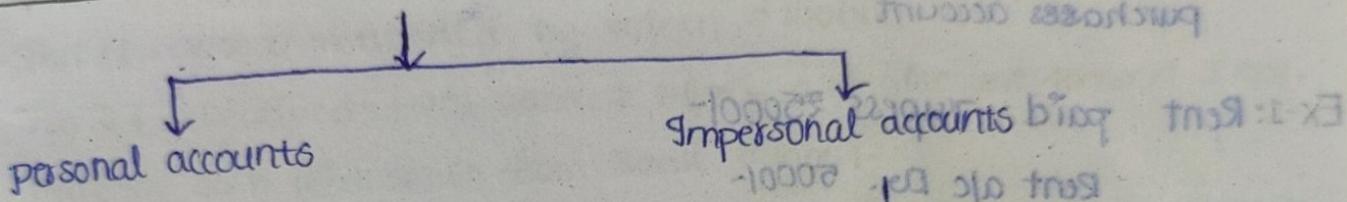
- provides for systematic records
- Facilitates the preparation of financial statements
- provides control over assets

- + provides the required information
- 5. Comparative study
- 6. Less scope for fraud or theft
- 7. Tax matters
- 8. Ascertaining value of business
- 9. Documentary evidence
- 10. Helpful to management

Limitations of accounting:

- 1. Doesn't records all events
- 2. Doesn't reflect current values
- 3. Shadqueat information on cost and profits
- 4. Estimates based on personal judgement

Classification of business transactions (b) Classification of Accounts



Rule: Debit - the received
credit - the given

personal accounts: Accounts which are called personal accounts. The account of the person receiving benefit (receiver) is to be debited and account of the person giving the benefit (given) is to be credited.

Ex: Receive amount from Ravi Rs 1000
cash a/c Dr. 1000

To Ravi a/c 1000
(Being cash received from Ravi)

2. Amount payed to the bank Rs 500-

To cash a/c 500
(Being amount credited to the bank)

Bank a/c Dr 500

(Being amount credited to the bank)

2000

2000

Real accounts: The accounts regarding properties or assets are known as real accounts.

Ex: cash account, furniture, building account, machinery account

Ex-1 purchased machinery ₹ 50,000/- Ans: machinery alc Dr. 50,000/-
To cash alc 50,000
(Being machinery purchase)

2. Sold furniture ₹ 25,000/- Ans: cash alc Dr. 25,000/-

To furniture alc 25,000
(Being furniture sold)

Nominal accounts: Accounts relating to expenses, losses, incomes and gains are known as nominal accounts.

Ex: salary account, commission account, discount account, rent, purchases account

Ex-1: Rent paid in rupees ₹ 5000/-
Rent alc Dr. 5000/-
To cash alc 5000/-
(Being rent paid)

Ex-2: Interest received ₹ 2500/-

Rent alc Dr. 5000/-
Interest alc 2500/-
To cash alc Dr. ₹ 2500/-

Journal

The first step in accounting is the record of all the transactions in the books of original entry which is called journal and then posting to ledgers.

The word journal is derived from the latin word 'joum' which means 'a day' i.e. journal means a day book in day to day business transactions are recorded in chronological order.

proforma - (Blue print)

Date	particulars	L.F No	Debit (Rs)	Credit (Rs)
22 Feb 11	purchase A/c Dr To cash A/c (Being goods purchased)		5000	5000

1. From the following transactions prepare general in the books
of XYZ company limited 2008.

2008

Jan 1 - Commenced business with ₹ 70,000/-

Jan 2 - purchased goods from Ramesh ₹ 10,000/-

Jan 4 - purchased furniture ₹ 3000/-

Jan 7 - Sold goods to Rajesh ₹ 18,000/-

Jan 8 - paid wages ₹ 2000/-

Jan 9 - paid office expensis ₹ 100/-

Jan 10 - goods purchased from Shyam ₹ 1500/- (at cost price)

Jan 11 - Received commission ₹ 200/-

Jan 14 - withdrew cash for personal use ₹ 500/-

Jan 18 - goods returned by Rajesh ₹ 1000/-

Jan 24 - Received from Ram ₹ 450/- and discount allowed ₹ 50/-

Jan 25 - cash withdrawn from Bank ₹ 1000/-

Jan 28 - cash deposited into bank ₹ 5000/-

Jan 30 - interest paid ₹ 150/-

Jan 31 - Rent paid ₹ 25,000/-

Date	particulars	L.F (No)	Debit (Rs)	Credit (Rs)
2008				
Jan 1	Cash a/c Dr To capital a/c		70,000	70,000
Jan 2	purchases a/c Dr To ramesh a/c (Being goods purchased from Ramesh)		10,000	10,000
Jan 4	furniture a/c Dr To cash a/c (Being furniture purchased)		3000	3000
Jan 7	Rajesh a/c Dr To sales a/c (Being good sold to Rajesh)		18000	18000

Jan 8	wages alc Dr To cash alc (Being wages paid)	2000	2000	2000
Jan 9	offices alc Dr To cash alc (Being office expenses paid)	100	100	8000
Jan 10	purchases alc Dr To shyam alc (Being goods purchased from shyam)	1500	1500	1500
Jan 11	cash alc Dr To commission alc (Being commission received)	200	200	200
Jan 14	Drawings alc Dr To cash alc (Being cash withdrawn for personal use)	1000	500	1000
Jan 18	Returns inwards alc Dr To Rajesh alc (Being 10000/-)	1000	1000	1000
Jan 24	Cash alc Dr Discount alc To Ram alc	450	50	500
Jan 25	Cash alc Dr To Bank alc (Being cash withdraw from bank)	1000	1000	1000
Jan 28	Bank alc Dr To cash alc (Being cash deposited into bank)	5000	5000	5000

Jan 30	Interest a/c Dr To cash a/c (Being interest paid)	150	Interest a/c Cr To cash a/c (Being interest paid)	150
Jan 31	Rent a/c Dr To cash a/c (Being rent paid)	2500	Rent a/c Cr To cash a/c (Being rent paid)	2500

Ledger: A ledger is a book which contains various accounts. The process of transferring entries from journal to ledger is called posting.

Format of Ledger Book: particulars a/c

Date	particulars	LF No	Amount	Date	particulars	LF No	Amount

Cash a/c

Date	particulars	LF No	Amount	Date	particulars	LF. No	Amount
Jan 4	Capital a/c		70,000	Jan 4	By furniture a/c	2801/2011	3000
Jan 11	Commission a/c	XX 2902	200	Jan 8	By wages a/c	principle 2000	
Jan 24	Rama a/c	xx 2903	500	Jan 9	By officers a/c	working 100	
Jan 25	Bank a/c	xx 3007	10000	Jan 18	By Bank a/c	2201/2011	5000
				Jan 19	By Drawing a/c	But exp 500	
				Jan 30	By interest a/c	150	
				Jan 31	By Rent a/c	2500	

Final Accounts

Trial Balance: A trial balance is a statement of debit and credit balances. It is prepared on a particular date with the object of checking the accuracy of the books of accounts. It is a statement of debit and credit balances extracted from the ledger with a view to test the arithmetic accuracy of the books.

Proforma of Trial Balance

is it statement

of class of

or not

Trial balance also on _____
(Date) (M/D/Y)

Date	Name of the accountant (particulars)	Debit Amt(Rs)	Credit Amt(Rs)
Jan 1	Capital a/c	(Beginning balance)	XXX
Jan 2	Bank a/c		XXX
Jan 5	Assets a/c		X X X
Jan 10	Sales a/c	XXX	XXX
		XXX	XXX

Trading account:

The main purpose of preparing the trading account is to ascertain time gross profits and gross loss as a result of buying and selling of the goods.

proforma of Trading account:

Trading account Mar. _____ for the year ended _____

Particulars	Amount	Particulars	Amount
To opening stock	XXX	By sales	XX
To purchases	XX	Less returns	XX
Less returns	XX	By closing stock	XX
To gas fuel coal	XX		XXX

profit and loss account:

It is an account meant for showing the net financial result of the business that is net profit or net loss. The profit or loss is arrived at by carrying forward gross profit or gross loss from trading account to credit or debit side respectively.

The debit side of profit and loss account shows the expensis and credit side the incomes.

proforma of profit and loss account
for the year ended _____

particulars	Amount	particulars	Amount
To salaries and	xxxx	Interest received	xxxx
To office expenses	xxxx	Rent received	xxxx
To insurance	xxxx	Income received	xxxx
To advertisement	xxxx	Commission	xxxx
	<u>xxxx</u>		<u>xxxx</u>

Balance sheet

A balance sheet is an item wise list of assets, liabilities, and proprietorship of a business at a certain stage. It serves to show the as certain financial position of the company on any particular date. On the left side of the statement the liabilities and the capital are shown. On the right hand side all the assets are shown i.e. the two sides of the balance sheet should be equal otherwise there is an error somewhere.

proforma of Balance sheet:

Balance sheet of _____ as on _____

Liabilities & Capital	Amount	Assets	Amount
Creditors	xxxx	Cash in hand	xxxx
Bills payable	xxxx	Cash at Bank	xxxx
Loans	xxxx	Investment	xxxx
Capital	<u>xxxx</u>	Patents Copyright	<u>xxxx</u>
	<u>xxxx</u>		<u>xxxx</u>

Advantages:

1. It helps in checking the arithmetical accuracy of books of account
2. It helps in detecting errors
3. It is possible to find out the balances of various accounts at one

Ratio Analysis: Ratio is an expression of one member in relation to another. It is one of the methods of analyzing financial statements. Ratio analysis facilitates the presentation of the information of the financial statement in simplified and summarized form. Ratios may be compared with the previous year or base year ratios of the same form.

Advantages (or) uses:

1. It's standards for the process of determining and presenting the relationship of items and groups of items in the financial statements.
2. It is useful in financial position analysis.
3. It is also useful in assessing the operational efficiency.
4. It is useful in forecasting purposes.
5. It is helpful in locating the weak spots of the business.
6. It is also helpful in comparison of performance.

Limitations of ratio analysis

1. False results if based on incorrect accounting data.
2. It gives no idea of probable happening in future.
3. It has only one method of analysis.
4. It has only different meanings assigned to the same terms.
5. There is no use if ratios are worked out for insignificant and unrelated figures.

Financial Statement	Ratio
XXX	Debt-Equity Ratio
XXX	Current Ratio
XX.XX	Quick Ratio
XXX	Current Assets/Current Liabilities
XXX	Net Profit Margin
XXX	Return on Equity

Financial Statement	Ratio
XXX	Debt-Equity Ratio
XXX	Current Ratio
XXX	Quick Ratio
XXX	Current Assets/Current Liabilities
XXX	Net Profit Margin
XXX	Return on Equity