

CA – CPT
(Free Revisionary Notes)
(All Subjects)

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CA – CPT

**Fundamentals of Accounting
(60 Marks)**

Revision Notes

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Accounting – An Introduction

Unit 1: Meaning & Scope of Accounting

Unit 2: Accounting Concepts, Principles & Conventions

Unit 3: Accounting Standards – Concepts, Objectives & Benefits

Unit 4: Accounting Policies

Unit 5: Accounting as a Measurement Discipline – Valuation Principles, Accounting Estimates

Unit 1: Meaning and Scope of Accounting

Transaction is used to mean ‘a business, performance of an act, an agreement’ while **event** is used to mean ‘a happening, as a consequence of transaction(s), a result.’

Meaning of Accounting

Accounting is simply an art of record keeping. The process of accounting starts by first identifying the events and transactions which are of financial character and then be recorded in the books of account.

The Accounting Principles Board (APB) of American Institute of Certified Public Accountants (AICPA) enumerated the functions of accounting.

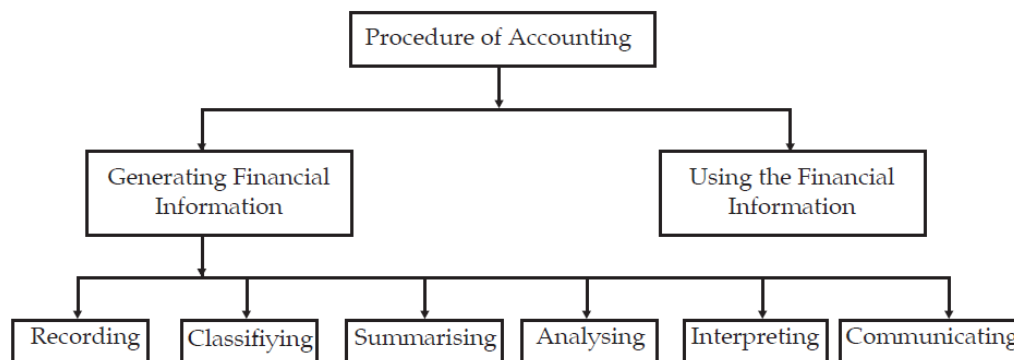
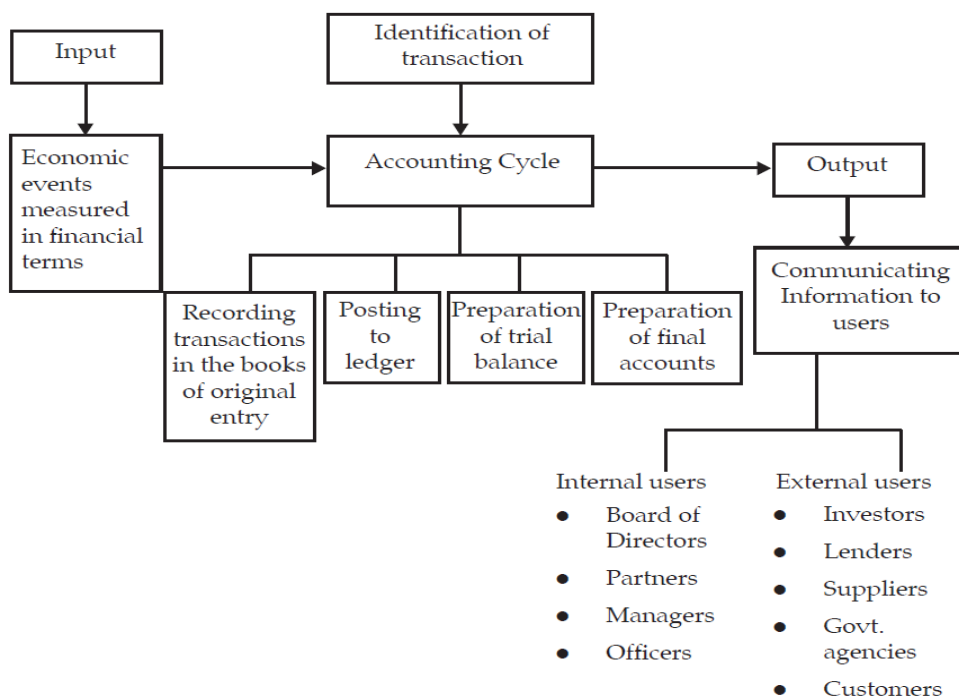


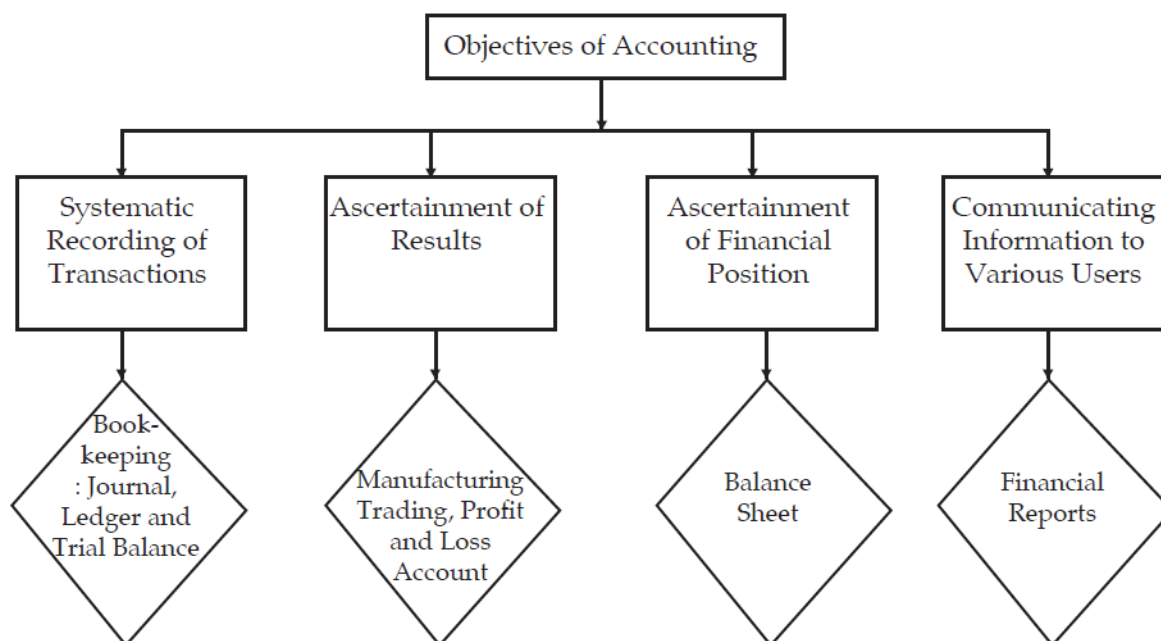
Chart 1

PROCESS OF ACCOUNTING



Objectives of Accounting

An overview of objectives of accounting is depicted in the chart given below :



Book-Keeping

Book-keeping is an activity concerned with the recording of financial data relating to business operations in a significant and orderly manner.

Objective of Book-keeping: Complete Recording of Transactions

Distinction between Book-Keeping and Accounting

Sr. No.	Book-keeping	Accounting
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1.	It is a process concerned with recording of transactions.	It is a process concerned with summarising of the recorded transactions.
2.	It constitutes as a base for accounting.	It is considered as a language of the business.
3.	Financial statements do not form part of this process.	Financial statements are prepared in this process on the basis of book-keeping records.
4.	Managerial decisions cannot be taken with the help of these records.	Management takes decisions on the basis of these records.
5.	There is no sub-field of book-keeping.	It has several sub-fields like financial accounting, management accounting etc.
6.	Financial position of the business cannot be ascertained through book-keeping records.	Financial position of the business is ascertained on the basis of the accounting reports.

Unit 2: Accounting Concepts, Principles and Conventions

Accounting Concepts

Accounting concepts define the assumptions on the basis of which financial statements of a business entity are prepared. These accounting concepts lay the foundation on the basis of which the accounting principles are formulated.

Accounting Principles

“Accounting principles are a body of doctrines commonly associated with the theory and procedures of accounting serving as an explanation of current practices and as a guide for selection of conventions or procedures where alternatives exist.”

Accounting Conventions

Accounting conventions emerge out of accounting practices, commonly known as accounting principles, adopted by various organizations over a period of time.

CONCEPTS, PRINCIPLES AND CONVENTIONS - AN OVERVIEW

- a) *Entity concept*
- (b) *Money Measurement Concept*
- (c) *Periodicity concept*
- (d) *Accrual concept*
- (e) *Matching concept*
- (f) *Going Concern concept*
- (g) *Cost concept*
- (h) *Realisation concept*
- (i) *Dual aspect concept*

- (j) **Conservatism**
- (k) **Consistency**
- (l) **Materiality**

Fundamental accounting assumptions

There are three fundamental accounting assumptions :

- (i) Going Concern (ii) Consistency (iii) Accrual

Qualitative Characteristics of Financial Statements

1. Understandability 2. Relevance 3. Reliability 4. Comparability

The four principal qualitative characteristics are understandability, relevance, reliability and comparability.

5. Materiality 6. Faithful Representation 7. Substance Over Form 8. Neutrality

9. Prudence 10. Full, fair and adequate disclosure 11. Completeness

Unit 3: Accounting Standards- Concepts, Objectives, Benefits

Accounting standards are written policy documents issued by expert accounting body or by government or other regulatory body covering the aspects of recognition, treatment, measurement, presentation and disclosure of accounting transactions and events in the financial statements.

Benefits and Limitations

Benefits:

- (i) eliminate altogether confusing variations in the accounting treatments.
- (ii) Standards may call for disclosure beyond that required by law.
- (iii) facilitate comparison of financial statements of companies.

Limitations:

- (i) Choice between different alternative accounting treatments may become difficult.
- (ii) There may be a trend towards rigidity and away from flexibility in applying the accounting standards.
- (iii) Accounting standards cannot override the statute.

Overview of Accounting Standards in India:

In India, the Institute of Chartered Accountants of India (ICAI), being a premier accounting body in the country, took upon itself the leadership role by constituting the Accounting Standards Board (ASB) on 21st April, 1977. The main function of ASB is to formulate accounting standards so that such standards may be established in India by the council of the ICAI. Following is the list of Accounting Standards with their respective date of applicability

List of Accounting Standards

Sl. No.	Number of the Accounting Standard (AS)	TITLE OF THE ACCOUNTING STANDARD
1.	AS 1	Disclosure of Accounting Policies
2.	AS 2 (Revised)	Valuation of Inventories
3.	AS 3 (Revised)	Cash Flow Statements
4.	AS 4 (Revised)	Contingencies and Events Occurring after the Balance Sheet Date
5.	AS 5 (Revised)	Net Profit or Loss for the Period, Prior Period Items and Changes in Accounting Policies
6.	AS 6 (Revised)	Depreciation Accounting
7.	AS 7 (Revised)	Accounting for Construction Contracts
8.	AS 8 (withdrawn pursuant to AS 26 becoming mandatory)	Accounting for Research and Development
9.	AS 9	Revenue Recognition
10.	AS 10	Accounting for Fixed Assets
11.	AS 11 (Revised)	The Effects of Changes in Foreign Exchange Rates
12.	AS 12	Accounting for Government Grants
13.	AS 13	Accounting for Investments
14.	AS 14	Accounting for Amalgamations
15.	AS 15 (Revised)	Employee Benefits
16.	AS 16	Borrowing Costs
17.	AS 17	Segment Reporting
18.	AS 18	Related Party Disclosures
19.	AS 19	Leases
20.	AS 20	Earnings Per Share
21.	AS 21	Consolidated Financial Statements
22.	AS 22	Accounting for Taxes on Income
23.	AS 23	Accounting for Investments in Associates in Consolidated Financial Statements
24.	AS 24	Discontinuing Operations
25.	AS 25	Interim Financial Reporting
26.	AS 26	Intangible Assets
27.	AS 27	Financial Reporting of Interests in Joint Ventures
28.	AS 28	Impairment of Assets
29.	AS 29	Provisions, Contingent Liabilities & Contingent Assets
30.	AS 30	Financial Instruments: Recognition & Measurement
31.	AS 31	Financial Instruments: Presentation
32.	AS 32	Financial Instruments: Disclosures

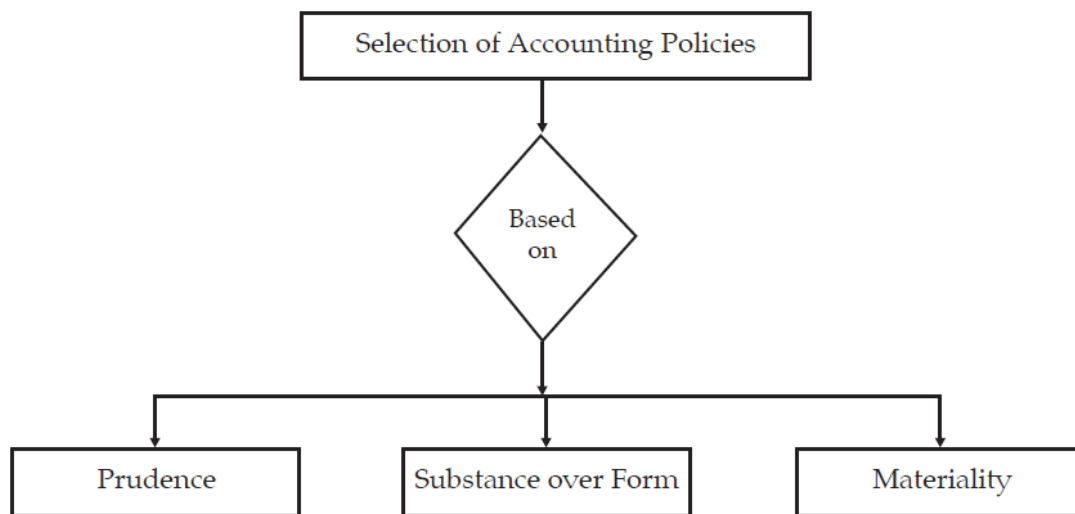
Important Terms:

- 1) IASB – International Accounting Standard Board
- 2) IFRS – International Financial Reporting Standards
- 3) IAS – International Accounting Standards
- 4) US GAAP- US Generally Accepted Accounting Principles

Unit 4: Accounting Policies

Accounting Policies refer to specific accounting principles and methods of applying these principles adopted by the enterprise in the preparation and presentation of financial statements. For Eg.:

- (1) Methods of depreciation, depletion and amortisation;
- (2) Valuation of inventories;
- (3) Valuation of investments.



Change in Accounting Policies

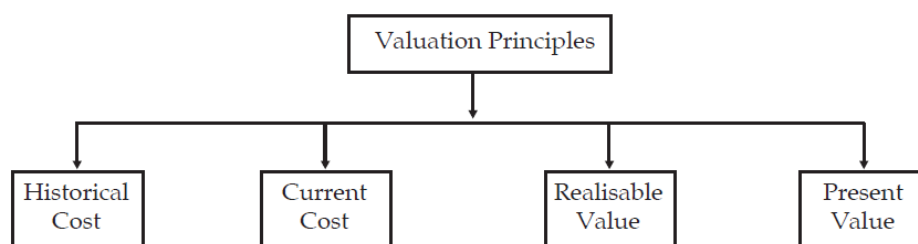
A change in accounting policies should be made in the following conditions:

- (a) It is required by some statute or for compliance with an Accounting Standard.
- (b) Change would result in more appropriate presentation of financial statement.

Change in accounting policy may have a material effect on the items of financial statements.

Unit 5: Accounting as a Measurement Discipline - Valuation Principles, Accounting Estimates

VALUATION PRINCIPLES



Accounting Process

CONTENTS:

UNIT-1: JOURNAL ENTRIES

UNIT-2: LEDGERS

UNIT-3: TRIAL BALANCE

UNIT-4: SUBSIDIARY BOOKS

UNIT-5: CASH BOOK

UNIT-6: CAPITAL & REVENUE EXPENDITURE

UNIT-7: CONTINGENT ASSETS & LIABILITIES

UNIT-8: RECTIFICATION OF ERRORS

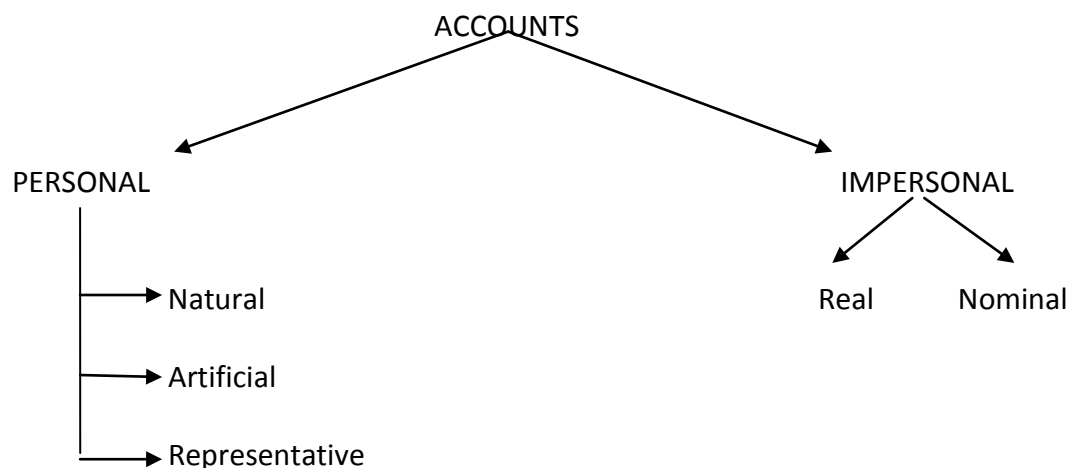
Unit-1: Journal Entries

Balance Sheet Approach

Equity + Liabilities = Assets

or, Equity + Long-Term Liabilities = Fixed Assets + Current Assets - Current Liabilities

CLASSIFICATION OF ACCOUNTS:



GOLDEN RULES OF ACCOUNTING

Personal account is governed by the following two rules:

Debit the receiver

Credit the giver

Real account is governed by the following two rules:

Debit what comes in

Credit what goes out

Nominal account is governed by the following two rules:

Debit all expenses and losses

Credit all incomes and gains.

JOURNAL

Date	Particulars	L.F.	Dr.	Cr.
			Amount	Amount
			Rs.	Rs.
(1)	(2)	(3)	(4)	(5)

Unit: 2 – Ledgers

POSTING:

The process of transferring the debit and credit items from journal to classified accounts in the ledger is known as posting.

BALANCING:

To ascertain the balance in any account, what is done is to total the sides and ascertain the difference; the difference is the balance. If the credit side is bigger than the debit side, it is a credit balance. In the other case it is a debit balance. The credit balance is written on the debit side as, "To Balance c/d"; c/d means "carried down". By doing this, two sides will be equal.

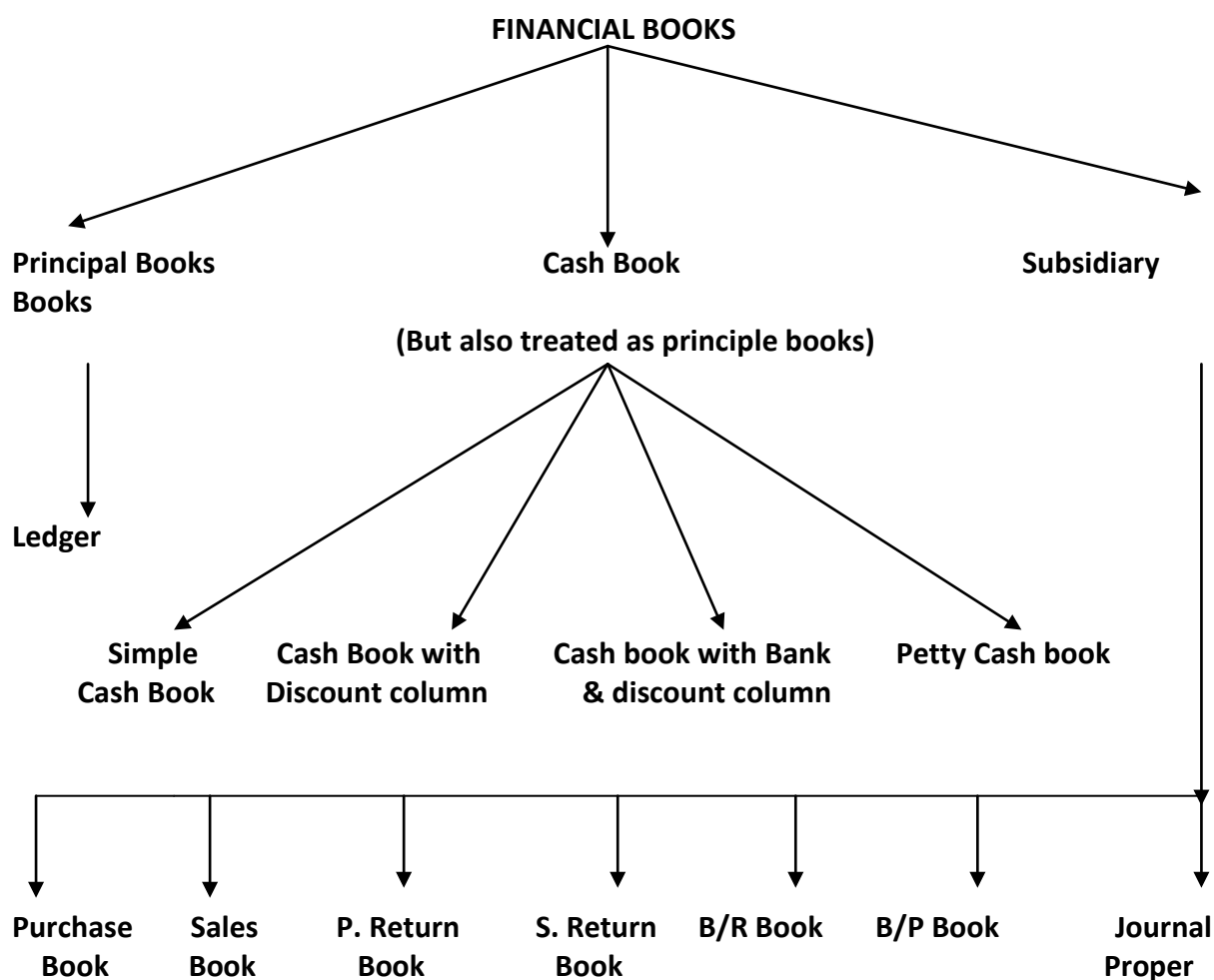
It should be noted that nominal accounts are not balanced; the balance in the end are transferred to the profit and loss account. Only personal and real accounts ultimately show balances.

Unit: 3 – Trial Balance

Preparation of trial balance is the third phase in the accounting process. After posting the accounts in the ledger, a statement is prepared to show separately the debit and credit balances. Such a statement is known as the trial balance.

It may be noted that trial balance is a statement and not an account. It is not a conclusive evidence.

Unit: 4 – Subsidiary Books



Unit: 5 – Cash Book

Cash transactions are straightaway recorded in the Cash Book and on the basis of such a record, ledger accounts are prepared. Therefore, the Cash Book is a subsidiary book. But the Cash Book itself serves as the cash account and the bank account; the balances are entered in the trial balance directly. The Cash Book, therefore, is part of the ledger also. Hence, it has also to be treated as the principal book. The Cash Book is thus both a subsidiary book and a principal book.

Types of Cash Book:

The main Cash Book may be of the three types:

- (i) Simple Cash Book;
- (ii) Two-column Cash Book;
- (iii) Three-column Cash Book.

Unit: 6 – Capital & Revenue Expenditure & Receipts

The distinction of transaction into revenue and capital is done for the purpose of placing them in Profit and Loss account or in the Balance Sheet.

CONSIDERATIONS IN DETERMINING CAPITAL AND REVENUE EXPENDITURES:

The basic considerations in distinction between capital and revenue expenditures are:

- (a) Nature of business
- (b) Recurring nature of expenditure
- (c) Purpose of expenses
- (d) Effect on revenue generating capacity of business
- (e) Materiality of the amount involved

Capital Expenditure:

Capital expenditure contributes to the revenue earning capacity of a business over more than one accounting period. Capital expenditure may represent acquisition of any tangible or intangible fixed assets for enduring future benefits. Therefore, the benefits arising out of capital expenditure last for more than one accounting period

Revenue Expenditure:

Revenue expense is incurred to generate revenue for a particular accounting period. The revenue expenses either occur in direct relation with the revenue or in relation with accounting periods, for example cost of goods sold, salaries, rent, etc.

Deferred Revenue Expenditure:

Deferred revenue expenditure is that expenditure for which payment has been made or a liability incurred but which is carried forward on the presumption that it will be of benefit over a subsequent period or periods. In short, it refers to that expenditure that is, for the time being, deferred from being charged against income.

CAPITAL & REVENUE RECEIPTS:

Receipts which are obtained in course of normal business activities are revenue receipts (e.g. receipts from sale of goods or services, interest income etc.). On the other hand, receipts which are not revenue in nature are capital receipts (e.g. receipts from sale of fixed assets or investments, secured or unsecured loans, owners' contributions etc.). Revenue and capital receipts are recognised on accrual basis as soon as the right of receipt is established. Revenue receipts should not be equated with the actual cash receipts. Revenue receipts are credited to the Profit and Loss Account.

Unit: 7 – Contingent Assets & Liabilities

CONTINGENT ASSETS

A contingent asset may be defined as a possible asset that arises from past events and whose existence will be confirmed only after occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the enterprise.

A contingent asset need not be disclosed in the financial statements. A contingent asset is usually disclosed in the report of the approving authority (Board of Directors in the case of a company, and the corresponding approving authority in the case of any other enterprise), if an inflow of economic benefits is probable. Contingent assets are assessed continually and if it has become virtually certain that an inflow of economic benefits will arise, the asset and the related income are recognized in the financial statements of the period in which the change occurs.

CONTINGENT LIABILITIES

A contingent liability is a possible obligation arising from past events and may arise in future depending on the occurrence or non-occurrence of one or more uncertain future events. A contingent liability may also be a present obligation that arises from past events. An enterprise should not recognise a contingent liability. A Contingent liability is required to be disclosed unless possibility of outflow of a resource embodying economic benefits is remote. These liabilities are assessed continually to determine whether an outflow of resources embodying economic benefits has become probable. If it becomes probable that an outflow or future economic benefits will be required for an item previously dealt with as a contingent liability.

DISTINCTION BETWEEN CONTINGENT LIABILITIES AND LIABILITIES

The distinction between a liability and a contingent liability is generally based on the judgement of the management. A liability is defined as the present financial obligation of an enterprise, which arises from past events. On the other hand, in the case of contingent liability, either outflow of resources to settle the obligation is not probable or the amount expected to be paid to settle the liability cannot be measured with sufficient reliability.

DISTINCTION BETWEEN CONTINGENT LIABILITIES AND PROVISIONS:

Provision means "any amount written off or retained by way of providing for depreciation, renewal or diminution in the value of assets or retained by way of providing for any known liability of which the amount cannot be determined with substantial accuracy".

Unit: 8 - Rectification of Errors

Notes:

Types of Errors:

- 1) **Error of Omission:** Entry is not recorded partially or usually wholly.
- 2) **Error of Principle:** Eg. Revenue expenses are treated as capital expenditure or vice versa.
(TB will tally)
- 3) **Compensating Errors:** It does not affect TB.
Eg. Correct Entry: A a/c...Dr To Sales
Wrong Entry: B a/c... Dr To Sales
- 4) **Error of Commission:** Posted in wrong books/wrong ledger at wrong amount/wrong balancing of account. (TB will never tally)

If rectification is done in the next year, we use P&L Adjustment account which is ultimately adjusted in capital account.

Suspense account can be personal, real or nominal account.

How to Rectify an entry:

Steps:

- 1) Wrong Entry
- 2) Reverse Entry
- 3) Correct Entry
- 4) Rectification Entry

Bank Reconciliation Statement

Notes:

- BRS is prepared by the bank account holder (customer)
- It is just a statement & does not form part of Trading/ P/L or Balance Sheet
- Bank Statement/ Pass Book reflects customer's account in bank books
- While preparing BRS, we compare bank column of Cash Book with Pass Book
- BRS is due to timing difference & errors in recording the entries either in Cash Book or in Pass Book

Shortcuts:

FAVOURABLE BALANCES:

Dr. balance as per CB	- + - +
Cr. Balance as per PB	+ - + -

UNFAVOURABLE BALANCES:

Cr. Balance as per CB	+ - + -
Dr. Balance as per PB	- + - +
(If Credit, start with +	If debit, start with -)

Few Terms:

Uncollected cheques/paid into bank/banked means Cheques deposited but not cleared

Unpresented cheques/cheques issued means cheques issued but not presented.

Timing differences

(i) *Cheques issued but not presented for payment*

(ii) *Cheques paid into the bank but not cleared*

(iii) *Interest allowed by bank*

(iv) *Interest and expenses charged by the bank*

(v) *Interest and dividends collected by the bank*

(vi) *Direct payments by the bank*

(vii) *Direct payment into the bank by a customer*

(viii) *Dishonour of a bill discounted with the bank*

(ix) *Bills collected by the bank on behalf of the customer*

All these timing differences will lead to difference in balances as shown by the cash book and the pass book.

Inventories

Notes:

$$\text{Average Stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

Cost of Goods Sold (COGS) = Opening Stock + Purchases + Direct Expenses – Closing Stock – Loss

Cost of Goods Available for Sale = Opening Stock + Purchases

Methods of Valuation :

FIFO , LIFO , Simple Average / Average Price Method , Weighted Average

Closing stock is always valued at cost or Net Realisable Value whichever is lower.

Sales (-) COGS = Gross Profit

Gross Profit (-) Operating Expenses (P/L Expenses) = Net Profit

The effect of any over or understatement of inventory may be explained as:

- (a) When closing inventory is overstated, net income for the accounting period will be overstated.
- (b) When opening inventory is overstated, net income for the accounting period will be understated.
- (c) When closing inventory is understated, net income for the accounting period will be understated.
- (d) When opening inventory is understated, net income for the accounting period will be overstated.

Statutory Compliance

Schedule III to the Companies Act, 2013 requires valuation of each class of goods i.e. raw material, work-in-progress and finished goods under broad head to be disclosed in the financial statements.

DISTINCTION BETWEEN PERIODIC INVENTORY SYSTEM AND PERPETUAL INVENTORY SYSTEM

S. No.	Periodic Inventory System	Perpetual Inventory System
1.	This system is based on physical verification.	It is based on book records.
2.	This system provides information about inventory and cost of goods sold at a particular date	It provides continuous information about inventory and cost of sales.
3.	This system determines inventory and takes cost of goods sold as residual figure.	It directly determines cost of goods sold and computes inventory as balancing figure.
4.	Cost of goods sold includes loss of goods as goods not in inventory are assumed to be sold.	Closing inventory includes loss of goods as all unsold goods are assumed to be in Inventory
5.	Under this method, inventory control is not possible.	Inventory control can be exercised under this system.
6.	This system is simple and less expensive.	It is costlier method.
7.	Periodic system requires closure of business for counting of inventory.	Inventory can be determined without affecting the operations of the business.

Depreciation

Notes:

It refers to decrease in value of an asset which can be caused by use of an asset, passage of time, technological changes, improvement in production method, change in market demand or other legal restrictions of Govt.

Different forms of Depreciation:

Tangible Assets – Depreciation

Intangible Assets – Amortization

Wasting Assets – Depletion

Methods of Depreciation:

1) SLM Method/Fixed Installment Method:

$$\text{Annual Depreciation} = \frac{\text{Original Cost (-) Scrap Value}}{\text{Useful Life}}$$

$$\text{Rate of Depreciation} = \frac{\text{Annual Depreciation}}{\text{O.C.}} \times 100$$

2) WDV/ RBM:

Depre =

$$\text{For 1}^{\text{st}} \text{ year} = \text{O.C.} * \text{Rate}$$

$$\text{For Subsequent years} = \text{WDV} * \text{Rate}$$

(Ignore Useful Life & Scrap Value in WDV / RBM Method)

3) Production Method:

$$\text{Depre} = \frac{\text{O.C. (-) Scrap Value}}{\text{Total No. of units produced over the life}} * \text{No. of units produced in that year}$$

(Ignore Rate of Depreciation)

4) Machine Hours Method:

$$\text{Depre} = \frac{\text{O.C. (-) Scrap Value}}{\text{Total No. of machine hours worked over the life}} * \text{No. of hours worked in that year}$$

(Ignore Rate of Depreciation)

5) Sum of Years Digit Method:

$$\text{Depre} = \text{O.C. (-) Scrap Value} * \frac{\text{Weight for that year}}{\text{Sum of weights}}$$

$$\text{Sum of weights} = n(n+1)/2$$

(Ignore Rate of Depreciation)

ANNUITY METHOD (Used for Leases)

This is a method of depreciation which also takes into account the element of interest on capital outlay and seeks to write off the value of the asset as well as the interest lost over the life of the asset.

Relevant Journal entries are:

(1) For charging interest on asset account

Asset Account Dr.

To Interest Account

(2) For charging depreciation on asset

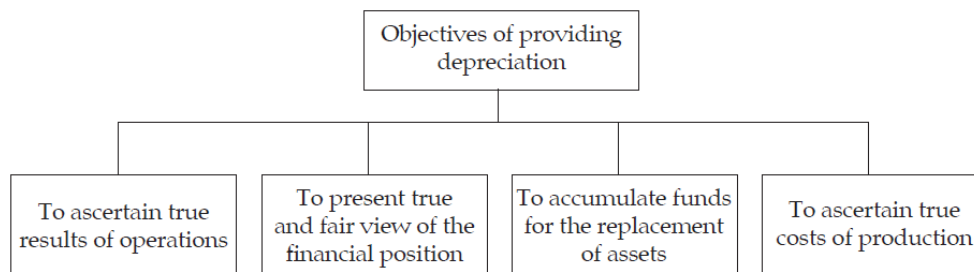
Depreciation Account Dr.

To Asset Account

Interest & Depreciation will be transferred to Profit & Loss Account.

Original Cost means = Purchase Price + Capital Expenditure Incurred on it.

Prime objectives for providing depreciation are:



Accounting Entries under Straight Line and Reducing Balance Methods:

There are two alternative approaches for recording accounting entries for depreciation.

First Alternative

A provision for depreciation account is opened to accumulate the balance of depreciation and the assets are carried at historical cost.

Accounting entry

Profit and Loss Account Dr.

To Provision for Depreciation Account

Second Alternative

Amount of Depreciation is credited to the Asset Account every year and the Asset Account is carried at historical cost less depreciation.

Accounting entries:

Depreciation Account Dr.

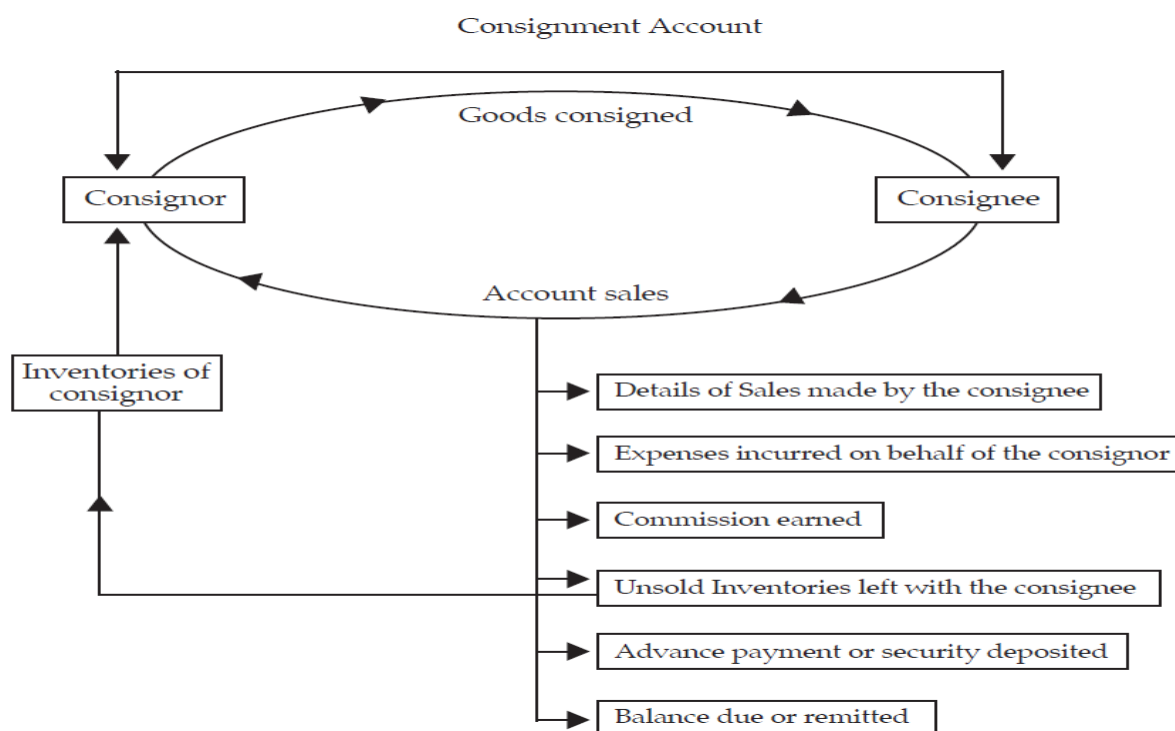
To Asset Account

Profit and Loss Account Dr.

To Depreciation Account

If the concept of Going Concern is applicable to the company, then always show assets at WDV. If the concept of Going Concern is violated then show it at NRV.

Consignment



An account sale is the periodical summary statement sent by the consignee to the consignor. It contains details regarding –

(a) sales made, (b) expenses incurred on behalf of the consignor, (c) commission earned, (d) unsold inventories left with the consignee, (e) advance payment or security deposited with the consignor and the extent to which it has been adjusted, (f) balance payment due or remitted. It is a summary statement and is different from Sales Account.

VALUATION OF Inventories The principle is that inventories should be valued at cost or net realisable value whichever is lower. In the case of consignment, cost means not only the cost of the goods as such to the consignor but also all expenses incurred till the goods reach the premises of the consignee.

COMMISSION: Commission is the remuneration paid by the consignor to the consignee for the services rendered for selling the consigned goods. Three types of commission

ORDINARY COMMISSION: The term commission simply denotes ordinary commission. It is based on fixed percentage of the gross sales proceeds made by the consignee.

DEL-CREDERE COMMISSION: To increase the sale and to encourage the consignee to make credit sales, the consignor provides an additional commission generally known as del-credere commission. This additional commission when provided to the consignee gives a protection to the consignor against bad debts. In other words, after providing the del-credere commission, bad debts is no more the loss of the consignor.

OVER-RIDING COMMISSION: It is an extra commission allowed by the consignor to the consignee to promote sales at higher price than specified or to encourage the consignee to put hard work in introducing new product in the market.

Joint Venture

1. In joint venture, partners to joint ventures are known as co-venturers.
2. JV is similar (but not same) to partnership & hence provisions of partnership applies
3. JV does not follow the concept of going concern

JOURNAL ENTRIES:-

(a) For initial contribution by the co-venturers in Joint Bank Account

Joint Bank A/c Dr.

To Co-venturers' A/c

(b) For expenses paid out of Joint Bank Account

Joint Venture A/c Dr.

To Joint Bank A/c

(c) For material supplied by venturers or direct payment made by venturers

Joint Venture A/c Dr.

To Co-venturers' A/cs

(d) For sale or payment received

Joint Bank A/c Dr.

To Joint Venture A/c

(e) For sale or payment received directly by the venturers

Co-venturers' A/cs Dr.

To Joint Venture A/c

(f) For profit on Joint Venture

Joint Venture A/c Dr.

To Co-venturers' A/cs

or For loss on Joint Venture

Co-venturers' A/cs Dr.

To Joint Venture A/c

(g) For closing the Joint Bank A/c

Co-venturers' A/cs Dr.

To Joint Bank A/c

(h) Goods taken over by co-venturer (always at selling price)

Co-venturer A/c dr

To joint venture

In joint venture, normal loss and abnormal loss are not recorded in the books of A/c.

Bills Of Exchange & Promissory Notes

1. BOE contains an unconditional order to pay.
2. In case of a bill, 3 days of grace are to be considered.
3. In case of sudden/emergency holiday due date will be subsequent (next) day.
4. In case of public holiday due date will be preceding (previous) day.
5. In case of AFTER SIGHT BILLS, due date is to be considered from the date of acceptance otherwise from the date of drawing.
6. Oral BOE are invalid.
7. Indian Currency is a promissory note.
8. BOE, bearer cheque and Indian Currency are negotiable.
9. However A/c payee cheque is not negotiable.
10. If the bill is dishonoured then bank will charge bill amount + notary charges and not discounting charges.
11. Usually holder of the bill goes to notary. Therefore, notary charges is recovered from the party who is responsible for dishonour.
12. Accommodation bills are drawn when both the parties are in need of funds. Discounting charges will be shared by both the parties in the ratio determined mutually.

Journal Entries:

On receipt of Bill :

Bills Receivable Account Dr.

To Drawee/Maker of the note

The person who receives the bill has three options. These are :

(i) He can hold the bill till maturity. (Naturally in this case no further entry is passed until the date of maturity arrives).

(ii) The bill can be endorsed in favour of another party. In this case the entry will be to debit the party which now receives the bill and to credit the Bills Receivable Account.

A Dr.

To Bills Receivable Account

(iii) The Bill of Exchange can be discounted with bank. The bank will deduct a small sum of money as discount and pay rest of the money.

Bank Account Dr. (with the amount actually received)

Discount Account Dr. (with the amount of loss or discount)

To Bills Receivable Account

On the date of maturity there will be two possibilities. The first is that the bill will be paid, that is to say, met or honoured. The entries for this will depend upon what was done to the bill during the period of maturity. If the bill was kept, the cash will be received by the party which originally received the bill. In his books, therefore, the entry will be :

Cash Account ... Dr.

To Bills Receivable Account

But if he has already endorsed the bill in favour of his creditor or if the bill has been discounted with the bank he will not get the amount; it will be the creditor or the bank which will receive the money. Therefore, in these two cases, no entry will be made in the books of the party which originally received the bill.

The second possibility is that the bill will be dishonoured, that is to say, the bill will not be paid. If the bill is dishonoured, the bill becomes useless and the party from whom the bill was received will be liable to pay the amount (and also the expenses incurred by the party).

Therefore, the following entries will be made :

1. If the bill was kept till maturity then :

Drawee / Maker of the note Dr.

To Bills Receivable Account

2. If the bill was endorsed in favour of a creditor, the entry is :

Drawee / Maker of the note Dr.

To Bill payables

3. If the bill was discounted with the bank :

Drawee / Maker of the note Dr.

To Bank A/c

Sale of Goods on Approval or Return Basis

TYPE-1 - CASUAL

Casual/Less Transaction : Treat as Ordinary sales when the goods are sent

Therefore Journal Entry:

Debtors A/c dr

To sales

On balance sheet date, if the goods are still unapproved:

Sales A/c dr

To debtors.

Stock with customer dr [At cost(lower)]

To trading

If accepted in next year,

Debtor's A/c dr

To stock with customer

TYPE 2- FREQUENTLY

In this method we prepare sale/ return journal

Format of this journal

Goods sent on approval | Goods Return | Goods Approved | Balance |

On approval following journal entry is passed

Debtors A/c dr

To sales

TYPE 3- NUMEROUS TRANSACTION

In this method we prepare sale on return **daybook** and sale on return **ledger**.

These books and ledger are prepared in memorandum books.

ENTRIES IN MEMORANDUM BOOKS

When goods are sent, 1st pass entry in daybook

Customer A A/c dr

Customer B A/c dr

 To sales on return/approval

Entries in Main Books

On Approval

Debtors a/c dr

 To sales a/c

On B/S day, if goods are kept with Customers,

Stock with customers a/c dr [at cost]

 To trading a/c

Company Accounts

Unit 1: Introduction to Company A/cs

Company is an organisation consisting of individuals, called shareholders by virtue of holding the shares of a company, who are authorised by law to elect a board of directors and, through it, to act as a separate legal entity as regards its activities. Generally, the capital of the company consists of transferable shares, and members have limited liabilities.

Following are the salient features of a company:

1. Incorporated Association 2. Separate Legal Entity 3. Perpetual Existence
4. Common Seal 5. Limited Liability 6. Distinction between Ownership and Management
7. Not a citizen 8. Transferability of Shares 9. Maintenance of Books
10. Periodic Audit 11. Right of Access to Information

Types of Companies:

1. Government Company: 51% is held by the CG or SG or CG+SG

2. Foreign Company

3. Private company

Minimum paid-up share capital of one lakh rupees

Restricts the right to transfer its shares;

4. Public Company

(a) is not a private company;

(b) has a minimum paid-up share capital of five lakh rupees

5. One Person Company: a company which has only one person as a member;

6. Small Company

a company, other than a public company, -

(i) paid-up share capital of which does not exceed fifty lakh rupees or such higher amount as may be prescribed which shall not be more than five crore rupees; or

(ii) turnover of which as per its last profit and loss account does not exceed two crore rupees or such higher amount as may be prescribed which shall not be more than twenty crore rupees:

7. Listed Company

The company, whose shares are not listed on any recognised stock exchange, is called “Unlisted Company”.

8. Unlimited Company

a company not having any limit on the liability of its members.

9. Company limited by Shares

a company having the liability of its members limited by the memorandum to the amount, if any, unpaid on the shares respectively held by them.

10. Company limited by Guarantee

A company having the liability of its members limited by the MOA to such amount as the members may respectively undertake to contribute to the assets of the company in the event of its being wound up.

11. Holding Company: a company of which such companies are subsidiary companies.

12. Subsidiary company

A company in which the holding company:

(i) controls the composition of the Board of Directors; or (ii) exercises or controls more than one-half of the total share capital either at its own or together with one or more of its subsidiary companies:

Schedule III of the Companies Act, 2013

Balance Sheet as per Form set out in Part I of Schedule III and Statement of Profit and Loss as per Part II of Schedule III

Unit 2: Issue, Forfeiture and Reissue of Shares

Share capital of a company is divided into following categories:

(i) Authorised Share Capital or Nominal Capital: It puts a limit on the amount of capital, which a company is authorised to raise during its lifetime and is called ‘Authorised Capital’.

(ii) Issued Share Capital: Whatever portion of the share capital is issued by the company, it is called ‘Issued Capital’. The remaining portion of the authorised capital which is not issued either in cash or consideration may be termed as ‘Un-issued Capital’. It is **not** shown in the balance sheet.

(iii) Subscribed Share Capital: It is that part of the issued share capital, which is subscribed by the public.

(iv) Called-up Share Capital: The portion of the issue price of shares which a company has demanded or called from shareholders is known as ‘Called-up Capital’ and the balance, which the company has decided to demand in future may be referred to as **Uncalled Capital**.

(v) Paid-up Share Capital: It is the portion of called up capital which is paid by the shareholders. If shareholder(s) fails to pay the amount fully or partially, it is known as ‘unpaid calls’ or ‘installments (or Calls) in Arrears’.

(vi) Reserve Share Capital: Portion of the uncalled capital which a company has decided to call only in case of liquidation of the company is called Reserve Capital.

Reserve Capital is different from Capital reserve, Capital reserves are part of 'Reserves and Surplus' and refer to those reserves which are not available for declaration of dividend.

TYPES OF SHARES

Share issued by a company can be divided into following categories:

(i) Preference Shares: They enjoy preferential rights in the matter of:

(a) Payment of dividend, and (b) Repayment of capital

Types of Preference Shares:

(a) Cumulative Preference Shares : One that carries the right to a fixed amount of dividend or dividend at a fixed rate.

(b) Non-cumulative Preference Shares : In case no dividend is declared in a year due to any reason, the right to receive such dividend for that year expires. It implies that holder of such a share is not entitled to arrears of dividend in future.

(c) Participating Preference Shares : This category of preference share confers on the holder the right to participate in the surplus profits, if any, after the equity shareholders have been paid dividend at a stipulated rate.

(d) Non-participating Preference Shares : A share on which only a fixed rate of dividend is paid every year, without any accompanying additional rights in profits is called 'Non-participating Preference Shares.'

(e) Redeemable Preference Shares : The company will repay after the fixed period or even earlier at company's discretion. The repayment on these shares is called redemption.

(f) Non-redeemable Preference Shares : The preference shares, which do not carry with them the arrangement regarding redemption, are called Non-redeemable Preference Shares. However, no company limited by shares shall issue irredeemable preference shares, redeemable after the expiry of 20 years from the date of issue (Except for such infrastructure projects)

(g) Convertible Preference Shares : Right to the holder to get them converted into equity shares.

(h) Non-convertible Preference Shares : Has not been conferred the right to get his holding converted into equity share.

(ii) Equity Shares : Equity shares are those shares, which are not preference shares. The rate of dividend on equity shares is recommended by the Board of Directors and may vary from year to year. These shares carry voting rights. The shares can be issued by a company either (1) for cash or (2) for consideration other than cash.

Issue of Shares for Cash

The issue price of shares is generally received by the company in instalments and these instalments are known as under:

First instalment Application Money

Second Instalment Allotment Money

Third Instalment First Call Money

Fourth Instalment Second Call Money and so on.

Last Instalment Final Call Money

As per Section 39 of the Companies Act, 2013. Application money must be atleast 5% of the nominal value of shares. According to the Companies Act, 2013, a company cannot proceed to allot shares unless minimum subscription is received by the company.

As per guidelines of the Securities Exchange Board of India (SEBI), a company must receive a minimum of 90% subscription against the entire issue before making any allotment of shares or debentures to the public. If the Company does not receive the minimum subscription of 90% of the issue, the entire subscription shall be refunded to the applicants within 15 days after the date of closure of issue.

Successful applicants become shareholders of the company and are required to pay the second installment which is known as 'Allotment Money' and unsuccessful applicants get back their money.

(1) On receipt of the application money

Bank Account Dr. (With the actual amount received.)

To Shares Application Account

(2) On allotment of share

Share Allotment Account Dr. (With the amount due on allotment.)

Share Application Account Dr. (With the application amount received on allotted shares.)

To Share Capital Account (With the amount due on allotment and application.)

(3) On receipt of allotment money

Bank Account Dr. (With the amount actually received on allotment.)

To Share Allotment Account

(4) On a call being made

Share Call Account Dr. (With the amount due on the call.)

To Share Capital Account

(5) On receipt of call money

Bank Account Dr. (with the due amount actually received on call)

To Share Call Account

Over Subscription:

(1) On refund of application money to applicants to whom shares have not been allotted:

Share Application A/c Dr.

To Bank Account

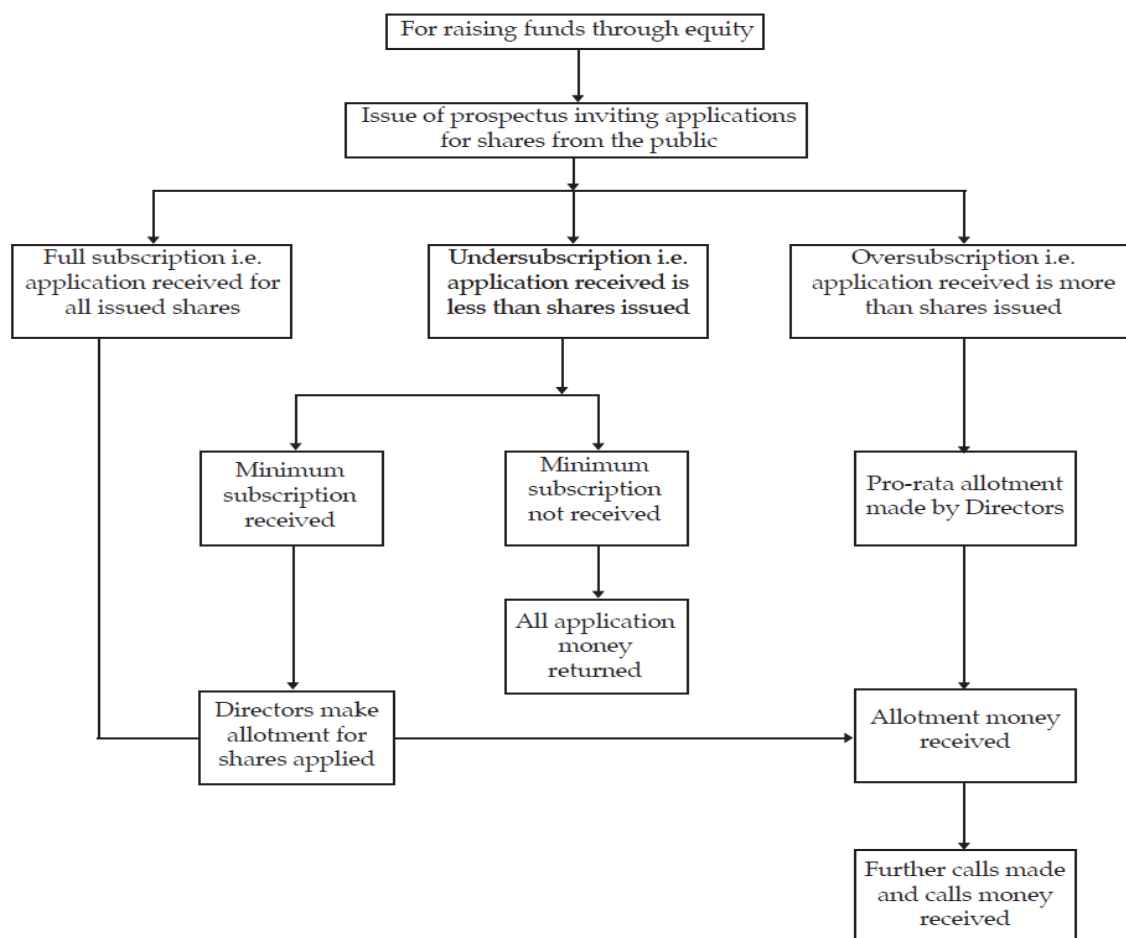
(2) When only a part of shares applied for are allowed:

Share Application A/c Dr. (With the amount received in advance for allotment)

To Share Allotment A/c

To Share Calls-in-Advance Account

An overview of the procedure for raising funds through equity can be depicted with the help of following chart :



Shares issued at discount

According to Section 53 of the Companies Act, 2013, a Company cannot issue shares at a discount except in the case of issue of sweat equity shares (issued to employees and directors). Thus any issue of shares at discount shall be void.

Shares issued at premium

When a company issues its securities at a price more than the face value, it is said to be an issue at a premium.

When shares are issued at a premium, the premium amount is credited to a separate account called "Securities Premium Account". According to Section 52 of the Companies Act, 2013, Securities Premium Account may be used by the company:

- (a) Towards issue of un-issued shares of the company to be issued to members of the company as fully paid bonus securities.
- (b) To write off preliminary expenses of the company.
- (c) To write off the expenses of, or commission paid, or discount allowed on any of the securities or debentures of the company.
- (d) To provide for premium on the redemption of redeemable preference shares or debentures of the company.
- (e) For the purchase of own shares or other securities.

When shares are issued at a premium, the journal entries are as follows:

(a) Premium amount called with Application money

(i) Bank A/c Dr. [Total Application money + Premium Amount]

To Share Application A/c [Amount received]

[Money received on applications for __ Shares @ Rs. _____ per share including premium]

(ii) Share Application A/c Dr. [No. of Shares Applied for x Application Amount per share]

To Securities Premium A/c [No. of Shares allotted x Premium Amount per share]

To Share Capital A/c [No. of Shares allotted x per share for capital]

(b) Premium Amount called with Allotment Money

(i) Share Allotment A/c Dr. [No. of Shares Allotted x Allotment and Premium Money/ share]

To Share Capital A/c [No. of Shares Allotted x Allotment Amount per share]

To Securities Premium A/c [No. of Share Allotted x Premium Amount per share]

(ii) Bank A/c Dr.

To Share Allotment A/c

(Money received including premium consequent upon allotment).

Over subscription and pro-rata allotment:

Accounting Entries:

(a) *For rejected application:*

Share Application Account Dr.

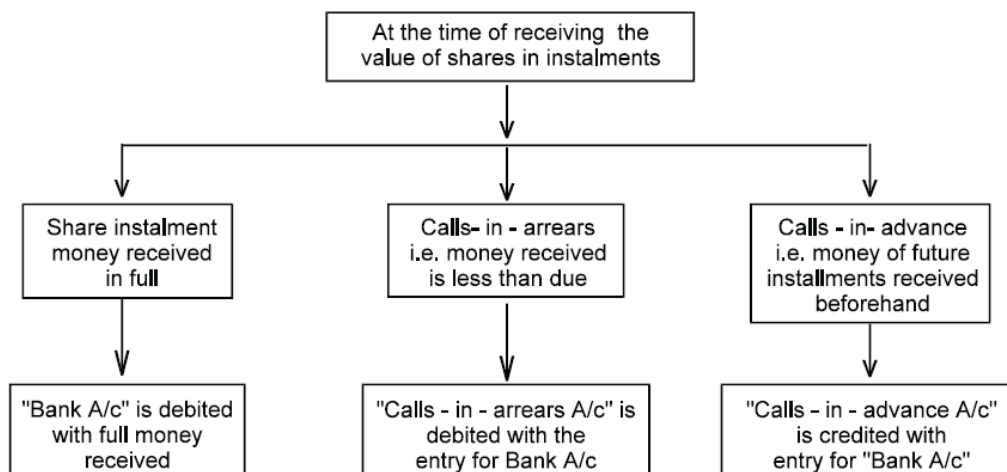
To Bank Account

(b) *For pro-rata allotment*

Share Application Account Dr.

To Share Allotment Account

Calls-in-arrears and Calls-in-advance:



For recording 'Calls-in-Arrears', the following journal entry is recorded :

Calls-in-Arrears A/c Dr. [Amount of Unpaid Calls]

To Share Allotment A/c

To Share Calls A/c

Interest on Calls in arrears = 10% p.a.

The journal entries for calls-in-arrears are as follows :

(i) For interest receivable on calls-in-arrears

Shareholders' A/c Dr.

To Interest on calls-in-arrears A/c

(ii) *For receipt of interest*

Bank A/c Dr.

To Shareholders' A/c

Calls-in-Advance

Interest on Calls in advance = 12% p.a

The following entry is recorded:

Bank A/c Dr.

To Call-in-Advance A/c

When calls become actually due, calls-in-advance account is adjusted at the time of the call.

For this the following journal entry is recorded:

Calls-in-Advance A/c Dr. [Call amount due]

To Particular Call A/c

The accounting treatment of interest on Calls-in-Advance is as follows:

(i) *Interest Due*

Interest on Calls-in-Advance A/c Dr. [Amount of interest due for payment]

To Shareholder's A/c

(ii) *Payment of Interest*

Shareholder's A/c Dr. [Amount of interest paid]

To Bank A/c

Forfeiture of shares Failure to pay call money results in forfeiture of shares.

Forfeiture of Shares which were issued at Par:

In this case, Share Capital Account will be debited with the called-up value of shares forfeited. Allotment or Calls Account will be credited with the amount due but not paid by the shareholder(s). (Alternatively, Calls-in-Arrears Account can be credited for all amounts due, if it was transferred to Calls-in-Arrears Account).

Forfeited Shares Account or Shares Forfeiture Account will be credited with the amount already received in respect of those shares.

Share Capital Account Dr. [No. of shares x called-up value per share]

To Forfeited Shares Account [Amount already received on forfeited shares]

To Share Allotment Account [If amount due, but not paid]

To Share First Call Account [If amount due, but not paid]

To Share Final Call Account [If amount due, but not paid]

Where all amounts due on allotment, first call and final call have been transferred to Calls-in-Arrears Account, the entry will be:

Share Capital Account Dr. [No. of shares x called-up value per share]

To Calls-in-Arrears Account [Total amount due, but not paid]

To Forfeited Shares Account [Amount received]

FORFEITURE OF SHARES WHICH WERE ISSUED AT A PREMIUM:

In this case, Share Capital Account will be debited with the called-up value of shares forfeited. If the premium on such shares has not been paid by the shareholder, the Securities Premium Account will be debited to cancel it (if it was credited earlier). Allotment, Calls and Forfeited Accounts will be credited in the usual manner.

If the premium has already received by the company, it cannot be cancelled even if the shares are forfeited in the future.

If premium not received:

Share capital A/c Dr. [Called-up value]

Securities Premium A/c Dr. [Amount of Security premium not received]

 To Share Allotment Account [If amount due, but not paid]

 To Share First Call Account [If amount due, but not paid]

 To Share Final Call Account [If amount due, but not paid]

 To Forfeited Shares Account [Amount received on forfeited shares]

If premium received

Share capital A/c Dr. [Called-up value]

 To Share Allotment Account [If amount due, but not paid]

 To Share First Call Account [If amount due, but not paid]

 To Share Final Call Account [If amount due, but not paid]

 To Forfeited Shares Account [Amount received on forfeited shares]

RE -ISSUE OF FORFEITED SHARES:

A forfeited share is merely a share available to the company for sale and remains vested in the company for that purpose only. Reissue of forfeited shares is not allotment of shares but only a sale.

Accounting Entries :

(a) Bank Account Dr. [Actual amount received]

 Forfeited Shares Account Dr. [Loss on re-issue]

 To Share Capital Account

(b) Forfeited Shares Account Dr.

 To Capital Reserve Account

POINTS FOR CONSIDERATION

1. Loss on re-issue should not exceed the forfeited amount.
2. If the loss on re-issue is less than the amount forfeited, the surplus should be transferred to Capital Reserve.
3. The forfeited amount on shares (amount originally paid-up) not yet reissued should be shown under the heading 'share capital.'
4. When only a portion of the forfeited shares are re-issued, then the profit made on reissue of such shares must be transferred to Capital Reserve.
5. When the shares are re-issued at a loss, such loss is to be debited to "Forfeited Shares Account".
6. If the shares are re-issued at a price which is more than the face value of the shares, the excess amount will be credited to Securities Premium Account.
7. If the re-issued amount and forfeited amount (taken together) exceeds the face value of the shares re-issued, it is not necessary to transfer such amount to Securities Premium Account.
8. Dividend is paid on Paid up Capital (Called up (-) Arrears)

ISSUE OF SHARES FOR CONSIDERATION OTHER THAN CASH

Accounting Entries

(a) When assets are purchased in exchange of shares

Assets Account Dr.

 To Share Capital Account

(b) When shares are issued to promoters
Goodwill Account Dr.
 To Share Capital Account

Unit 3: Redemption of Preference Shares

Accounting Entries

1. When new shares are issued at par

Bank Account Dr.
 To Share Capital Account

2. When new shares are issued at a premium

Bank Account Dr.
 To Share Capital Account
 To Securities Premium Account

3. When preference shares are redeemed at par

Redeemable Preference Share Capital Account Dr.
 To Preference Shareholders Account

4. When preference shares are redeemed at a premium

Redeemable Preference Share Capital Account Dr.
Premium on Redemption of Preference Shares Account Dr.
 To Preference Shareholders Account

5. When payment is made to preference shareholders

Preference Shareholders Account Dr.
 To Bank Account

6. For adjustment of premium on redemption

Profit and Loss Account Dr.
Securities Premium Account Dr.
 To Premium on Redemption of Preference Shares Account

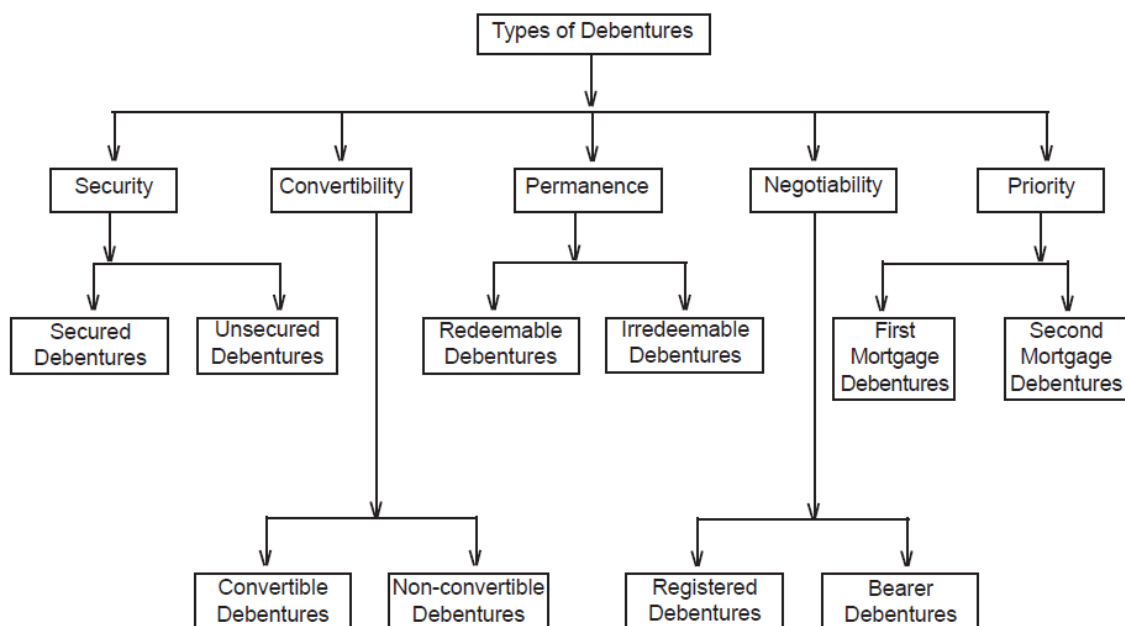
7. For transferring nominal amount of shares redeemed to Capital Redemption Reserve Account

General Reserve Account Dr.
Profit and Loss Account Dr.
 To Capital Redemption Reserve Account

Unit 4: Issue of Debentures

Distinction between debentures and shares

Debentures	Shares
1. Debentureholders are the creditors of the company.	1. Shareholders are the owners of the company.
2. Debentureholders have no voting rights and consequently do not pose any threat to the existing control of the company.	2. Shareholders have voting rights and consequently control the total affairs of the company.
3. Debenture interest is paid at a pre-determined fixed rate. It is payable, whether there is any profit or not. Debentures rank ahead of all types of shares for payment of the interest due on them.	3. Dividend on equity shares is paid at a variable rate which is vastly affected by the profits of the company (however, dividend on preference shares is paid at a fixed rate).
4. Interest on debentures are the charges against profits and they are deductible as an expense in determining taxable profit of the company.	4. Dividends are appropriation of profits and these are not deductible in determining taxable profit of the company.
5. There are different kinds of debentures, such as Secured/ Unsecured; Redeemable/ Irredeemable; Registered/ Bearer; Convertible /Non-convertible, etc.	5. There are only two kinds of shares – Equity Shares and Preference Shares.
6. In the Company's Balance Sheet, Debentures are shown under "Long Term Borrowings".	6. In the Company's Balance Sheet, shares are shown under "Shareholder's Fund" detailed in 'Share Capital' of Notes to Accounts.
7. Debentures can be converted into shares as per the terms of issue of debentures.	7. Shares cannot be converted into debentures in any circumstances.
Debentures	Shares
8. Debentures cannot be forfeited for non-payment of call moneys.	8. Shares can be forfeited for non-payment of allotment and call moneys.
9. At maturity, debentureholders get back their money as per the terms and conditions of redemption.	9. Equity shareholders cannot get back their money before the liquidation of the company (however, preference shareholders can get back their money before liquidation).
10. At the time of liquidation, debentureholders are paid-off before the shareholders.	10. At the time of liquidation shareholders are paid at last, after paying debentureholders, Trade payable, etc.



Journal entries in each of the above cases are discussed below:

1. Debenture issued at par redeemable at par: When debenture are issued at par, the issue price is equal to par value, in this regard the following entries are recorded:

(a) For receipt of application money :

Bank A/c Dr.

To Debenture Application A/c

(b) For transfer of application money to debentures account :

Debenture Application A/c Dr.

To..... ...% Debenture A/c

2. Debenture issued at Discount and Redeemable at par or at discount : When debentures are issued at discount, issue price will be less than par value. The difference between the two is considered as loss on issue on debentures and is to be written-off over the life of debentures. The entries with regards to issue are given below :

(a) For receipt of application money

Bank A/c Dr.

To Debenture Application A/c

(b) At the time of making allotment

(i) Debenture Application A/c Dr.

Discount on issue of debentures A/c Dr.

To ...% Debentures A/c

3. Debenture Issued at Premium and Redeemable at par or at discount

When debenture are issued at premium, the issue price is more than the par value. The premium is transferred to securities premium account. In this regard, the following journal entries are recorded:

When premium amount is received at the time of application;

(a) For receipt of application money

Bank A/c Dr.

To Debenture Application A/c

(b) For transfer of application of money at the time of allotment

Debenture application A/c Dr.

To ...% Debentures A/c

To Securities Premium A/c

4. Debenture issued at par and redeemable at a premium

(a) For receipt of application money

Bank A/c Dr.

To Debenture application A/c

(b) At the time of making allotment

(i) Transfer of application money to debenture account

Debenture Application A/c Dr.

To% Debenture A/c

(ii) Call made consequent upon allotment.

Debenture Allotment A/c Dr.

Loss on issue of debenture A/c Dr. [Equal to Debenture Redemption Premium]

To ...% Debenture A/c

To Debenture redemption premium A/c

Students can note that instead of passing the separate entries, a compound entry can be passed:

Bank A/c Dr.

Loss on issue of debenture A/c Dr.

To ...% Debenture A/c

To Debenture redemption premium A/c

5. Debenture Issued at discount and redeemable at premium

(a) For the receipt of application money

Bank A/c Dr.

To Debenture Application A/c

(b) At the time of making allotment

(i) Transfer of application money to debenture account

Debenture Application A/c Dr.

To % Debentures A/c

(ii) Call made consequent upon allotment of debentures at discount and redeemable at premium

Debenture Allotment A/c Dr.

Discount/Loss on issue of debenture A/c Dr. [Amount equal to the discount on issue of debenture plus Premium on redemption]

To ...% Debenture A/c

To Debenture Redemption Premium A/c

(c) For receipt of call made on allotment

Bank A/c Dr.

To Debenture Allotment A/c

Students can note that instead of passing the separate entries, a compound entry can be passed:

Bank A/c Dr.

Discount/Loss on issue of debentures A/c Dr.

To ...% Debentures A/c

To Debenture redemption premium A/c

6. Debenture Issued at premium and redeemable at premium

(a) For the receipt of application money

Bank A/c Dr.

 To Debenture Application A/c

(b) At the time of making allotment

(i) Transfer of application money to debenture account

Debenture Application A/c Dr.

 To % Debentures A/c

(ii) Call made consequent upon allotment of debenture at premium and redeemable at premium

Debenture Allotment A/c Dr.

Loss on issue of debenture A/c Dr. [Amount equal to the premium on redemption]

 To ...% Debenture A/c

 To Securities Premium A/c

 To Premium on Redemption of Debentures A/c

Students can note that instead of passing the separate entries, a compound entry can be passed:

Bank A/c Dr.

Loss on issue of Debentures A/c Dr.

 To ...% Debentures A/c

 To Securities Premium A/c

 To Premium on redemption of debentures A/c

Debentures Issued at Par:

The accounting entries would be as follows:

(a) *When cash is received*

Bank Account Dr.

 To Debentures Application Account

(b) *When excess money is refunded*

Debentures Application Account Dr.

 To Bank Account

(c) *When the debentures are allotted*

Debentures Application Account Dr.

 To Debentures Account

Debentures Issued at a Premium:

The accounting entries would be as follows:

(a) *When cash is received*

Bank Account Dr. [Nominal value plus premium]

 To Debentures Application Account

(b) *When excess money is refunded*

Debentures Application Account Dr.

 To Bank Account

(c) *When the debentures are allotted*

Debentures Application Account Dr.

 To Debentures Account

 To Securities Premium Account

Debentures Issued at a Discount

The accounting entries would be as follows :

(a) When Cash is received

Bank Account Dr. [Actual cash received]

To Debentures Application Account

(b) When excess money is refunded

Debentures Application Account Dr.

To Bank Account

(c) When the debentures are allotted

Debentures Application Account Dr. [Actual cash received]

Discount on Issue of Debentures Account Dr. [Discount on debentures]

To Debentures Account [Nominal value of debentures]

Issue of debentures as collateral security

Accounting Entries

There are two methods of showing these types of debentures in the accounts of a company.

Method 1

Under this method, no entry is made in the books of account of the company at the time of making issue of such debentures. In the 'Notes to Accounts' of Balance Sheet, the fact of the debentures being issued and outstanding is shown by a note under the liability secured.

Method 2

Under this method, the following entry is made to record the issue of such debentures:

Debentures Suspense Account Dr.

To Debentures Account

The Debentures Suspense Account will appear on the assets side of the Balance Sheet and Debentures on the liabilities side of the Balance Sheet. When the loan is repaid, the entry is reversed in order to cancel it.

Issue of debentures in consideration other than for cash

Just like shares, debentures can also be issued for consideration other than for cash, such as for purchase of land, machinery, etc. In this case, the following entries are passed :

(a) Sundry Assets Account Dr. [Assets taken over]

To Sundry Liabilities Account [Liabilities assumed]

To Vendors Account [Purchase consideration]

(Being the assets and liabilities taken over)

(b) Vendors Account Dr.

To Debentures Account

Treatment of Discount/LOSS on Issue of Debentures:

The discount on issue of debentures is amortised over a period between the issuance date and redemption date. It should be written-off in the following manner depending upon the terms of redemption:

(a) If the debentures are redeemable after a certain period of time, say at the end of 5 years, the total amount of discount should be written-off equally throughout the life of the debentures (applying the straight line method)..

(b) If the debentures are redeemable at different dates, the total amount of discount should be written-off in the ratio of benefit derived from debenture loan in any particular year (applying the sum of the year's digit method).

The accounting entries would be as follows :

Profit and Loss Account Dr.

To Discount on Issue of Debentures Account

Interest on Debentures

1. For making interest due

Interest A/c Dr.

To Debentureholders' A/c

2. For making payment of interest and deduction of tax at source (TDS)

Debentureholders A/c Dr.

To TDS Payable A/c

To Bank A/c

3. For making payment of tax deducted at source

TDS payable A/c Dr.

To Bank A/c

4. For transferring interest to profit and loss account

Profit and Loss A/c Dr.

To Interest A/c

Partnership Accounts

CONTENTS:

Unit-1: Introduction to Partnership Accounts

Unit-2: Goodwill

Unit-3: Admission of a New Partner

Unit-4: Retirement of a Partner

Unit-5: Death of a Partner

Unit 1: Introduction to Partnership Accounts

The Indian Partnership Act defines partnership as “the relationship between persons who have agreed to share the profit of a business carried on by all or any of them acting for all.”

The essential features of partnership are:

1. An association of two or more persons;
2. An agreement entered into by all persons concerned;
3. Existence of a business;
4. The carrying on of such business by all or any one of them acting for all; and
5. Sharing of profits of the business (including losses).
6. Unlimited liability of all partners.

The persons who enter into such an agreement are called partners and the business is called a firm.

In the absence of any agreement to the contrary;

1. no partner has the right to a salary,
2. no interest is to be allowed on capital,
3. no interest is to be charged on the drawings,
4. interest at the rate of 6% is to be allowed on a partner's loan to the firm, and
5. profits and losses are to be shared equally.

Note: In the absence of an agreement, the interest and salary payable to a partner will be paid only if there is profit.

Accounts:

- (i) Trading A/c
- (ii) P & L A/c
- (iii) P&L appropriation a/c is prepared for distribution of profits among the owners.
- (iv) Partners Capital Account
- (v) Balance Sheet

Journal Entries:

Capital Introduced

Cash/Bank A/c dr
 To partner's Capital A/c

Drawings

Drawing's A/c dr
 To cash/bank

Partner's Capital A/c dr
 To drawing

[Drawing A/c is transferred to Partner's Capital A/c / Current A/c]

Salary [Paid only if specified in partnership deed]

P&L appropriation A/c dr
 To partner's capital A/c

Interest on Capital

P&L Appropriation A/c dr
 To Partner's Capital A/c

- It is calculated on balance at the beginning of the year + capital introduced.
- Interest is paid only if specified in partnership deed.
- If profit before interest is less than the interest to be distributed then distribute such profit in capital ratio.

Fixed Capital Account v/s Fluctuating Capital Account:

Fluctuating Capital Account: Generally if we prepare 1 capital A/c it is known as fluctuating A/c method, as amount of capital changes every year.

Fixed Capital Method: To avoid the above problem, generally two A/cs are maintained.

-Partner's fixed capital A/c.

-Partner's current A/c (Drawing A/c)

In partner's fixed capital A/c, only capital introduced / Capital withdrawn is recorded, rest all transactions (Salary, Interest, drawings) are recorded in partner's current A/c.

In such a case, interest is calculated on opening balance + addition in fixed capital A/c and not on Current A/c

Interest On Drawings [Only if specified in deed]:

Partner's capital A/c dr
 To P&L appropriation A/c

Guarantee Of Minimum Profits:

If A, B & C are partners & A has guaranteed C that he will get minimum 40,000. If profit is 90,000 then calculation will be as follows:

90,000		
1:1:1		
A	B	C
30,000	30,000	30,000
(10,000)		+ 10,000
= 20,000	=30,000	= 40,000

Distribution of Profits: P&L appropriation A/c dr
 To partner's capital A/c

Distribution of loss: Partner's Capital A/c

 To P&L appropriation

[If nothing is given then distribution of profit equally]

Transfer to reserves:

P&L Appropriation A/c Dr
 To Reserve A/c

Unit 2 & Unit 3: Goodwill & Admission of a Partner

Admission of Partner

Adjustment 1: Ratio Calculation ($SR = OR - NR$)

Adjustment 2: Goodwill:

Valuation of Goodwill:

Method 1: Average Profit Method:

Goodwill = Adjusted Average operating Profits * No of Years of Purchase

Notes:

- (i) Average can be simple or weighted average.
- (ii) If there is increasing or decreasing trend we use weighted average.
- (iii) If profits are fluctuating we use simple average.
- (iv) Meaning of adjusted operating profit: Abnormal items in past profits are removed and future adjustments are made. Also non operating incomes/expenses are removed

Method 2: Super Profit Method:

Goodwill = Super Profits * No of Years of Purchase

Super Profits = Adjusted Average Operating Profit (what I earn) – Normal Profits (what people earn)

Normal Profits = Capital Employed * NRR (Normal rate of return)

Capital Employed = Capital + Reserves – Non operating Net Assets

Capital Employed = Operating Assets – Operating Liabilities

Method 3: Annuity Method:

Goodwill = Super Profits * Annuity factor

Present Value annuity factor:

$\frac{1}{1+rate}$ then press = = then press GT (= ~~→N~~ times ~~→No~~ of years)

Method 4: Capitalisation Method:

Goodwill = (Adjusted Average Operating Profit / NRR) - Operating Capital Employed

Goodwill = Super Profits / NRR

Accounting for Goodwill:

Type 1: When Goodwill is brought in cash:

(i) New Partner will bring only **HIS SHARE** of goodwill in cash.

(ii) Entries: Cash/Bank A/c Dr
 To Goodwill A/c

Goodwill A/c Dr
 To Old Partner's Capital A/c (**SR**)

New Partner is unable to bring Goodwill in cash & Goodwill is raised and written off:

(ii) Entries:

	Goodwill A/c Dr
	To Old Partner's Capital A/c (OR)

Type 3:

(i) Only New Partner's **SHARE** in goodwill is considered.

Extra Points:

(ii) In all the three types, final amount of goodwill in the Balance Sheet will be **Zero**. This is as per AS-26. However if type 2 is followed partly i.e. goodwill is only raised and not written off, in that case Goodwill will be shown in Balance Sheet at Full Value

The necessity for valuation of goodwill in a firm arises in the following cases:

- When the profit sharing ratio amongst the partners is changed;
- When a new partner is admitted;
- When a partner retires or dies; and
- When the business is dissolved or sold.

Adjustment 3: Revaluation: Any profit / loss relating to value assets or liability for the period before admission must belong to old Partners. Hence revaluation adjustments are carried out.

(i) Asset Value Increases:

Asset A/c Dr
 To Revaluation A/c

(ii) Asset Value Decreases:

Revaluation A/c Dr
To Asset A/c

(iii) Liability Increases:

Revaluation A/c Dr
To Liability A/c

(iv) Liability Decreases:

Liability A/c Dr
 To Revaluation A/c

Unit-4: Retirement of a Partner

Adjustment 1: Ratio Calculation: GR = NR - OR

Adjustment 2: Goodwill

Type 1: Goodwill brought in cash (Not Possible)

Type 2: Goodwill raised in old ratio and write-off in new ratio. (Entire Goodwill)

Type 3: Remaining Partner's Capital A/c..... Dr

To Outgoing Partner's Capital A/c (His share in GR)

OR

MAKE TABLE

Adjustment 3: Revaluation (Same as earlier)

Adjustment 4: Old Reserves/losses (Same as earlier)

Adjustment 5: Amount paid to outgoing partner

Outgoing Partner's Capital A/c..... Dr

To C/B

To Partner's loan A/c

If outgoing partner is not settled in above way then for the period of delay, **Section 37 of Indian Partnership Act, 1932** gets applicable. **Outgoing partner will be paid profit in Capital Ratio or interest @ 6% p.a whichever is higher for the period of delay.**

JOINT LIFE POLICY (JLP):

It is an insurance policy taken on the life of partner jointly and severely. It is taken so that on the death of a partner or on retirement of partner, hardship caused to firm is minimized.

Terms:

1. Premium Paid: Amount paid periodically.

2. Surrender Value: Value on a date, when policy is given up i.e before Maturity/death.

3. Maturity Value: Value received on maturity or death whichever is earlier.

Accounting for JLP:

Option 1: JLP premium is debited to P&L A/c

Entry 1: On date of payment:

JLP Insurance Premium A/c.....Dr (P&L) (treated as expense)

To Cash/Bank

Entry 2: On date of Balance Sheet: No Entry

Entry 3: On Maturity:

Insurance Co. A/c or Cash/Bank A/c.. Dr

To Old partner's Capital A/c (**OR**) / To Revaluation A/c

Option 2: If JLP is treated as an asset.

Entry 1: At the time of payment:

JLP A/c... Dr (Asset)
To C/B

Entry 2: On date of Balance Sheet

(Bring the asset to surrender value)

P&L A/c.. Dr
To JLP asset

Entry 3: On Receipt

Cash/Bank A/c Dr
To JLP asset A/c
To Old Partner's Capital A/c (OR) / Revaluation A/c

Option 3: JLP is treated as an asset and JLP reserve is also created.

Entry 1: At the time premium is paid:

a) JLP Asset A/c... Dr	100	
To C/B		100
b) P&L Appropriation A/c.. Dr	100	
To JLP Reserves		100

Entry 2: JLP asset and reserve is brought to surrender value on B/S date:

JLP Reserve A/c.. Dr	10	
To JLP Asset		10

(Surrender value is 90)

Therefore, we can conclude that both JLP reserve and JLP asset are at surrender value.

Entry 3: On receipt:

a) Cash/Bank A/c... Dr	93	
To JLP Asset		90
To Old Partner's Capital A/c (OR)		3
b) JLP Reserve A/c.. Dr	90	
To Old Partner's Capital A/c (OR)		90

Unit 5: Death of a Partner

Adjustment 1, 2, 3 & 4 same as Retirement

Adjustment 5 (a):

On death of a partner he is entitled to profit upto the date of death.

Adjustment 5 (b):

Deceased Partner Capital A/c.. Dr
 To Legal Heir A/c

Adjustment 5 (c):

Legal Heir A/c.. Dr
 To Cash/Bank
 To Loan A/c

(Section 37 also applicable)

CA – CPT

**Mercantile Laws
(40 Marks)**

Revision Notes

**Compiled by:
CA Vinesh R. Savla**

The Indian Contract Act, 1872

Nature of Contract: The Indian Contract Act, 1872 is a mercantile law passed as Indian Parliament. This law regulates trade and commerce. It is based on English common law. It is applicable to whole of India except the state of J&K. It came into force from 1st September, 1872.

PROMISE: [Section 2(d)]: "A proposal when accepted, becomes a promise."

Promise = offer (or proposal) + Acceptance of offer (or Proposal)

AGREEMENT: [Section 2(e)]: "Every promise and every set of promises forming the consideration for each other is an agreement". **Agreement = Promise + consideration**

CONTRACT: [Section 2(h)]: "An agreement enforceable by law is a contract".

Contract = Agreement + Enforceability of an agreement by law.

ENFORCEABILITY OF AGREEMENT: An agreement is said to be enforceable by law if it creates some legal obligation. If X proposes Y to come for a movie and in turn agrees to give a treat, and Y agrees, then such an agreement is not a contract since it is not enforceable by law. **All Contracts are Agreement but all Agreements are not Contracts.**

DIFFERENT TYPE OF CONTRACTS:

1) On the Basis of Creation:

- a) **Express Contract:** Express contract is one which is made by words spoken or written.
- b) **Implied Contract:** By implied contract means implied by law (i.e.) the law implies a contract though parties never intended. As such proposal and acceptance are made otherwise than in words.
- c) **Tacit Contract:** A tacit contract is one which is inferred from the conduct of parties. Here also proposal and acceptance are made otherwise than in words. It is type of Implied contract.

2) On the Basis of Execution:

- a) **Executed Contract:** It is a contract where both the parties to the contract have performed their respective obligations under the contract.
- b) **Executory Contract:** It is a contract where both the parties to the contract have still to perform their respective obligations.
- c) **Partly Executed and Partly Executory Contract:** It is a contract where one of the parties to the contract has performed his obligation and the other party has still to perform his obligation.
- d) **Unilateral Contract:** A unilateral contract is a one-sided contract in which only one party has to perform his promise or obligation to do or forbear.

3) On the Basis of Enforceability:

- a) **Valid Contract:** A contract which contains all the essential elements of a contract is called as a valid contract.
- b) **Void Contract:** Section 2(j) - A void contract is a contract which was valid when entered into but which subsequently became void due to impossibility of performance or due to

change of law or some other reason. Example: A contracts with B (owner of the factory) for the supply of 10 tons of sugar, but before the supply is effected, the factory catches fire and everything was destroyed. Here the contract becomes void.

- c) **Void agreement:** Section 2(g), "An Agreement not enforceable by law is said to be void." Such agreements are void - ab – initio. **[Collateral Not Void]**
- d) **Voidable Contract:** Section 2(i) "an agreement which is enforceable by law at the option of one or more of the parties thereon but not at the option of the other or others", is a voidable contract.
- e) **Illegal Agreement:** An illegal agreement is one the object of which is unlawful. Thus, illegal agreements are always void - ab – initio
[All Illegal Void but all void not illegal] [Collateral Illegal/Void]
- f) **Unenforceable Contract:** It is a contract which is actually valid but cannot be enforced because of some technical defect (such not in writing, under stamped). Such contracts can be enforced if the technical defect involved is removed.

ESSENTIALS OF A VALID CONTRACT: (Section 10) All agreements are contracts if: a) They are made by the free consent, b) By competent parties, c) For a lawful consideration, d) With a lawful object, e) And are not hereby expressly declared to be void.

Offer & Acceptance [Juristic Concept]

Offer / Proposal: [Tender] Section 2(a) "A person is said to have made the proposal when he signifies to another his willingness to do something or to abstain from doing anything (not to do something) with a view to obtaining the assent" **Examples:** 1) A tells B, "I want to marry". This does not amount to offer but it is a mere expression of willingness. 2) A said to B, "I want to marry, Will you marry me." This would amounts to offer because in this case, the intention of A is to obtaining the consent of B.

Offeror: Person who makes the offer **Offeree:** Person to whom offer is made.

Types of offer:

- 1) Specific offer:** A specific offer is one which is made to a definite person or particular group of persons. A specific offer can be accepted only by the definite person or that particular group of persons to whom it has been made.
- 2) General Offer:** A general offer is one which is not made to a definite person, but to the world at large or public in general. A general offer can be accepted by any person having the knowledge of the offer comes forward and acts according to the conditions of the offer.
- 3) Cross Offer:** Two offers which are similar in all respects made by two parties to each other, in ignorance of each other's offer are known as 'cross offers'. cross offers do not amount to acceptance of one's offer by the other. Hence, no contract is entered into on cross offers.
- 4) Counter Offer:** When the offeree gives a qualified acceptance of the offer i.e. with modifications in the terms of original offer, he is said to have made a counter offer. Counter-offer amounts to rejection of the original offer.
- 5) Standing/ Open/ Continuing Offer/ Tender:** An offer of continuous nature is known as 'standing offer'.

RULES FOR A VALID OFFER:

- 1) Intention to create legal relationship**
- 2) Certain and unambiguous Terms**
- 3) Different from mere declaration of intention i.e. it should be with a view to obtain consent**
- 4) Different from an invitation to offer:** In case of an invitation to offer, the person making an invitation invites others to make an offer to him. Example: goods were displayed in the shop for sale with price tags attached on each article and self service system was there. One customer selected the goods. It was held that the display of goods was only an intention to offer and the selection of the goods was an offer by the customer to buy and the contract was made when the cashier accepted the offer to buy and received the price.
- 5) Communication:** An offer is complete only when it is communicated to the offeree. One can accept the offer only when he knows about it.
- 6) No term that non-compliance of said term amounts to acceptance:**
- 7) An offer may be conditional:**
- 8) The offer may be expressed or implied:**

When is Communication of Offer Complete: The Communication of Offer is complete when it comes to the knowledge of the person to whom it is made.

ACCEPTANCE: A proposal when accepted becomes a promise. Acceptance produces something which cannot be undone (Individually). It is like a lighted matchstick to a train of gun powder.

RULES FOR A VALID ACCEPTANCE:

- 1) Absolute and Unqualified (Section 7):** A qualified and conditional acceptance amounts to making of a counter offer which put an end to the original offer and it cannot be revived by subsequent acceptance.
- 2) Accepting the offer in the prescribed manner**
- 3) Communication:** The acceptance must be signified. The acceptance is complete only when it has been communicated to the offerer. Further Acceptance must be communicated to the offeror i.e. the person who made the offer
- 4) Time Limit:** The Acceptance must be communicated within the time prescribed (if any) or within a reasonable time (if no time is prescribed). If the acceptance is made after the lapse or withdrawal of the offer, it will not give rise to legal relations.
- 5) Mere silence is not acceptance**
- 6) Acceptance is valid even if it is lost in Transit.**

Communication of an acceptance is complete: [Section 5]

- (i) as against the offerer, when it is put in course of transmission by acceptor.
- (ii) as against the acceptor, when it comes to the knowledge of the offerer.

REVOCATION OF OFFER AND ACCEPTANCE: The term 'revocation' means 'taking back' or 'withdrawal'.

What is the Time Limit within which offer can be Revoked: An offer may be revoked at any time before the communication of its acceptance is complete as against the offerer, but not afterwards. Hence, an offer can be revoked at any time before the letter of acceptance is duly posted by the acceptor.

What is the Time Limit within which acceptance can be Revoked: An acceptance may be revoked at any time before the communication of acceptance is complete as against the acceptor, but not afterwards". Hence, an acceptance can be revoked at any time before the letter of acceptance is actually received by the offerer.

Example:

A (offerer) send offer letter to B (offeree/ acceptor) on 1/1/14.

B Receives the same on 7/1/14.

B accepts the same on 9/1/14 & sends it to A.

A receives the acceptance on 15/1/14.

Communication of offer complete on: 7/1/14

Communication of acceptance from A (offeror) point of view complete on: 9/1/14 **[So he has to revoke offer before 9/1/14 if he wants to and not later]**

Communication of acceptance from B (acceptor) point of view complete on: 15/1/14 **[So he has to revoke acceptance before 15/1/14 if he wants to and not later]**

When is communication of revocation said to be complete?

Against the person who revokes: When it is made or posted

Against other person: When he receives

[Hence revocation can be made only once. Revocation of revocation not possible]

WHEN DOES AN OFFER COME TO AN END (LAPSES)? : (Section 6) [BEFORE ACCEPTANCE]

- 1) By Revocation
- 2) By Lapse of Time
- 3) By Death or Insanity of the Offerer (if fact is known to the acceptor)
- 4) By failure to fulfil conditions mentioned in offer:
- 5) By counter offer
- 6) By rejection of Offer by Offeree (it cannot be revived subsequently)
- 7) By Subsequent Illegality or Destruction of Subject Matter of the Offer

Consideration: [No Consideration – No Contract]

'Consideration' means something in return i.e. quid-pro- quo. [Section 2(d)]

- 1) When at desire of the promisor,
- 2) The promisee or any other person has done or abstained from doing,
- 3) Or does or abstains from doing,
- 4) Or promises to do or abstain from doing something,
- 5) Such act or abstinence or promise is called as consideration for the promise.

ELEMENTS OF VALID CONSIDERATION:

- 1) It must be given only at the desire of the promisor
- 2) It may Move from any person
- 3) It may be past or present or future
- 4) It must be of some value: It is something in return and that something can be anything, adequate or grossly inadequate. The inadequacy of the price in itself shall not render the transaction void, unless the party pleads that transaction takes place under coercion, undue influence or fraud.
- 5) It must be real and not illusory

- 6) Something other than the promisor's existing obligation:
- 7) Lawful

CAN A STRANGER TO CONTRACT SUE:

A Stranger to a contract cannot sue because of the absence of privity of contract

EXCEPTIONS TO RULE - A STRANGER TO A CONTRACT CANNOT SUE:

- 1) In case of Trusts:** The beneficiary (i.e. the person for whose benefit the trust has been created) may enforce the contract.
- 2) In case of Family Settlement:** The person for whose benefit the provision is made under family arrangements may enforce the contract
- 3) Acknowledgment:** The person who becomes an agent of third party by acknowledgment, he can be sued by such third party.
- 4) Assignment of a contract:** Where a benefit under a contract has been assigned, the assignee can enforce the contract.
- 5) Contract entered through agent [i.e. principal can sue]**

EXCEPTIONS TO THE GENERAL RULE NO CONSIDERATION - NO CONTRACT:

- 1) Agreement made on account of natural love and affection [section 25(1)]:** Such agreement made without consideration is valid if it is expressed in writing, it is registered under the law, it is made on account of love and affection, and it is between parties standing in a near relation to each other.
- 2) Promise to Compensate [section 25(2)]:** Such promise made without consideration is valid if it is a promise to compensate (wholly or in part); and the person who is to be compensated has already done something voluntarily.
- 3) Promise to pay time barred Debt [section 25(3)]:** such promise without consideration is valid if it is made in writing, it is signed by the debtor or his agent, and it relates to debt which could not be enforced by a creditor because of limitation.
- 4) Complete Gifts [Explanation to Section 25]:** the gifts actually made by a donor and accepted by the donee are valid even without consideration. Thus, a completed gift needs no consideration.
- 5) Agency**
- 6) Bailment**
- 7) Charity:** If a promisee undertakes the liability on the promise of the person to contribute to charity, there the contract shall be valid to that extent.
- 8) Remission:** Can be done without consideration.

Extra:

- (Nudum Pactum → Mere promise without consideration)
- (Bargain – promise supported by consideration)

Capacities of Parties to Contract:

WHO IS COMPETENT TO CONTRACT: Every person is competent to contract who is of the age of majority, and who is of sound mind, and is not disqualified from contracting by any law.

WHAT IS THE AGE OF MAJORITY: 18 years

1) Validity: An agreement with a minor is void ab- initio. It was held that the money advanced to minor cannot be recovered because minor's agreement was void.

2) No Estoppel: A minor can always plead minority and is not stopped to do so even where he has taken any loan or entered into contract by falsely representing that he was major.

3) Ratification on attaining the age of majority: An agreement with a minor cannot be ratified even after he attains majority.

4) Minor as a partner: A minor cannot become a partner in a partnership firm. However, according to Section 30 of Indian Partnership Act 1932, with the consent of all the partners be admitted to the benefits of partnership and not loss.

5) Minor as an agent: A minor can act as an agent and bind his principle by his acts without incurring any personal liability.

6) Contract for the benefit of a minor: A minor can be a promisee. Though a minor is not competent to contract, nothing in the Contract Act prevents him from making the other party bound to the minor.

7) Contract by minor's guardian: The contracts entered into on behalf of a minor by his guardian or manager of his estate can be enforced by or against the minor if the contract (a) is within the scope of the authority of guardian or manager, and (b) is for the benefit of the minor.

8) Contract for supply of necessities: A person who has supplied the necessities to a minor or to those who are dependent on him is entitled to be reimbursed from the property of such minor. The term necessities includes food, clothing etc depending on the status of the person. **[Quasi Contract]**

9) A Contract can be entered by Minor for apprenticeship (Training) after 14 Years.

10) No Restitution: But exceptions:

1) Doctrine of equitable restitution – Goods and property still in possession of minor can be recovered back but should not involve personal liability of minor.

2) Also Restitution allowed if minor has made false representation as major.

11) Minor can become shareholder of fully paid shares through transfer via guardian. Company will not allot share on application.

POSITION OF CONTRACT WITH THE PERSON OF UNSOUND MIND:

A person is said to be of sound mind for the purpose of making a contract, if at the time when he makes it, is capable (i) To understand the terms of the contract, (ii) To form a rational judgement as to its effect upon his interests. A person who is usually of unsound mind but occasionally of sound mind may make a contract when he is of sound mind. A person who is usually of sound mind but occasionally of unsound mind may not make a contract when he is of unsound mind.

PERSONS DISQUALIFIED BY LAW: Alien Enemy, Foreign Sovereigns and ambassador, Convicts, Insolvent etc. **Foreign Sovereigns and ambassador: They cannot be sued but they can sue**

CONSENT: Two or more persons are said to consent when they agree upon the same thing in the same sense. This is called 'Consensus- ad- idem.'

FREE CONSENT: Further the above consent must be free.

EXPLAIN THE CASES WHERE THE CONSENT WILL NOT AMOUNT TO FREE CONSENT:

1) COERCION: A contract is said to be caused by coercion when it is obtained by:

- a) Committing any act which is forbidden by the Indian Penal Code; or
- b) Threatening to commit any act which is forbidden by Indian Penal Code; or
- c) Unlawful detaining of any property; or Threatening to detain any property.

A threat to commit suicide amounts to coercion. The agreement induced by coercion is **voidable** at the option of the party whose consent is not free. A person to whom money has been paid or anything delivered under coercion must repay or return it

2) UNDUE INFLUENCE: Contract is said to be induced by undue influence:

- a) Where the relations subsisting between the parties are such that one of them is in a position to dominate the will of the other, and
- b) The dominant party uses that position to obtain an unfair advantage over the other.

A person is **deemed** to be in a position to dominate the will of the other, when he holds authority real or apparent over the other, or when he stands in a fiduciary relation to the other or where other person is under mental distress. A contract which is induced by undue influence is **either voidable or the court may set it aside or enforce it in a modified form.**

Relation where it is presumed that undue influence is present:

- 1) Parent and Child 2) Guardian 3) Trustee and beneficiary 4) Doctor and patient 5) Lawyer and Client 6) Guru and disciple 7) Pardashin woman

Relation where no presumption of undue influence:

- 1) Landlord and tenant 2) Creditor and debtor 3) Husband and Wife (unless proved)

3) FRAUD: Fraud means and includes any of the following acts committed by a party to a contract or by his agent, with intent to deceive another party to enter into the contract:

- a) The suggestion of fact which is false as true by one who knows it to be false.
- b) The active concealment of a fact by one having knowledge or belief of the fact.
- c) A promise made without any intention of performing it:
- d) Any such act or omission as the law specially declares to be fraudulent.

A contract which is induced by Fraud is **voidable and aggrieved party can also claim damages.**

Does silence amount to fraud?

Mere silence as to facts likely to affect the willingness of a person to enter into a contract is no fraud; but where it is the duty of a person to speak, or his silence is equivalent to speech, silence amounts to fraud.

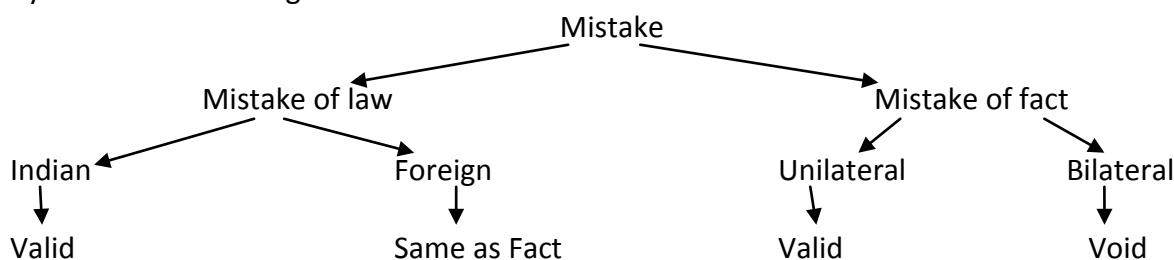
4) MISREPRESENTATION: The term 'Misrepresentation' means a false representation of fact made innocently or non- disclosure of a material fact without any intention to deceive the other party. The representation must relate to a fact. In other words, a mere option, a statement of expression or intention does not amount to misrepresentation. A contract which is induced by misrepresentation is **voidable but the aggrieved party cannot claim damages.**

Exception to Fraud and Misrepresentation:

1) A person who had the means of discovering the truth with ordinary diligence cannot avoid a contract on the ground that his consent was caused by misrepresentation or silence amounting to fraud.

2) Where a party to a contract commits fraud or misrepresentation, but the other party is not, in fact, misled by such fraud or misrepresentation, the contract cannot be avoided by the latter.

5) MISTAKE: A mistake is said to have occurred where the parties intending to do one thing by error do something else.



Legality of Object & Consideration

The consideration and object is considered unlawful if:

- It is forbidden by law or
- It defeats the provisions of law or
- Is fraudulent or involves or
- Implies injury to the person or property of another or
- Is immoral or
- Is opposed to public policy.

In above cases agreement is void.

Agreement Opposed To Public Policy:

The following Agreements have been held to be opposed to public policy:

a) Agreements of trading with enemy

b) Agreements of stifling prosecution: An agreement to stifle prosecution tends to be a perversion or an abuse of justice; therefore, such an agreement is void.

c) Agreements in the nature of maintenance and champerty

Maintenance is the promotion of litigation in which one had no interest and champerty is bargain whereby one party agrees to assist the other in recovering property, with a view to sharing the profits of litigation. In India, an agreement to share the subject of litigation, if recovered in consideration of the party's supplying the funds in good faith to carry it on, is not itself, opposed to public policy. But where such advances are made by way of gambling in litigation, the agreement to share the subject of litigation is certainly opposed to public policy and therefore void.

d) Agreement for sale/ transfer of public offices and titles

e) Agreements tending to create Monopoly

f) Agreements interfering with course of justice

g) Agreement in restraint of marriage: Every agreement in restraint of marriage of any person other than a minor is void.

h) Agreement in restraint of trade: Every agreement by which anyone is restrained from exercising a lawful profession, trade or business of any kind, is to that extent void.

But this rule is subject to the following exceptions, namely,

- 1) where a person sells the goodwill of a business and agrees with the buyer to refrain from carrying on a similar business, within specified local limits, then such an agreement is valid.
- 2) An agreement among the sellers of a particular commodity not to sell the commodity for less than a fixed price is not an agreement in restraint of trade.
- 3) An agreement between partners not to carry on competing business during the continuance of partnership is valid.
- 4) An agreement with an outgoing partner to not carry on competing business for a reasonable time will be valid.
- 5) An agreement of service by which an employee binds himself, during the term of his agreement, not to compete with his employer is not in restraint of trade.
- 6) An agreement by a manufacturer to sell during a certain period his entire production to a wholesale merchant is not in restraint of trade.

i) Agreement in restraint of legal proceedings: It is one by which any party thereto is

j) Marriage brokerage contracts

k) Interest against obligation: Eg: A, who is the manager of a firm, agrees to pass a contract to X if X pays to A Rs 2,000 privately; the agreement is void.

Illegal Agreements: Illegal agreements are those agreements which are void ab- initio i.e. void from the very beginning and punished by the criminal law of the country or by special legislation/ regulation.

The effects of illegal agreements are as under:

- 1) The collateral transactions to an illegal agreement also become illegal and hence cannot be enforced.
- 2) No action can be taken for recovery of money paid or property transferred under illegal agreement and for the breach of an illegal agreement.

Void Agreements

1) Agreement where Consideration is unlawful in Part: The general rule is that where the legal part of a contract can be separated from the unlawful part, the unlawful part may be considered void and the legal part can be considered valid. But where the unlawful part cannot be separated, the entire contract is altogether void.

2) Uncertain Agreements: An uncertain agreement means an agreement the meaning of which is not certain or not capable of being made certain. Such agreements are void.

3) Wagering Agreements: An Agreement between two persons under which money or money's worth is payable, by one person to another on the happening or non-happening of a future uncertain event is called wagering event. Agreements by way of wager are void in India.

4) Speculative transaction: Speculative transaction is one in which mutual intention of parties is to settle the transaction either by actual delivery of goods or by payment of difference in price on settlement date. Speculative transaction is generally valid. If, however the mutual intention is only to settle the transaction by payment of difference in price on settlement date, the transaction would be wagering agreement which would be void.

Performance & Discharge of a Contract: A contract is said to have been performed when the parties to a contract either perform or offer to perform their respective promises.

Types of performance of the contract:

1) Actual performance: Where a promisor has made an offer of performance to the promisee and the offer has been accepted by the promisee, it is called an actual performance.

2) Attempted Performance (or tender): Where a promisor has made an offer of performance to the promisee, and the offer has not been accepted by the promisee, it is called an attempted performance (Section 38).

BY WHOM CONTRACT MAY BE PERFORMED:

1) Promisor himself: If there is something in the contract to show that it was the intention of the parties that the promise should be performed by the promisor himself, such promise must be performed by the promisor himself. This means contracts which involve the exercise of personal skill or diligence, or which are founded on personal confidence between the parties must be performed by the promisor himself.

2) Agent: Where personal consideration is not the foundation of a contract, the promisor or his representative may employ a competent person to perform it.

3) Representatives: A contract which involves the use of personal skill or is founded on personal consideration comes to an end on the death of the promisor. As regards any other contract the legal representatives of the deceased promisor are bound to perform it unless a contrary intention appears from the contract. But their liability under a contract is limited to the value of the property they inherit from the deceased.

4) Joint promisors: When two or more persons have made a joint promise, then unless a contrary intention appears from the contract, all such persons must jointly fulfill the promise. If any of them dies, his legal representatives must, jointly with the surviving promisors, fulfill the promise.

Time and Place for performance of the promise: [Question of Fact]

(i) If no time is specified in a contract for the performance of the promise, the promise must be performed within a reasonable time.

(ii) If a promise is to be performed on a specified date but the hour is not mentioned, the promisor may perform it at any time during the usual hours of business, on such day.

(iii) When no place is fixed for the performance of a promise, it is the duty of the promisor to ask the promisee to fix a reasonable place for the performance of the promise.

Impossibility of Performance:

(i) Impossibility Existing at the time of the Contract: (Known or unknown to both parties): Void Agreement

(ii) Impossibility Existing at the time of the Contract: (Known only to one party): Void Agreement + Damages by party at fault

(iii) Supervening Impossibility: Contract becomes Void

Discharge of Contract by Mutual Agreement:

(a) Novation: The parties to a contract may substitute a new contract for the old. On novation, the old contract is discharged and consequently it need not be performed. There may be change in parties.

(b) Rescission: When the parties to a contract agree to rescind it, the contract need not be performed. In the case of rescission, only the old contract is cancelled and no new contract comes to exist in its place.

(c) Alteration of contract: A contract is also discharged by alteration. In case of alteration the terms of the contract may be altered by mutual agreement by the contracting parties but the parties to the contract will remain the same.

(d) Where Promisee may waive or remit performance of promise: Promisee can dispense with performance without consideration and without a new contract or may extend the time of performance.

Discharge of a contract:

Discharge of a contract means end of the contractual relations between the parties.

1) By Actual Performance

2) By attempted Performance or tender

3) Discharge by mutual agreement: a) Novation b) Rescission c) Alteration d) Remission

4) Discharge by Operation of Law: A contract may be discharged by operation of law in the following cases: a) By death of the promisor b) By insolvency etc. if it is based on personal skill.

5) Discharged by Impossibility of Performance: The impossibility may exist from the very start. In that case, it would be impossibility ab initio. Alternatively, it may supervene.

6) Discharge by lapse of time: A contract should be performed within a specified period as prescribed by the Limitation Act, 1963. If it is not performed and if no action is taken by the promisee within the specified period of limitation, he is deprived of remedy at law.

7) When a promisee neglects: When a promisee neglects or refuses to afford the promisor reasonable facilities for the performance of the promise, the promisor is excused by such neglect or refusal.

8) Discharge by breach of Contract:

a) Anticipatory Breach of Contract: Anticipatory breach of contract occurs when the party declares his intention of not performing the contract before the performance is due.

[Can be expressed or Implied]

b) Actual Breach of Contract: Actual breach of contract occurs in the following two ways:

On due date of performance: If any party to a contract refuses or fails to perform his part of the contract at the time fixed for performance, it is called an actual breach of contract on due date of performance.

During the course of Performance: If any party has performed a part of the contract and then refuses or fails to perform the remaining part of the contract, it is called an actual breach of contract during the course of performance.

Consequences of Breach of contract:

The aggrieved party (i.e. the party not at fault) is discharged from his obligation and gets rights to proceed against the party at fault. The various remedies available to an aggrieved party have been discussed in detail in next chapter.

Extra Concepts:

1) Assignment and succession: Under succession, both benefits and burden attached to the contract devolve upon the legal heir. However in assignment only the benefit of a contract can be assigned and not the liabilities attached thereto.

2) Joint Promisors: Promisee may compel any one or more of such joint promisors to perform the whole of the promise. If one of the joint promisors is made to perform the whole contract, he can call for a contribution from others. If any of the joint promisors make a default in making his contribution the remaining joint promisors must bear the loss arising from such default in equal shares. For Example, A, B and C jointly execute a promissory note for Rs 3,000 in favour of D. A is compelled to pay the whole amount. A, in such a case would be able to realise Rs 1,000 each from B and C and if C was unable to pay anything, then A would be able to realise from B by way of contribution Rs 1,500 instead of Rs 1,000.

3) Time as essence of contract: Time is an essence of a contract means that it is essential for the parties to a contract to perform their respective promises within the specified time.

Presumption as to time as essential of contract:

In commercial or mercantile contracts	In non commercial contracts
Time fixed for the delivery of goods is considered to be the essence of a contract, but Time fixed for the payment of the price is not considered to be the essence of a contract	Usually the presumption is that time is not the essence of a contract. For example: In case of the sale of an immovable property, time is presumed to be not the essence of a contract.

What are the consequences of Non- performance of contract within specified time?

When time is essence of a contract	When time is not the essence of a contract
The contract becomes voidable at the option of the promise & claim damages.	The contract does not become voidable at the option of the promisee.
If performance beyond the specified time is accepted, the promisee cannot claim compensation for any loss occasioned by the non performance of the promise at the agreed time unless at the time of such acceptance, he gives notice to the promisor his intention to do so.	The promisee is entitled to claim compensation for any loss occasioned to him by non performance of the promise at the agreed time.

4) Reciprocal Promises: Promises which form the consideration or part of the consideration for each other, are called 'reciprocal promises.'

a) Regarding simultaneous performance: If a contract consists of reciprocal promises to be simultaneously performed, then the promisor need not perform his promise unless the promisee is ready and willing to perform his promise.

b) Regarding order of performance: Where the order in which reciprocal promises are to be performed is expressly fixed by the contract, they must be performed in that order and where the order is not expressly fixed by the contract, they must be performed in the order which the nature of the transaction requires.

c) Effects of preventing the performance: When a contract contains reciprocal promises, and one party to the contract prevents the other from performing his promise, the contract becomes voidable at the option of the party so prevented; and he is entitled to compensation from the other party for any loss which he has sustain in consequence of the non-performance of the contract.

5) Appropriation of Payment: Appropriation of payment means application of payment to a particular debt.

Case	Rule
Where debt to be discharged is indicated.	The payment, if accepted must be applied accordingly.
Where debt to be discharged is not indicated.	The creditor has option to apply the payment to any lawful debt due from the debtor even if it is a time barred debt. But, he cannot apply to a disputed debt.
Where neither party makes any appropriation.	The payment shall be applied in discharge of the debts in order of time whether or not they are time barred. If the debts are of equal standing, the payment shall be applied in discharge of each, proportionately.

Remedies for Breach of Contract:

What are the options available to aggrieved party: In case of anticipatory breach, the aggrieved party has the following two options:

- He can rescind the contract and claim damages for breach of contract without waiting until the due date for performance, or
- He may treat the contract as operative and wait till the due date for performance and claim damages if the promise still remains unperformed.

Liability for damages:

(a) Liability for ordinary damages: These damages arise in the ordinary course of events from the breach of contract. These Damages constitute the direct loss suffered by the injured party. It has to be paid even if specified or not in the contract.

(b) Liability for special damages: Where a party to a contract receives a notice of special circumstances affecting the contract, he will be liable not only for damages arising naturally and directly from the breach but also for special damages.

(c) Liability to pay vindictive or exemplary damages: These damages may be awarded only in two cases, viz (i) for breach of promise to marry; and (ii) wrongful dishonour by a banker of his customer's cheque.

(d) Liability to pay nominal damages: Nominal damages are awarded where the plaintiff has proved that there has been a breach of contract but he has not in fact suffered any real damage. It is awarded just to establish the right to decree for the breach of contract. The amount may be a rupee.

(e) Damages for deterioration caused by delay: In the case of deterioration caused to goods by delay, damages can be recovered from carrier even without notice. The word 'deterioration' not only implies physical damages to the goods but it may also mean loss of special opportunity for sale.

(f) Liquidated Damages: Fair and Genuine pre-estimate of damages specified in the contract

(g) Remote damages: Not allowed in India

Besides claiming damages as a remedy for the breach of contract, the following remedies are also available:

(i) Rescission of contract: When a contract is broken by one party, the other party may treat the contract as rescinded.

(ii) Suit upon Quantum Meruit: The phrase ‘quantum meruit’ literally means “as much as is earned” or “according to the quantity of work done”. When a person has begun the work and before he could complete it, the other party terminates the contract or does something which make it impossible for the other party to complete the contract, he can claim for the work done under the contract. The claim on quantum meruit must be brought by a party who is not at default. However, in certain cases, the party in default may also sue for the work done if the contract is divisible.

Where a person does some act or delivers something to another person with the intention of receiving payments for the same (i.e. non-gratuitous act), in such a case, the other person is bound to make payment if he accepts such services or goods, or enjoys their benefit.

(iii) Suit for specific performance: Where damages are not an adequate remedy in the case of breach of contract, the court may in its discretion on a suit for specific performance direct party in breach, to carry out his promise according to the terms of the contract. Eg. To sell Antique

(iv) Suit for injunction: Where a party to a contract is negotiating the terms of a contract, the court may by issuing an ‘injunction order’ restrain him from doing what he promised not to do.

Contingent Contract [section 31]: A ‘Contingent contract’ is a contract to do or not to do something if some event, collateral to such contract, does or does not happen. Insurance contracts provide the best example of contingent contracts.

RULES RELATING TO ENFORCEMENT	
Contract contingent upon happening of an event	Where a contingent contract is made to do or not to do anything if uncertain future event happens, it cannot be enforced by law unless and until that event has happened. If event becomes impossible such contracts become void.
Contract contingent upon non-happening of an event	Where a contingent contract is made to do or not to do anything if any uncertain future event does not happen it can be enforced only the happening of that event becomes impossible and not before. If such event becomes happened, such contracts become void.
Contract contingent upon specified event happening within fixed time	It becomes void if at the expiry of fixed time, such event has not happened, or if before the time fixed, such event becomes impossible. If event happens before the time, contract is enforceable
Contract contingent upon specified event not happening within fixed time	It may be enforced by law when the time fixed has expired and such event has not happened or before the time expired, if it becomes certain that such event will not happen.
Agreement contingent on impossible event	A contingent agreement to do or not to do anything, if an impossible event happens is void The impossibility of an event may or may not be known to the parties to the agreement at the time when they entered into it.

QUASI CONTRACTS: Quasi contracts are based on principles of equity, justice and good conscience. A quasi or constructive contract rests upon the maxims, "No man must grow rich out of another person's loss".

The salient features, of quasi contractual right, are as follows:

- (a) Firstly, it does not arise from any agreement of the parties concerned, but is imposed by the law; and
- (b) Secondly, it is a right which is available not against the entire world, but against a particular person or persons only. (Right in Personam)

Types of quasi-contracts:

(a) Claim for necessities supplied to persons incapable of contracting

(b) Right to recover money paid for another person: A person who has paid a sum of money which another is obliged to pay, is entitled to be reimbursed by that other person provided the payment has been made by him to protect his own interest.

(c) Obligation of a person enjoying benefits of non-gratuitous act (Section 70): "Where a person lawfully does anything for another person, or delivers anything to him not intending to do so gratuitously and such other person enjoys the benefit thereof, the latter is bound to make compensation to the former in respect of, or to restore, the thing so done or delivered."

(d) Responsibility of a finder of goods: "A person who finds goods belonging to another and takes them into his custody is subject to the same responsibility as a bailee". He is, therefore, required to take proper care of things found, not to appropriate it to his own use and, when the owner is traced, to restore it to the owner.

(e) Liability for money paid or thing delivered by mistake or under coercion: "A person to whom money has been paid, or anything delivered, by mistake or under coercion must repay or return it."

The Sale of Goods Act, 1930

(1st July' 1930)

- Applicable to whole of India except Jammu & Kashmir
- The Sale of Goods Act, 1930 deals with the 'sale' but not with 'mortgage' or 'pledge',
- Secondly, the Act deals with 'goods' but not with all movable property, e.g., actionable claims and money.

Definitions:

- Buyer [Sec 2 (1)]:- Buyer means a person who buys or agrees to buy goods.
- Seller [Sec 2 (13)]:- Seller means a person who sells or agrees to sell goods.
- Goods [Sec 2 (7)] :- Goods means every kind of movable property **other than actionable claims & money** but includes :
 - Stock and shares, old currency notes, goodwill, copyrights, Fixed Deposit Receipt,
 - Growing crops,
 - Grass & things attached to or forming part of land which are agreed to be severed before sale or under the contract of sale.

[Actionable claims are claims which can be enforced only by an action or suit e.g. Debt.]

[Service, Mortgage, Pledge, Actionable Claims & Money, Immovable are not covered under SOGA, For this refer Transfer of Property Act]

Types of Goods:

Existing Goods	Goods which are in existence at the time of contract of sale i.e. those owned & possessed by the seller.
Future goods	Means goods to be manufactured or produced or acquired by seller after making the contract of sale. In case of future goods, there is an agreement to sell. (ie Present sale of future goods)
Specific Goods	Means goods identified & agreed upon at the time of a contract of sale has been made. Eg: Showroom → select the exact car
"Unascertained" or "Generic" goods	Means goods defined only by description and not identified and agreed upon. Eg: send wheat at home
Ascertained goods	Means goods identified in accordance with the agreement after the contract of sale has been made

Delivery: Delivery means voluntary transfer of possession by one person to another.

Types of delivery:

a. Actual Delivery	When the goods are physically delivered to the buyer.
b. Constructive delivery	When it is affected without any change in the custody or actual procession of thing. E.g. Where a warehouseman holding the goods of A, agrees to hold them on behalf of B, at A's request, (attornment)
c. Symbolic Delivery	When there is a delivery of thing in token of a transfer of something else. E.g. Delivery of goods in transit by handing over the documents of title (ownership) of goods, B/L, Dock warrant, Delivery of key of a Warehouse, Keys of Car

Document of title to goods: Includes:

- Bill of lading (Ship)
- Dock warrant
- Warehouse keeper's certificate
- Railway receipt
- Multimodal transport document

[Unconditional Undertaking of delivery of goods to the holder of the document]

[Gives an authority to transfer the property by mere endorsement & Delivery]

[Does not include: Mate's Receipt]

Difference between "Document showing title" & "Document of title": Document Showing Title = It doesn't give an authority to transfer the property by mere endorsement & Delivery. E.g. Share Certificate.

Mercantile Agent: It means an agent having in the customary course of business as such agent an authority either

- To buy/ sell goods or
- To consign goods for the purpose of sale or
- To raise money on the security of the goods.
- Examples of such kind of agents are auctioneers, factors, brokers, etc.

Sale of Goods Act deals with transfer of general property and not with special property.

Property: It means General property (Right of ownership in goods) (all Rights) and not merely special property. Example: If I pledge my land with some bank, then land is my general property since I am the owner, but it is a special property for bank, as it is in possession of the bank.

Insolvent: A person is said to be insolvent when he ceased to pay his debts in the ordinary course of business or cannot pay his debts as they become due.

Contract of sale: A contract of sale is a contract whereby the seller transfers (sale) or agrees to transfer (agreement to sell) property (ownership) in goods to the buyer for a price. (General property)

Ascertainment of price:

Price is the monetary consideration for sale of goods.

Price may be:

- Fixed by the contract or
- Agreed to be fixed in a manner provided by the contract. E.g. by a valuer or
- Determined by the course of dealings between the parties.

Where price cannot be fixed in any of above ways, buyer is bound to pay a reasonable price to the seller.

Extras:

- 1) Contract of sale is a special contract.
- 2) It contains total 66 section which is divided into VII chapter.
- 3) Earlier it was part of Indian Contract Act i.e. from section 76-123 (Chp. VII)

Conditions & Warranties:

Condition – A condition is a stipulation **essential to the main purpose of contract**, the breach of which gives the **right to repudiate the contract & to claim damages**.

Warranty – A warranty is a stipulation **collateral to the main purpose of contract** the breach of which gives rise to a **claim for damages** but **not** to a **right to reject the goods** and treat the contract as repudiated.

In the following cases, a contract is not avoided even on account of a breach of a condition:

- (i) Where the buyer altogether waives the performance of the condition or
- (ii) Where the buyer elects to treat the breach of the conditions, as one of a warranty. That is to say, he may claim only damages instead of repudiating the contract; or
- (iii) Where the contract is non-severable and the buyer has accepted either the whole goods or any part thereof.
- (iv) Where the fulfilment of any condition or warranty is excused by law by reason of impossibility or otherwise.

EXPRESS & IMPLIED CONDITIONS & WARRANTIES [Express will prevail over implied]	
Express Conditions – are those which are agreed between the parties at the time of contract and are expressly provided in the contract.	
Implied Conditions – are those which are presumed by law to be present in the contract. An implied condition may be negotiated or waived by an express agreement.	

Implied Conditions:-

1. Condition as to title :	
In case of sale, seller has right to sell the goods &	
In case of agreement to sell, he will have right to sell the goods at the time when property is to pass.	
If the sellers title turnout to be defective, buyer must return the goods to the true owner and recover the price from the seller.	
2. Sale by description	In this case, there is implied condition that goods correspond with the description. The buyer is not bound to accept and pay for the goods which are not in accordance with the description of goods.
3. Sale by sample	Bulk shall correspond with the sample in quality. The buyer shall have a reasonable opportunity of comparing the bulk with the sample.
4. Sale by sample as well as description	Bulk must correspond with sample & description.
5. Condition as to quality or fitness (Generally there is no condition as to quality or fitness)	As a general rule, it is the duty of the buyer to examine the goods thoroughly before he buys them in order to satisfy himself that the goods will be suitable for his purpose for which he is buying them. This is known as rule of caveat emptor which means “Let the buyer beware”. However, condition as to reasonable fitness of goods for a particular purpose is implied if the buyer had made known to the seller the purpose of his purchase and relied upon the skill & judgment of the seller to select the best goods and seller has ordinarily dealing in those goods.

6. Condition as to wholesomeness	In case of eatables & provisions, in addition to merchantable quality, goods shall be wholesome.
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IMPLIED WARRANTIES	
1. Warranty as to undisturbed possession	Buyer shall have & enjoy quite possession of goods.
2. Warranty as to freedom from encumbrances	Goods shall be free from any charge in favor of a third party not declared or known to the buyer before or at the time contract is entered into.
3. Disclosure of dangerous nature of goods	Goods are dangerous & buyer is ignorant of danger, seller must warn the buyer of the probable danger.
4. Warranty as to quality or fitness by usage of trade	Regarding implied condition or warranty as to the quality of fitness for any particular purpose of goods supplied, the rule is 'let the buyer beware' i.e., the seller is under no duty to reveal unflattering truths about the goods sold, but this rule has certain exceptions. However, an implied warranty as to quality or fitness for a particular purpose may be annexed by the usage of trade/custom.

CAVEAT EMPTOR: Means let the buyer beware. It is the responsibility of the buyer to make proper selection of goods. If the goods turn out to be defective he cannot hold the seller liable. The seller is in no way responsible for bad selection of the buyer. The seller is not bound to disclose the defects in the goods which he is selling.

Exceptions [Caveat Emptor not applicable] [Buyer not liable]:-

1. Where buyer makes known to the seller the particular purpose for which the goods are required, it is the duty of seller to supply such goods as are reasonably fit for that purpose	
2. Sale by description	Goods shall correspond with the description. Goods shall be of merchantable quality, if purchased from dealer.
3. Sale by sample	If bulk does not correspond with sample, then seller is liable.
4. Goods by sample as well as description	Goods shall correspond with both description as well as sample.
5. Usage of trade	An implied warranty or condition as to quality or fitness for a particular purpose may be annexed by the usage of trade and if the seller deviates from that, this rule of Caveat Emptor is not applicable.
6. Fraud or misrepresentation by the seller.	Seller is liable

Transfer of Ownership & Delivery of Goods:

1) PASSING OF PROPERTY (PASSING OF OWNERSHIP):

No transfer of property to the buyer, unless & until goods are ascertained. Where there is a contract of sale of specific or ascertained goods, property passes to the buyer at the time when parties intend to pass it.

If nothing given following should apply:

(i) Passing of Specific or Ascertained Goods:

(a) Goods in a deliverable state: Where there is an unconditional contract for the sale of specific goods in a deliverable state, property in goods passes to the buyer when the contract is made. Passing of property is not affected by the postponement of the time of delivery or the time of payment of price.

(b) Goods to be put into a deliverable state: Where there is sale of specific goods and the seller is bound to weigh, measure or to do something to the goods for ascertaining the price for the purpose of putting them into a deliverable state, the property in goods does not pass unless something is done and the buyer has notice of it.

(c) Specific goods not in a deliverable state: In a contract for the sale of a specific goods which are not in a deliverable state or the seller has to do something to the goods to put them in a deliverable state, the property does not pass until such thing is done and the buyer has notice thereof.

(ii) Passing of Unascertained Goods:

Property passes when: There is ascertainment of goods & There unconditional appropriation to the contract.

(a) Goods by description: In a contract for the sale of unascertained or future goods by description and goods of the description are in deliverable state are unconditionally appropriated to the contract either by the seller with the assent of the buyer or by the buyer with the assent of the seller, The property in goods passes to the buyer.

(b) Delivery to the carrier: Where the seller does not reserve the right of disposal of the property in the goods, property will pass to the buyer as soon as the goods are delivered to the common carrier or any other sort of bailee, for the purpose of transmission to the buyer.

(iii) Goods sent on approval or 'sale' or 'Return' basis: Property passes –

When buyer signifies his approval or acceptances to the seller or

When he does any act adopting the transaction or

If he does not signifies his approval or acceptance to the seller but retained the goods beyond a reasonable time.

Sale for cash only or return: Property passes only when the cash is paid for. E.g. Flipkart.

(iv) Conditional appropriation

When the seller reserves the right of disposal until certain conditions are fulfilled, the property therein will not pass to the buyer till the condition imposed, if any, by the seller has been fulfilled.

PASSING OF RISK: The general rule is “Risk passes with property”.

Exceptions :

- ✓ If there is delay of delivery due to fault of seller or buyer, the goods shall at the risk of the party in default, as regards loss which might not have arisen but for the default.
- ✓ The duties and liabilities of the seller and buyer as bailee of goods for the other party remain unaffected even when the risk has passed generally.

TRANSFER OF TITLE: The general rule regarding transfer of title is that the seller cannot transfer to the buyer of goods a better title than he himself has. “**Nemo dat quod non habet**” which means no one can give what he has not got.

Exceptions – Sale by non-owner → valid, in the following cases:

Sale by Mercantile Agent ✓ For documents of title to goods ✓ Agent in possession of goods with consent of owner ✓ Sale made acting in ordinary course of business as mercantile agent & ✓ Buyer acted in good faith & at the time of contract of sale, no notice of fact that seller has no authority to sell.	
Sale by one of the joint owners: Buyer - Good title (Purchase in good faith + No knowledge of fact that seller has no authority to sale).	
Sale by person in possession under voidable contract: provided contract has not been rescinded until the time of sale.	
Sale by one who already sold the goods but continues to be in possession thereof: (Person obtain delivery in good faith + No notice of previous sale)	
Sale by buyer obtaining possession before the property in the goods has vested in him: Where a buyer with the consent of the seller obtains possession of the goods before the property in them has passed to him, he may sell, pledge or otherwise dispose of the goods to a third person, and if such person obtains delivery of the goods in good faith and without notice of the lien or other right of the original seller in respect of the goods, he would get a good title to them [Section 30(2)].	
Effect of Estoppel: Where the owner is estopped by the conduct from denying the seller's authority to sell, the transferee will get a good title as against the true owner. But before a good title by estoppel can be made, it must be shown that the true owner had actively suffered or held out the other person in question as the true owner or as a person authorized to sell the goods.	
Sale by an unpaid seller: Where an unpaid seller who had exercised his right of lien or stoppage in transit resells the goods, the buyer acquires a good title to the goods as against the original buyer.	
Sale by official receiver or liquidator of a company.	
Sale by finder of goods under certain circumstances. Eg: Perishable goods, high claim for damages	
Sale by Pawnee can convey a good title to the buyer.	

RULES REGARDING DELIVERY OF GOODS: Delivery means voluntary transfer of possession from one person to another.	
Buyer to apply for delivery	The seller is not bound to deliver the goods until the buyer has applied for delivery, unless otherwise agreed
Place of Delivery	If there is no contract to the contrary, goods must be delivered at the place where they were at the time of sale. If goods were not in existence when agreement to sell was entered into, then delivery will be made at the place where they would be manufactured or produced.

Expenses for Delivery	Expenses related to putting the goods into a deliverable state must be borne by the seller, unless there is a contract to the contrary.
Delivery of wrong quantity	In case of delivery of lessor quantity of goods, the buyer may either accept the same and pay for it or reject it. In case of excess delivery , the buyer may accept or reject the delivery, if he accepts the whole of goods, he shall pay for them at the contract rate. In case goods mixed with goods of a different description and delivery is made, the buyer may accept the relevant goods and reject the rest or reject the whole.
Instalment deliveries	Unless otherwise agreed, the buyer is not bound to accept delivery in instalments.
Delivery to carrier	Subject to the terms of contract, the delivery of the goods to the carrier for transmission to the buyer is prima facie deemed to be delivery to the buyer.
Goods deteriorate during transit	Where goods are delivered at a distant place, the liability for deterioration necessarily incidental to the course of transit will fall on the buyer, though the seller agrees to deliver at his own risk.
Buyer's right to examine the goods	If goods are not previously examined by the buyer, the seller is bound, on request, to afford the buyer a reasonable opportunity of examining the goods.

Acceptance of delivery of Goods:

Acceptance is deemed to take place when the buyer:

1. Intimates to the seller that he had accepted the goods; or
2. Does any act to the goods which is inconsistent with ownership of the seller; or
3. Retain the goods after the lapse of a reasonable time, without intimating to the seller that he has rejected them.

Ordinarily, a seller cannot compel the buyer to return the rejected goods; but the seller is entitled to a notice of the rejection.

Unpaid Seller: Seller is deemed to be "unpaid seller":

- When whole of the price has not paid by the buyer.
- When a BOE/negotiable instrument (Eg- Cheque) has been received, but on the maturity/ due date, it has been dishonoured.

1) Right against the goods:

❖ **RIGHT OF LEIN:** - Means right to retain the possession of the goods, until full price is received. This right can be exercised when: -

- ✓ Buyers become insolvent or
- ✓ Goods were sold on credit and credit period has expired or
- ✓ Goods have been sold without any stipulation to credit

Right of lien is lost when:

- ✓ When buyer or his agent lawfully obtains possessions of goods.
- ✓ When seller waives his right of lien.
- ✓ When seller delivers the goods, to a carrier for transmission to buyer, without reserving the rights of disposal of the goods.
- ✓ By Estoppel i.e., where the seller so conducts himself that he leads third parties to believe that the lien does not exist.

❖ **RIGHTS OF STOPPAGE IN TRANSIT:** - This right can be exercised when: -

- ✓ Seller is unpaid &
- ✓ Seller has parted with goods (i.e. goods are not in possession of the seller) &
- ✓ Goods are in transit &
- ✓ Buyer has become insolvent.

Rights of lien are the starting point of the right of stoppage in transit. i.e. rights of stoppage in transit begin when the right of lien ends.

❖ **RIGHT OF RE-SALE:** - This right can be exercised when: -

- ✓ Goods are of perishable nature. Therefore buyer need not be informed of intention of re-sale. **OR**
- ✓ When notice of resale is given to the buyer and the buyer does not agree within a reasonable time to pay price.

2) Rights against the buyers personally: They are also called as rights in personam.

❖ **SUIT FOR PRICE:** -

- ✓ When property in goods has passed to the buyer and he neglects/refuses to pay for the good seller may sue him for the price.
- ✓ Where property has not passed, but the price is payable on a certain day, irrespective of delivery and the buyer refuses/neglects to pay such price, then the seller may sue him for the price.

❖ **SUIT FOR DAMAGES FOR NON-ACCEPTANCE:** -

Where buyer wrongfully neglects/refuses to accept /pay for the goods, seller may sue him for damages for non-acceptance.

❖ **REPUDIATION OF CONTRACT BEFORE DUE DATE:** -

When buyer repudiates the contract before date of delivery, seller may treat the contract as rescinded and sue damages for the breach. This is known as "rule of anticipatory breach of contract".

❖ **SUIT FOR INTEREST:** - In case of late payment, seller may sue the buyer for interest charges.

EFFECT OF SUB-SALE OR PLEDGE BY THE BUYER: The unpaid seller's right of lien/stoppage in transit is not affected by any further sale or other disposition of goods by buyer.

EXCEPTIONS TO THE ABOVE POINT: -

- ✓ When the seller has assented to the sale.
- ✓ When a document of title to goods has been transferred to the buyer and the buyer transfers the documents to a person who has bought the goods in good faith and for value.

Buyer's right against the seller:

- Suit for damages for non-delivery: If seller neglects/refuses to deliver the goods to the buyer, buyer may sue the seller for damages.
- Suit for specific performance: Where the seller commits of breach of the contract of sale, the buyer can appeal to the court for specific performance. The court can order for specific performance only when: (i) The goods are ascertained or specific; (ii) The damages are insufficient; or (iii) The goods are unique and costly.

- Suit for damages for breach of warranty: - Buyer may sue the seller for breach of warranty and claim damages.
- Suit for damages for repudiation of contract by the seller before the due date: The buyer may treat the contract as subsisting and wait for the date of delivery or he may treat the contract as repudiated and sue for damages for breach. (Anticipatory Breach)
- Suit for interest: The buyer is entitled to recover interest or special damages to recover the money paid where in consideration for the payment of it has failed.

AUCTION SALE: It is a mode of selling property by inviting bids publicly and property is sold to the highest bidder. Auctioneer → Agent governed by Law of Agency. When he sells, he is only the agent of the seller. However he may also sell his own property as principal and need not disclose the fact that he is so selling.

In case of auction: 1. When goods are put for sale in lot, each lot is deemed to be a separate contract of sale. 2. Sale is complete when auctioneer announces its completion by fall of hammer or any other customary manner. 3. Any bidder may retract from his bid, before such fall of hammer. 4. If seller makes use of pretended bidding to raise the price, sale is voidable at the option of buyer. 5. Reserved price: The sale may be notified to be subject to a reserve or upset price;

The Indian Partnership Act, 1932

- Indian Partnership Act, 1932 is applicable to whole of India except Jammu & Kashmir
- Indian Partnership Act came into existence on 1st October, 1932
- Except section 69, which came on 1/10/1933
- Where Indian Partnership Act is silent, General law of contract is applicable
- It may be described as a branch of law relating to principal and agent.
- Before IPA, 1932, provisions of Partnership Act was covered by Chapter XI of Indian Contract Act, 1872.
- Principle of uberrimae-fidei: i.e. utmost good faith is applicable to partnership
- Indian Partnership Act is not applicable to Burmese Buddhist husband and wife

PARTNERSHIP: It is a relation between two or more persons who have agreed to share the profits of a business carried on by all or any of them acting for all. **(Mutual Agency)**

ESSENTIAL ELEMENTS OF PARTNERSHIP:

1. There must be two or more persons. [Minimum 2 → as per Indian Partnership Act]
[IPA, 1932 is silent about maximum no. of partners, as per Companies Act ≤ 100] [Or else Illegal Association]
In partnership, at least 2 partners must be above 18 years of age
2. All must be competent to contract.
3. Agreement must be there to form a partnership. It may be expressed (written or oral) or implied.
4. Business: - There must exist a business. Includes trade, occupation & Profession.
5. Sharing of profits :- Must be there. **If nothing is given, then PSR is equal. If PSR is given, then loss is also to be shared in PSR.**
6. **Mutual Agency (Imp):** Relationship must exist. Means partner is both agent & principal. Partnership is determined from real relation between partners & such relation must show the existence of **mutual agency relationship**. i.e. Voluntary legal relationship. Sharing of profits is one of the evidence but mutual agency is the true test of partnership.

CASES WHERE PARTNERSHIP RELATION DOES NOT EXIST

- a) Joint owners
- b) Person sharing the profits, but not having mutual agency

DISTINGUISH BETWEEN PARTNERSHIP & COMPANY:

BASIS	PARTNERSHIP	JOINT STOCK COMPANY
Legal status	A firm is not legal entity	A company is a separate legal entity
Agency	In a firm, every partner is an agent of the other partners.	In a company a member is not an agent of the other members
Extent of liability	In a partnership, the liability of the partners is unlimited.	In a company limited by shares, the liability of a shareholder is limited to the amount, if any, unpaid on his shares. However, there may be companies where the liability of members is unlimited.

Property	The firm's property is that which is the "joint estate" of all the partners.	In a company, its property is separate from that of its members
Transfer of shares	A share in a partnership cannot be transferred without the consent of all the partners.	In a company a shareholder may transfer his shares, subject to the provisions contained in its Articles.
Management.	In the absence of an express agreement to the contrary, all the partners are entitled to participate in the management	Members of a company are not entitled to take part in the management unless they are appointed as directors.
Number of membership	The number of partners in any association shall not exceed 100.	A private company may have as many as 200 members but not less than two and a public company may have any number of members but not less than seven.
Duration of existence	Unless there is a contract to the contrary, death, retirement or insolvency of a partner results in the dissolution of the firm.	A company enjoys a perpetual succession.
Audit	The audit of the accounts of a firm is not compulsory.	The audit of the accounts of a company is obligatory.

DISTINGUISH BETWEEN PARTNERSHIP & CLUB:

Basis of difference	Partnership	Club
Definition	It is an association of persons formed for earning profits from a business carried on by all or any one of them acting for all.	A club is an association of persons formed with the object not of earning profit, but of promoting some beneficial purposes such as improvement of health or providing recreation for the members, etc.
Relationship	Persons forming a partnership are called partners and a partner is an agent for other partners.	Persons forming a club are called members. A member of a club is not the agent of other members.
Interest in the property	Partner has interest in the property of the firm.	A member of a club has no interest in the property of the club.
Dissolution	A change in the partners of the firm affect its existence	A change in the membership of a club does not affect its existence.

DISTINGUISH BETWEEN PARTNERSHIP & HUF:

Basis of difference	Partnership	Joint Hindu family
Mode of creation	Partnership is created necessarily by an agreement.	The right in the joint family is created by status means its creation by birth in the family.
Death of a member	Death of a partner ordinarily leads to the dissolution of partnership.	The death of a member in the Hindu undivided family does not give rise to dissolution of the family business.

Management	All the partners are equally entitled to take part in the partnership business.	The right of management of joint family business generally vests in the Karta, the governing male member of the family.
Authority to bind	Every partner can, by his act, bind the firm.	The Karta or the manager has the authority to contract for the family business and the other members in the family.
Liability	In a partnership, the liability of a partner is unlimited	In a Hindu undivided family, only the liability of the Karta is unlimited, and the other co-partners are liable only to the extent of their share in the profits of the family business.
Calling for accounts on closure	A partner can bring a suit against the firm for accounts, provided he also seeks the dissolution of the firm.	On the separation of the joint family, a member is not entitled to ask for account of the family business.
Governing Law	A partnership is governed by the Partnership Act.	A Joint Hindu Family business is governed by the Hindu Law.
Minor's capacity	In a partnership, a minor cannot become a partner, though he can be admitted to the benefits of partnership, only with the consent of all the partners.	In Hindu undivided family business, a minor becomes a member of the ancestral business by the incidence of birth. He does not have to wait for attaining majority.

DISTINGUISH BETWEEN PARTNERSHIP & CO - OWNERSHIP:

Basis of difference	<u>Partnership</u>	<u>Co-ownership</u>
Formation	Partnership always arises out of a contract, express or implied.	Co-ownership may arise either from agreement or by the operation of law, such as by inheritance.
Implied agency	A partner is the agent of the other partners.	A co-owner is not the agent of other co-owners.
Transfer of interest	A share in the partnership is transferred only by the consent of other partners	A co-owner may transfer his interest or rights in the property without the consent of other co-owners.

TYPES OF PARTNERS:

1) Actual or Ostensible	2) Sleeping/ Dormant	3) Nominal	4) Partner in profit only	5) Sub partner
Active participation in conduct of business + Agent of others	No active participation, but contributes capital	He lends his name to the business (no capital contribution, no sharing of profits, no part in conduct)	He shares the profit only & not losses	He is a third party with whom a partner agrees to share his profit derived from firm
Liable to third parties (Liability - Unlimited)	Liable to third parties	Liable to third parties	Liable to third parties	Not liable
Must give public notice of his retirement	Need not give public notice of his retirement	Must give public notice of his retirement	Must give public notice of his retirement	No question of public notice as he is a 3 rd party and not partner

TYPES OF PARTNERSHIP ON BASIS OF ITS DURATION:

Partnership at Will-

- No duration of Partnership in Partnership Deed
- This Partnership can be dissolved by any partner by giving a notice in writing to all other partners of his intention to dissolve the firm.

Particular Partnership-

- It is formed for specific venture or for a particular period
- This Partnership can be dissolved when such venture is completed or on expiry of period
- If Partnership is completed & continued after expiry of term, then it is deemed to be Partnership at Will.

Other types of Partners are:

Incoming partners: A person who is admitted as a partner into an already existing firm with the consent of all the existing partners is called as "incoming partner". Such a partner is not liable for any act of the firm done before his admission as a partner.

Outgoing partner: A partner who leaves a firm in which the rest of the partners continue to carry on business is called a retiring or outgoing partner. Such a partner remains liable to third parties for all acts of the firm until public notice is given of his retirement

Partner by Estoppel or Holding Out: IF FOLLOWING 2 CONDITION IS FULFILLED:

1ST CONDITION: He must have represented himself to be a partner by word spoken or written or by his conduct. (Active representation) or knowingly permitted himself to be represented as a partner

2ND CONDITION: Other person acting on the faith of such representation must have given credit to the firm.

RIGHTS & LIABILITIES OF A MINOR PARTNER BEFORE ATTAINING MAJORITY?

Rights:

- 1) Share of profits & property as per the agreement
- 2) Access, Inspect & copy accounts of the firm
- 3) Can file suit (case) for his share of profits/property when he is not given his due share but only for severing his connection with the firm.

Liabilities:

- 1) Liable only to the extent of his share in the profits & property
- 2) Not liable to 3rd parties.
- 3) Cannot be declared insolvent on declaration of firm's insolvency.

RIGHTS & LIABILITIES OF A MINOR PARTNER ON ATTAINING MAJORITY?

Rights: On attaining majority he may within 6 months or on his obtaining knowledge that he had been admitted to the benefits of partnership, whichever date is later, elect to become a partner or not to become a partner. If he elects to become a partner, then he is entitled to the share to which he was entitled as a minor. If he does not, then his share is not liable for any acts of the firm after the date of the public notice served to that effect.

When he becomes partner: If the minor becomes a partner out of his own willingness or by his failure to give the public notice within specified time, his rights and liabilities as are as follows:

- (i) He becomes personally liable to third parties for all acts of the firm done since he was admitted to the benefits of partnership.
- (ii) His share in the property and the profits of the firm remains the same to which he was entitled as a minor.

When he elects not to become a partner:

- (i) His rights and liabilities continue to be those of a minor up to the date of giving public notice.
- (ii) His share shall not be liable for any acts of the firm done after the date of the notice.
- (iii) He shall be entitled to sue the partners for his share of the property and profits. It may be noted that such minor shall give compulsory notice to the Registrar that he has or has not become a partner.

Extra: There cannot be any partnership between: 2 HUF, 2 Firms, 1 Major & 1 Minor, 1 Firm & 1 Individual, 1 Firm & 1 Minor. However there can be partnership between a Firm & a Co.

RIGHTS OF PARTNER (Unless Agreement):

- 1) Right to take part in conduct of business.
- 2) Right to express opinion before the matter is decided.
- 3) Right to have access to books.
- 4) Right to share profits. [Equally or contract]
- 5) Right to receive interest on capital out of profit only if agreement or else no interest.
- 6) Right to claim interest on loans & advances @ 6%
- 7) Right to be indemnified
 - In ordinary & proper conduct of business.
 - In doing act in emergency for purpose of protecting the firm from loss.
- 8) Right to prevent introduction of new partner.

- 9) Right to retire.
- 10) Right not to be expelled. (Expulsion may be exercised if
 - Approved of majority by partners
 - Exercised in good faith
 - Partner must be given an opportunity to make a representation).
- 11) Right of outgoing partner to carry on competing business.
- 12) Right to share subsequently profits. (Profits till the accounts are finally settled in case of outgoing partner)
- 13) Right to dissolve the partnership
- 14) Right to Remuneration. (only if allowed in contract or usage or custom of trade)
- 15) Right to be consulted

In routine matters, the opinion of the majority of the partners will prevail. Of course, the majority must act in good faith and every partner must be consulted. You should note that the aforesaid majority rule will not apply where there is a change in the nature of the firm itself. In such a case, the unanimous consent of the partners is needed.

MANDATORY DUTIES OF PARTNERS:

- Carry on business to greatest common advantage.
- Just and faithful to each other.
- Render true accounts & full info of the things affecting the firm to any partner or his legal representative.
- To indemnify (make good or to compensate) the firm for loss caused to it by his fraud or wilful neglect.

GENERAL DUTIES:

- Attend carefully his duties.
- Not to claim remuneration for taking part in biz.
- Contribute equally to the losses.
- Hold & use firms' property for biz. purpose.
- Pay the personal profits to the firms
- **Pay personal profits out of competing biz. (Unless contract)**
- To indemnify for fraud or wilful neglect: (i) According to Section 10, every partner is liable to indemnify the firm for any damage caused to it by reason of his fraud in the conduct of the business of the firm. (ii) According to Section 13 (f), a partner must indemnify the firm for any loss caused to it by wilful neglect in the conduct of the business of the firm.

Extra Points:

If nothing is given in Partnership Deed following shall apply:-

- 1) Profit and losses equally.
- 2) No interest rate on capital
- 3) No interest on drawing
- 4) No remuneration/ salary
- 5) Interest at loan @ 6% p.a.

PROPERTY OF FIRM: INCLUDES:

- All properties, rights & interest originally brought to the common stock of the firm.
- Property acquired by purchase of the firm.
- Property acquired with money belonging to the firm.
- Goodwill of business.

Property of a partner: Where the property is exclusively belonging to a person, it does not become a property of the partnership merely because it is used for the business of the partnership. Such property will become property of the partnership if there is an agreement.

USE OF PROPERTY OF THE FIRM: Only for the firm & can be used only by the partners.

RELATION OF PARTNERS WITH THIRD PARTIES: Every partner acts as an agent. Therefore every partner can bind other partners by his acts done in firm's name. Therefore all parties are liable to the 3rd parties for the acts of every partner done for the purpose of business of the firm.

IMPLIED AUTHORITY OF A PARTNER: Implied authority covers those acts of partners which fulfils the following three conditions: Act must relate to normal biz of firm. Act must have done in usual way of carrying on the business of the firm. Act must be done in the firm's name or in any other manner expressing/implying an intention to bind the firm.

ACTS WITHIN THE IMPLIED AUTHORITY:

- Purchase goods used in business of firm/sell goods of firm.
- Settle a/cs of firm to receive payment of debts & issue receipts.
- Engage servants for the business.
- Engage a lawyer to defend action brought against the firm.
- Draw/ Endorse Bill of Exchange or promissory note in ordinary course of Business
- Borrow money for purpose of firms business.
- Pledge the goods of the firms as security for repayment of borrowings to do any other normal business in name of firm.

(Unless Contract)

ACTS BEYOND THE IMPLIED AUTHORITY: Statutory Restrictions:**A Partner cannot:**

- open a bank account on behalf of the firm in his own name;
- Compromise or relinquish any claim or portion of a claim by the firm against a third party (i.e., an outsider).
- withdraw a suit or proceedings filed on behalf of the firm;
- admit any liability in a suit or proceedings against the firm;
- acquire immovable property on behalf of the firm;
- transfer immovable property belonging to the firm; and
- Enter into partnership on behalf of the firm.

Restrictions imposed by mutual agreement: The partners of a firm by mutual agreement may extend/restrict the scope of implied authority of any partner. Firm is liable to the third party only if the third party has no knowledge of the restrictions.

IMPLIED AUTHORITY & THIRD PARTIES: All partners are liable to 3rd parties for all acts of a partner which fall within the scope of implied authority.

1. **EFFECT OF RESTRICTION ON IMPLIED AUTHORITY:** Same as that on above (i.e. if 3rd party is unaware of the restriction then the firm is liable to the 3rd party)
2. **CONTRACTUAL LIABILITY:** Partner → liable for all those acts of firm which have been done while he was partner.
3. **EFFECT OF ADMISSION BY A PARTNER:** Any admission/representation by a partner is sufficient evidence against the firm if:- Such representation relates to affairs of business & are made in ordinary course of business.
4. **EFFECT OF NOTICE TO AN ACTING PARTNER:** Notice to an acting partner = notice to a firm if- Related to affair of a firm & Notice to working & not sleeping partner
5. **LIABILITY OF FIRM FOR WRONGFUL ACTS OF PARTNER:** Firm liable if: Such wrong act was done in ordinary course of biz + Such act done with authority of other partners + Furthermore, all the partners in a firm are liable to a third party for loss or injury caused to him by the negligent act of a partner acting in the ordinary course of the business.
6. **LIABILITY OF FIRM FOR MISAPPROPRIATION BY PARTNER:** Firm liable if: Partner receives money/property from 3rd person & misapplies. Where firm receives money/property from 3rd party & partner misapplies it.

RIGHTS OF TRANSFEREE OF A PARTNER SHARE DURING PARTNERSHIP: Entitled to receive share of profits of transferor partner. Transferee cannot:- Interfere with conduct of biz + Cannot ask for A/cs. + Cannot inspect books.

RIGHTS OF TRANSFEREE OF A PARTNER ON DISSOLUTION/RETIREMENT: Entitled to receive: Share of assets of transferor partner + For the purpose of ascertaining the share, he is entitled to an account as till the date of the dissolution/retirement.

LEGAL CONSEQUENCES OF PARTNER COMING IN AND GOING OUT:

- **Introduction of a partner: (Admission)** Admitted with consent of all existing partner or in accordance with the contract already entered into between the existing partners for admission of new partner

LIABILITIES: ACTS DONE BEFORE HIS ADMISSION:

- New partner liable if: New firm assumes liability of old firm. [However normally not liable]
- Minor on attaining majority, if decides to become a partner, is liable for all acts of the firm done since he was admitted as minor partner.

ACTS DONE AFTER HIS ADMISSION: New partner liable for all acts after admission

- **Retirement:**

LIABILITIES: Liable to 3rd party before retirement. Also liable after retirement upto notice date. If 3rd party does not know, that he was partner, then retiring partner is not liable.

RIGHTS: To carry on competing biz & In case of no final settlement of A/cs, he can claim his share of profit in capital ratio or interest @ 6% p.a. whichever is higher.

- **Expulsion of a partner: 3 conditions are must be satisfied for expulsion:**

Power to expel must have existed in contract & exercised by majority + Exercised in good faith + Give an opportunity to speak before expulsion. If a partner is otherwise expelled, the expulsion is null and void. Therefore, expulsion of Partner B is not valid.

- **Insolvency of a partner** If a partner becomes insolvent; He ceases to be a partner. Firm is dissolved. But if remaining partners decide to continue, they can decide mutually among themselves. Firm is not liable for his acts done after the date of insolvency.
- **Death of a partner** If a partner dies; Firm is dissolved. But if remaining partners decide to continue, they can decide mutually among themselves. Estate of deceased partner not liable after his death. Example: X was a partner in a firm. The firm ordered goods in X's lifetime; but the delivery of the goods was made after X's death. In such a case, X's estate would not be liable for the debt. No public notice is required

[How a change may take place in the constitution of the firm? It may occur in one of the four ways, namely, (i) where a new partner or partners come in, (ii) where some partner or partners go out, i.e., by death or retirement, (iii) where the partnership concerned carries on business other than the business for which it was originally formed, (iv) where the partnership business is carried on after the expiry of the term fixed for the purpose.]

PARTNERSHIP DEED: Document which contains the terms of Partnership as agreed among the partners is called PD. Deed is required to be duly stamped as per Stamp Duty Act and signed by all the partners.

WHY IS IT NECESSARY THAT PD SHOULD BE IN WRITING? PD may be express or implied. But it is desirable to have it in writing in order to avoid any dispute with regard to the terms of partnership. If wrong information is submitted to Registrar of Firm, then imprisonment up to 3 months. Registrar of Firm is open for inspection on payment of prescribed fees.

CONTENTS OF PD? Name of the firm, Names & addresses of all partners, Nature and place of business, Date of commencement of Partnership, Duration of Partnership, if any or at will, Amount of capital of each partner, PSR, Interest on capital, Interest on drawings, Interest on loan advanced by a partner to firm, Salary/commission payable to any partner, Method of valuation of Goodwill in case of admission/retirement/death of a partner, Settlement of a/c's of partner in case of admission/retirement/death.

Terms of PD can be varied with the consent of all the partners. PD must not contain any provision which is in contravention with the provision of the IPA, 1932.

REGISTRATION OF FIRM: Means getting the Partnership registered with Registrar of Firms in the area in which the place of business of firm is situated.

PROCEDURE FOR REGISTRATION: STEP 1- Obtain a statement (form 'A') from office of ROF. STEP 2- State the following Info: Name of the firm, Principal place of firm, Names of other places where firm carries on business, Date when each partner joined, Names in full & address of partner, Duration of firm.

STEP 3- Get the form duly verified & signed by all the partners or by authorized agents.

STEP 4- File the statements along with prescribed fees with ROF

STEP 5- Obtain a certificate from the registrar: Registration of firm becomes effective from the date of filing of duly signed & verified statement along with the form and registered by Registrar of Firm & NOT from the date of issue of certificate.

Is Registration of firm compulsory? → NO.

But, Effects of Non-Registration:

- a) No suit by a partner against the firm or other partner.
- b) No suit by the firm against the third parties.
- c) No right to claim set off in excess of Rs. 100.

RIGHTS NOT AFFECTED BY NON REGISTRATION?

- a) The right of third parties to sue the firm or any partner.
- b) The right of partners to sue for the dissolution of the firm or for the settlement of the accounts of a dissolved firm, or for realization of the property of a dissolved firm.
- c) The power of an Official Assignees, Receiver of Court to release the property of the insolvent partner and to bring an action.
- d) The right to sue or claim a set-off if the value of suit does not exceed Rs. 100 in value.

EFFECT OF CHANGE IN THE CONSTITUTION OF THE FIRM OF CONTINUING GUARANTEE:

A continuing guarantee is a guarantee which extends to a series of transaction unless otherwise agreed by the partners, a continuing guarantee giving to a firm or a third party in respect of the transaction of a firm is revoked as to the future transaction from the date of any change in the constitution of the firm.

BASIS	DISSOLUTION OF PARTNERSHIP	DISSOLUTION OF FIRM
Termination of old partnership & formation of new partnership.	Old partnership comes to an end & a new partnership comes into existence.	Old partnership comes to an end but no new partnership comes into existence.
Constitution of biz. Under firms name.	Biz. Continues under firms' name.	Biz. Does not continue under firms' name.
Revaluation v/s realization	Revaluation A/C is prepared	Realization A/C is prepared.

MODES OF DISSOLUTION:**A) Dissolution without the order of court:**

- i) Mutual Agreement
- ii) Compulsory dissolution:
 - All partners except 1 is declared insolvent.
 - Some unlawful event takes place.
- iii) On happening of certain contingencies:
 - On expiry of term
 - On completion of venture
 - Death of partner
 - Insolvency

B) Grounds for dissolution by an order of court:

- i) Insanity (unsound mind)
- ii) Permanent incapacity (incapable of performing his duties like illness, physical problems)
- iii) Misconduct- guilty of misconduct which will have adverse effect on business.
- iv) Perpetual losses
- v) Breach of agreement.

RIGHTS OF A PARTNER ON DISSOLUTION:

- 1) **To claim return of premium (Goodwill) on premature winding up: Exception:** When dissolution is due to death or Due to misconduct of partner who paid premium or Agreement saying "no provision for premium"

- 2) **In case of dissolution on account of fraud/misrepresentation:** Right of lien on surplus assets & Right to be indemnified by a partner who has done the fraud. (compensated)
- 3) **To restrain from use of firm name or firm property:** Every partner should restrain other partner from carrying on a similar biz in name of firm or by using property of the firm for his own benefit till affairs of firm are completely wound up.

LIABILITIES OF A PARTNER ON DISSOLUTION: Continuing liability for Acts of partners done after dissolution:- ntil a public notice is given of dissolution, the partners continue to be liable for any act done by any of them after dissolution & such act is deemed to be an act done before the dissolution. **EXCEPTIONS:** Following shall not be liable:- Estate of a deceased partner or Estate of an insolvent partner or Sleeping/dormant partner who has retired from the firm.

CONTINUING AUTHORITY OF PARTNER AFTER DISSOLUTION: To wind up affairs of firm & to complete the unfinished transaction pending at the date of dissolution.

SETTLEMENTS OF ACCOUNTS:

- 1) **Treatment of losses:** Losses include deficiencies of capital are to be paid:
 - 1st out of profits.
 - Then out of capital
 - Lastly by partners individually in their PSR (personally)
- 2) **Application of assets**
 - In paying firms debts to 3rd parties.
 - Paying to each partners ratably due to them for advance given.
 - Paying to each partners ratably due to them for capital share.
- 3) **Payment of firms debt & partners private debt**
 - Firm's property shall be applied first in payment of firm's debt, and then any surplus left will be used to pay partners private debt.
 - Partner's private property shall be applied first in payment of his private debts & surplus will be used to pay firms liable.
- 4) If any partner becomes insolvent, then on dissolution, solvent partners will contribute in capital ratio as per Garner Vs Murray.

SALE OF GOODWILL:

Rights of buyer:

- To use firm's name
- To represent him on the biz of old firm.
- To solicit old customers.

Rights of seller:

- Not to use firm's name.
- Not to represent himself as carrying on biz of old firms
- Not to solicit old customers.

PUBLIC NOTICE:**Required to be given:**

On retirement/expulsion of a partner.

On dissolution of firm.

On election to become/not to become a partner by a minor on his attaining majority.

Not required to be given:

On death of a partner, on insolvency of a partner or in case of sleeping partner.

MODE OF GIVING PUBLIC NOTICE

In every case where the public notice of any matter in respect of partnership firm is required to be given under this Act, it must be given by publication in the Official Gazette and in at least one vernacular newspaper circulating in the district where the firm to which it relates, has its place or principal place of business.

In the case of registered firms, a notice is also required to be served on the Registrar of Firms where the matters relate to (a) the retirement or expulsion of a partner, or (b) dissolution of the firm, or (c) the election, on attaining majority, to be or not to be a partner, by a person who as a minor, was admitted to the benefit of partnership.

CONSEQUENCES OF NOT GIVING PUBLIC NOTICE**In case of retirement, expulsion & dissolution:**

If the partner does not give public notice, then they'll be liable to 3rd parties even after the event.

In case of minor partner attaining majority:

He'll be deemed to be a partner on expiry of 6 months.

Extra Points:

- In case of Insolvency, Accounting rule given by Garner v/s Murray is to be used.
- Solvent partners will bear loss in Capital Ratio.
- Firm's name must not contain words like 'King, Queen, Crown, Imperial, Emperor, Empress etc.

CA – CPT

**Quantitative Aptitude
(50 Marks)**

Revision Notes

Ratio and Proportion, Indices, Logarithms

Ratio:

The ratio of a to b = a/b or $a : b$. The quantities a and b are called the **terms** of the ratio, a is called the **first term or antecedent** and b is called the **second term or consequent**.

- Both terms of a ratio can be multiplied or divided by the same (non-zero) number. Usually a ratio is expressed in lowest terms (or simplest form)
- The order of the terms in a ratio is important.
- Ratio exists only between quantities of the same kind.
- Quantities to be compared (by division) must be in the same units.
- One ratio is the inverse of another if their product is 1. Thus $a:b$ is the inverse of $b : a$ and vice-versa.
- The ratio compounded of the two ratios $a : b$ and $c : d$ is $ac : bd$.
- A ratio compounded of itself is called its duplicate ratio.

The duplicate ratio of $a : b$ is $a^2 : b^2$. Similarly, the triplicate ratio of $a : b$ is $a^3 : b^3$

The sub-duplicate ratio of $a : b$ is $\sqrt{a} : \sqrt{b}$ and the sub triplicate ratio of $a : b$ is $\sqrt[3]{a} : \sqrt[3]{b}$.

- Continued Ratio is the relation (or compassion) between the magnitudes of three or more quantities of the same kind. The continued ratio of three similar quantities a, b, c is written as $a : b : c$.

Proportion:

- An equality of two ratios is called a **proportion**. Four quantities a, b, c, d are said to be in proportion if $a : b = c : d$ (also written as $a : b :: c : d$) i.e. if $a/b = c/d$ i.e. if $ad = bc$.

- Product of extremes = product of means

- If a, b, c are in continuous proportion, then the middle term b is called the mean proportional between a and c, a is the first proportional and c is the third proportional.

If $a : b = b : c$ i.e. $a/b = b/c$ i.e. $b^2 = ac$

Properties of Proportion:

- (i) $p : q = r : s \Rightarrow q : p = s : r$ (Invertendo)
 $(p/q = r/s) \Rightarrow (q/p = s/r)$
- (ii) $a : b = c : d \Rightarrow a : c = b : d$ (Alternendo)
 $(a/b = c/d) \Rightarrow (a/c = b/d)$
- (iii) $a : b = c : d \Rightarrow a+b : b = c+d : d$ (Componendo)
 $(a/b = c/d) \Rightarrow (a+b)/b = (c+d)/d$
- (iv) $a : b = c : d \Rightarrow a-b : b = c-d : d$ (Dividendo)
 $(a/b = c/d) \Rightarrow (a-b)/b = (c-d)/d$
- (v) $a : b = c : d \Rightarrow a+b : a-b = c+d : c-d$ (Componendo & Dividendo)
 $(a+b)/(a-b) = (c+d)/(c-d)$
- (vi) $a : b = c : d = a+c : b+d$ (Addendo)
 $(a/b = c/d = a+c/b+d)$
- (vii) $a : b = c : d = a-c : b-d$ (Subtrahendo)
 $(a/b = c/d = a-c/b-d)$
- (viii) If $a : b = c : d = e : f = \dots$ then each of these ratios = $(a - c - e - \dots) : (b - d - f - \dots)$

Indices:

(i) $a^m \times a^n = a^{m+n}$ (base must be same)

Ex. $2^3 \times 2^2 = 2^{3+2} = 2^5$

(ii) $a^m \div a^n = a^{m-n}$

Ex. $2^5 \div 2^3 = 2^{5-3} = 2^2$

(iii) $(a^m)^n = a^{mn}$

Ex. $(2^5)^2 = 2^{5 \times 2} = 2^{10}$

(iv) $a^0 = 1$

Ex. $2^0 = 1, 3^0 = 1$

(v) $a^{-m} = 1/a^m$ and $1/a^{-m} = a^m$

Ex. $2^{-3} = 1/2^3$ and $1/2^{-5} = 2^5$

(vi) If $a^x = a^y$, then $x=y$

(vii) If $x^a = y^a$, then $x=y$

(viii) $\sqrt[m]{a} = a^{1/m}, \sqrt{x} = x^{1/2}, \sqrt{4} = (2^2)^{1/2} = 2^{1/2 \times 2} = 2$

Ex. $\sqrt[3]{8} = 8^{1/3} = (2^3)^{1/3} = 2^{3 \times 1/3} = 2$

Logarithm:

(I) $\log_a mn = \log_a m + \log_a n$

Ex. $\log (2 \times 3) = \log 2 + \log 3$

(II) $\log_a (m/n) = \log_a m - \log_a n$

Ex. $\log (3/2) = \log 3 - \log 2$

(III) $\log_a m^n = n \log_a m$

Ex. $\log 2^3 = 3 \log 2$

(IV) $\log_a a = 1, a \neq 1$

Ex. $\log_{10} 10 = 1, \log_2 2 = 1, \log_3 3 = 1$ etc.

(V) $\log_a 1 = 0$

Ex. $\log_2 1 = 0, \log_{10} 1 = 0$ etc.

(VI) $\log_b a \times \log_a b = 1$

Ex. $\log_3 2 \times \log_2 3 = 1$

(VII) $\log_b a \times \log_c b = \log_c a$

Ex. $\log_3 2 \times \log_5 3 = \log_5 2$

(VIII) $\log_b a = \log a / \log b$

Ex. $\log_3 2 = \log 2 / \log 3$

(IX) $\log_b a = 1 / \log_a b$

(X) $a^{\log_a x} = x$ (Inverse logarithm Property)

Note:

(A) If base is understood, base is taken as 10

(B) Thus $\log 10 = 1, \log 1 = 0$

(C) Logarithm using base 10 is called Common logarithm and logarithm using base e is called Natural logarithm {e = 2.33 (approx.) called exponential number}.

Equations

Simple linear equations

A simple equation contains only one unknown variable i.e x and is in the form $ax + b = 0$. Where a, b are known constants and A not equal to 0. A simple equation has only one root (Solution).

Simultaneous linear equations

It is a general form of a linear equations with 2 variables x and y is $ax + by + c = 0$ where A, b are non-zero coefficients and c is a constant. Two such equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ form a pair of simultaneous equations in x and y.

Quadratic Equation

An equation of the form $ax^2 + bx + c = 0$ where x is a variable and a, b, c are constants with $a \neq 0$ is called a quadratic equation or equation of the second degree.

When $b=0$ the equation is called a pure quadratic equation; when $b \neq 0$ the equation is called an affected quadratic.

The value of the variable say x is called the root of the equation. A quadratic equation has got two roots.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\text{sum of roots} = -\frac{b}{a} = -\frac{\text{coefficient of } x}{\text{coefficient of } x^2}$$

$$\text{product of the roots} = \frac{c}{a} = \frac{\text{constant term}}{\text{coefficient of } x^2}$$

How to form Quadratic Equation?

$$x^2 - (\text{Sum of the roots})x + \text{Product of the roots} = 0$$

Nature of Roots:

- i) If $b^2 - 4ac = 0$ the roots are real and equal;
- ii) If $b^2 - 4ac > 0$ then the roots are real and unequal (or distinct);
- iii) If $b^2 - 4ac < 0$ then the roots are imaginary;
- iv) If $b^2 - 4ac$ is a perfect square ($\neq 0$) the roots are real, rational and unequal (distinct);
- v) If $b^2 - 4ac > 0$ but not a perfect square the roots are real, irrational and unequal.

Since $b^2 - 4ac$ discriminates the roots $b^2 - 4ac$ is called the discriminant in the equation $ax^2 + bx + c = 0$ as it actually discriminates between the roots.

Note: (a) Irrational roots occur in conjugate pairs that is if $(m + \sqrt{n})$ is a root then $(m - \sqrt{n})$ is the other root of the same equation.

(b) If one root is reciprocal to the other root then their product is 1 and so $\frac{c}{a} = 1$
i.e. $c = a$

(c) If one root is equal to other root but opposite in sign then.
their sum = 0 and so $\frac{b}{a} = 0$. i.e. $b = 0$.

Co-ordinate Geometry:

Distance OP of a point from the origin O is $\sqrt{x^2 + y^2}$

So distance between two points (x_1, y_1) and (x_2, y_2) is given by $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$.

The equation to a straight line in simple form is generally written as $y = mx + c$ where m is called the slope and c is a constant.

If $P_1(x_1, y_1)$ and $P_2(x_2, y_2)$ be any two points on the line the ratio $\frac{y_2 - y_1}{x_2 - x_1}$ is known as the slope of the line.

$$y - y_1 = m(x - x_1)$$

which is another form of the equation of a line to be used when the slope(m) and any point (x_1, y_1) on the line be given. This form is called **point-slope form**.

$$(y - y_1) = \left(\frac{y_2 - y_1}{x_2 - x_1} \right) (x - x_1)$$

which is the equation of the line passing through two points (x_1, y_1) and (x_2, y_2)

The form $\frac{x}{a} + \frac{y}{b} = 1$ is called intercept form of the equation of the line and the same is to be used when x -intercept and y -intercept be given.

Two lines having slopes m_1 and m_2 are parallel to each other if and only if $m_1 = m_2$ and perpendicular to each other if and only if $m_1 m_2 = -1$

Let $ax + by + c = 0$ be a line. The equation of a line parallel to

$ax + by + c = 0$ is $ax + by + k = 0$ and the equation of the line perpendicular to

$ax + by + c = 0$ is $bx - ay + k = 0$

$$x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2) = 0$$

which is the required condition of collinearity of three points.

Simple and Compound Interest including Annuity- applications

Simple Interest:

$$\begin{aligned}I &= Pit \\A &= P + I \\&= P + Pit \\&= P(1 + it) \\I &= A - P\end{aligned}$$

Here,
A = Accumulated amount (final value of an investment)
P = Principal (initial value of an investment)
i = Annual interest rate in decimal.
I = Amount of Interest
t = Time in years

Compound Interest:

$$\begin{aligned}A_n &= P (1 + i)^n \\ \text{where, } i &= \frac{\text{Annual rate of interest}}{\text{Number of conversion periods per year}} \\ \text{Interest} &= A_n - P = P (1 + i)^n - P \\ &= P [(1 + i)^n - 1] \\ n & \text{ is total conversions i.e. } t \times \text{no. of conversions per year}\end{aligned}$$

Effective Interest:

The effective interest rate can be computed directly by following formula:

$$E = (1 + i)^n - 1$$

Where E is the effective interest rate

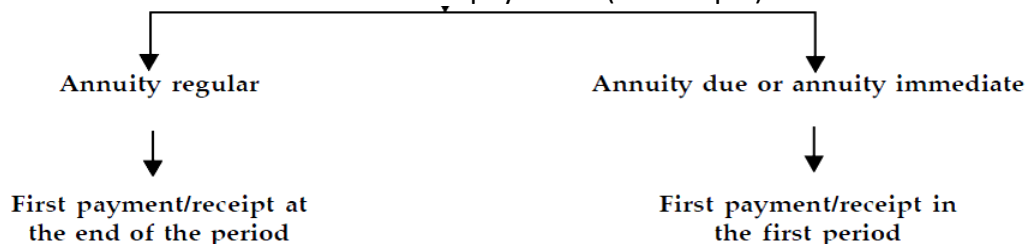
i = actual interest rate in decimal

n = number of conversion period

Annuity:

To be called annuity a series of payments (or receipts) must have following features:

- (1) Amount paid (or received) must be constant over the period of annuity and
- (2) Time interval between two consecutive payments (or receipts) must be the same.



Future Value:

Future value of a single cash flow can be computed by above formula. Replace A by future value (F) and P by single cash flow (C.F.) therefore

$$F = C.F. (1 + i)^n$$

Note: CF also stands for Present Value

Future Value of Annuity Regular:

If A be the periodic payments, the future value $A(n, i)$ of the annuity is given by

$$A(n, i) = A \left[\frac{(1+i)^n - 1}{i} \right]$$

Future value of Annuity Due:

Future value of an Annuity due/Annuity immediate = Future value of annuity regular $\times (1+i)$ where i is the interest rate in decimal.

Calculating the future value of the annuity due involves two steps.

Step-1 Calculate the future value as though it is an ordinary annuity.

Step-2 Multiply the result by $(1+i)$

Present Value:

The present value P of the amount A_n due at the end of n period at the rate of i per interest period may be obtained by solving for P the below given equation

$$A_n = P(1 + i)^n$$

$$\text{i.e. } P = \frac{A_n}{(1+i)^n}$$

Note: A_n also stands for future value

Present Value of Annuity Regular: (A = Annuity):

$$V = A \left[\frac{(1+i)^n - 1}{i(1+i)^n} \right] = A.P(n, i)$$

Present Value of Annuity Due: (A = Annuity):

Present value of annuity due/ immediate for n years is the same as an annuity regular for $(n-1)$ years plus an initial receipt or payment in beginning of the period. Calculating the present value of annuity due involves two steps.

Step 1: Compute the present value of annuity as if it were a annuity regular for one period short.

Step 2: Add initial cash payment/receipt to the step 1 value.

Basic Concepts of Permutations and Combinations

Fundamental Rule:

AND $\Rightarrow$ Multiply
OR $\Rightarrow$ Add

The Factorial:

Definition : The factorial n , written as $n!$ or $\underline{n}$, represents the product of all integers from 1 to n both inclusive. To make the notation meaningful, when $n = 0$, we define $0!$ or $\underline{0} = 1$.

Thus, $n! = n (n - 1) (n - 2) \dots \dots \dots 3.2.1$

Permutations:

The ways of arranging or selecting smaller or equal number of persons or objects from a group of persons or collection of objects with due regard being paid to the order of arrangement or selection, are called permutations. **(Order Important)**

$${}^n P_r = n (n - 1) (n - 2) \dots (n - r + 1)$$

$${}^n P_r = \frac{n!}{(n - r)!}$$

$${}^n P_n = n! / (n - n)! = n! / 0!$$

$$0! = n! / n! = 1$$

Circular permutations:

$(n-1)!$.

Thus the number of ways of arranging n persons along a round table so that no person has the same two neighbours is $= \frac{1}{2} \underline{n-1}$

Similarly, in forming a necklace or a garland there is no distinction between a clockwise and anti clockwise direction because we can simply turn it over so that clockwise becomes anti clockwise and vice versa. Hence, the number of necklaces formed with n beads of different

$$\text{colours} = \frac{1}{2} \underline{n-1}$$

Permutation with restrictions:

Theorem 1. Number of permutations of n distinct objects taken r at a time when a particular object is not taken in any arrangement is ${}^{n-1}P_r$.

Theorem 2. Number of permutations of r objects out of n distinct objects when a particular object is always included in any arrangement is $r \cdot {}^{n-1}P_{r-1}$

Combinations:

The number of ways in which smaller or equal number of things are arranged or selected from a collection of things where the order of selection or arrangement is not important, are called combinations.

Number of combinations of n different things taken r at a time. (denoted by nC_r , $C(n,r)$, $C_{n,r}$)

$${}^nC_r = \frac{n!}{r! (n-r)!}$$

$${}^nC_0 = \frac{n!}{0! (n-0)!} = \frac{n!}{n!} = 1. \text{ [As } 0! = 1 \text{]}$$

$${}^nC_n = \frac{n!}{n! (n-n)!} = \frac{n!}{n! 0!} = 1 \text{ [Applying the formula for } {}^nC_r \text{ with } r = n \text{]}$$

$${}^nC_r = {}^nC_{n-r}$$

$${}^{n+1}C_r = {}^nC_r + {}^nC_{r-1}$$

Standard Results:

Permutations when some of the things are alike, taken all at a time:

$$P = \frac{n!}{n_1! n_2! n_3!}$$

Permutations when each thing may be repeated once, twice,...upto r times in any arrangement:

$$p = n^r$$

Combinations of n different things taking some or all of n things at a time:

$$c = (2^n - 1)$$

Sequence and Series – Arithmetic and Geometric Progressions

Sequence:

An ordered collection of numbers $a_1, a_2, a_3, a_4, \dots, a_n, \dots$ is a sequence if according to some definite rule or law, there is a definite value of a_n , called the term or element of the sequence, corresponding to any value of the natural number n .

If the number of elements in a sequence is finite, the sequence is called finite sequence; while if the number of elements is unending, the sequence is infinite.

Series:

An expression of the form $a_1 + a_2 + a_3 + \dots + a_n + \dots$ which is the sum of the elements of the sequence $\{a_n\}$ is called a *series*. If the series contains a finite number of elements, it is called a *finite series*, otherwise called an *infinite series*.

$$S_n = \sum_{r=1}^n u_r \text{ or simply by } \sum u_n$$

Arithmetic Progression (AP):

A sequence $a_1, a_2, a_3, \dots, a_n$ is called an Arithmetic Progression (A.P.) when $a_2 - a_1 = a_3 - a_2 = \dots = a_n - a_{n-1}$. That means A. P. is a sequence in which each term is obtained by adding a constant d to the preceding term. This constant ' d ' is called the *common difference* of the A.P. If 3 numbers a, b, c are in A.P., we say

$b - a = c - b$ or $a + c = 2b$; b is called the arithmetic mean between a and c .

Now in general an A.P. series can be written as

$$a, a + d, a + 2d, a + 3d, a + 4d, \dots$$

where ' a ' is the 1st term and ' d ' is the common difference.

n^{th} term (t_n) = $a + (n - 1)d$, where n is the position number of the term.

Sum of the first n terms in AP:

Let S be the Sum, a be the 1st term and L the last term of an A.P. If the number of term are n , then $t_n = L$. Let d be the common difference of the A.P.

$$S = n(a + L) / 2$$

or

$$s = \frac{n}{2} [2a + (n - 1)d]$$

Sum of 1st n natural or counting numbers:

$$S = n(n + 1) / 2$$

Sum of 1st n odd number:

$$S = n^2$$

Sum of the Squares of the first, n natural nos:

$$\frac{n(n+1)(2n+1)}{6}$$

Sum of the cubes of first n natural number:

$$\left\{ \frac{n(n+1)}{2} \right\}^2$$

Geometric Progression (GP):

If in a sequence of terms each term is constant multiple of the proceeding term, then the sequence is called a Geometric Progression (G.P). The constant multiplier is called the common ratio (r).

$$\text{nth term of GP } t_n = ar^{n-1}$$

$$r = \frac{t_2}{t_1} = \frac{t_3}{t_2} = \frac{t_4}{t_3} = \dots$$

If a, b, c are in G.P we get $b/a = c/b \Rightarrow b^2 = ac$, b is called the geometric mean between a and c

Sum of first n terms of a G P:

$$S_n = a (1 - r^n) / (1 - r) \text{ when } r < 1$$

$$S_n = a (r^n - 1) / (r - 1) \text{ when } r > 1$$

$$S_n = (ar^n - a) / (r - 1) = (a r^{n-1} r - a) / (r - 1) = \frac{r - a}{r - 1}$$

Sum of infinite geometric series:

$$S_\infty = \frac{a}{1-r}, \quad r < 1$$

Sets, Functions and Relations

A set is defined to be a collection of well-defined distinct objects. This collection may be listed or described. Each object is called an element of the set. We usually denote sets by capital letters and their elements by small letters. **Example:** $A = \{a, e, i, o, u\}$

The empty set is one which contains no element. The empty set is also known as **null or void** set usually denoted by $\{ \}$ or Greek letter $\emptyset$, to be read as phi.

A set containing n elements has 2^n subsets.

Singleton Set: A set containing one element is called Singleton Set.

Equal Set: Two sets A & B are said to be equal, written as $A = B$ if every element of A is in B and every element of B is in A .

Note: (i) The elements of a set may be listed in any order
(ii) The repetition of elements in a set is meaningless

De Morgan's laws:

$$(P \cup Q)' = P' \cap Q' \text{ and } (P \cap Q)' = P' \cup Q'.$$

Venn Diagram:

$$n(A \cup B) = n(A) + n(B) - n(A \cap B)$$

$$n(P \cup Q \cup R) = n(P) + n(Q) + n(R) - n(P \cap Q) - n(Q \cap R) - n(P \cap R) + n(P \cap Q \cap R)$$

Equivalent Set: Two finite sets A & B are said to be equivalent if $n(A) = n(B)$. Clearly, **equal sets are equivalent but equivalent sets need not be equal.**

Power Set: The collection of all possible subsets of a given set A is called the power set of A , to be denoted by $P(A)$.

Product Sets:

Ordered Pair : Two elements a and b , listed in a specific order, form an ordered pair, denoted by (a, b) .

Cartesian Product of sets : If A and B are two non-empty sets, then the set of all ordered pairs (a, b) such that a belongs to A and b belongs to B , is called the Cartesian product of A and B , to be denoted by $A \times B$.

Thus, $A \times B = \{ (a, b) : a \in A \text{ and } b \in B \}$

If $A = \Phi$ or $B = \Phi$, we define $A \times B = \Phi$

Illustration : Let $A = \{1, 2, 3\}$, $B = \{4, 5\}$

Then $A \times B = \{ (1, 4), (1, 5), (2, 4), (2, 5), (3, 4), (3, 5) \}$

$$n(P \times Q) = n(P) \times n(Q)$$

$$P \times Q \neq Q \times P; \text{ but } n(P \times Q) = n(Q \times P).$$

Domain & range of a function:

Let $f : A \rightarrow B$, then A is called the domain of f , while B is called the co-domain of f .

Various types of function:

One - one Function : Let $f : A \rightarrow B$. If different elements in A have different images in B , then f is said to be a one-one or an injective function or mapping.

Onto or Surjective Functions : Let $f : A \rightarrow B$. If every element in B has at least one pre-image in A , then f is said to be an onto function.

If f is onto, then corresponding to each $y \in B$, we must be able to find at least one element $x \in A$ such that $y = f(x)$

Clearly, f is onto if and only if range of $f = B$

Bijection Function : A one-one and onto function is said to be bijective.

A bijective function is also known as a one-to-one correspondence.

Identity Function : Let A be a non-empty set. Then, the function I defined by

$I : A \rightarrow A : I(x) = x$ for all $x \in A$ is called an identity function on A .

It is a one-to-one onto function with domain A and range A .

Into Functions: Let $f : A \rightarrow B$. There exists even a single element in B having no pre-image in A , then f is said to be an into function.

Constant Function: Let $f : A \rightarrow B$, defined in such a way that all the elements in A have the same image in B , then f is said to be a constant function.

Illustration: Let $A = \{1, 2, 3\}$ and $B = \{5, 7, 9\}$. Let $f : A \rightarrow B : f(x) = 5$ for all $x \in A$.

Then, all the elements in A have the same image namely 5 in B .

So, f is a constant function.

Equal Functions: Two functions f and g are said to be equal, written as $f = g$ if they have the same domain and they satisfy the condition $f(x) = g(x)$, for all x .

Inverse Function: Let f be a one-one onto function from A to B . Let y be an arbitrary element of B . Then f being onto, there exists an element x in A such that $f(x) = y$.

As f is one-one this x is unique.

Thus for each $y \in B$, there exists a unique element $x \in A$ such that $f(x) = y$.

So, we may define a function, denoted by f^{-1} as:

$f^{-1} : B \rightarrow A : f^{-1}(y) = x$ if and only if $f(x) = y$.

The above function f^{-1} is called the inverse of f .

A function is invertible if and only if f is one-one onto.

Different types of relations

Let $S = \{a, b, c, \dots\}$ be any set then the relation R is a subset of the product set $S \times S$

- i) If R contains all ordered pairs of the form (a, a) in $S \times S$, then R is called reflexive. In a *reflexive* relation 'a' is related to itself.

For example, 'Is equal to' is a reflexive relation for $a = a$ is true.

- ii) If $(a, b) \in R \Rightarrow (b, a) \in R$ for every $a, b \in S$ then R is called symmetric

For Example $a=b \Rightarrow b=a$. Hence the relation 'is equal to' is a symmetric relation.

- iii) If $(a, b) \in R$ and $(b, c) \in R \Rightarrow (a, c) \in R$ for every $a, b, c \in S$ then R is called *transitive*.

For Example $a=b, b=c \Rightarrow a=c$. Hence the relation 'is equal to' is a transitive relation.

A relation which is reflexive, symmetric and transitive is called an *equivalence relation* or simply an *equivalence*. 'is equal to' is an equivalence relation.

Similarly, the relation "is parallel to" on the set S of all straight lines in a plane is an equivalence relation.

Limits and continuity - Intuitive approach

Even and odd functions : If a function $f(x)$ is such that $f(-x) = f(x)$ then it is said to be an even function of x .

Periodic functions: A function $f(x)$ in which the range of the independent variable can be separated into equal sub intervals such that the graph of the function is the same in each part then it is periodic function. Symbolically if $f(x + p) = f(x)$ for all x , then p is the period of $f(x)$.

Inverse function: If $y = f(x)$ defined in an interval (a, b) is a function such that we express x as a function of y , say $x = g(y)$ then $g(y)$ is called the inverse of $f(x)$

Composite Function: If $y = f(x)$ and $x = g(u)$ then $y = f\{g(u)\}$ is called the function of a function or a composite function.

Limits:

Let $\lim_{x \rightarrow a} f(x) = \ell$ and $\lim_{x \rightarrow a} g(x) = m$

where ℓ and m are finite quantities

i) $\lim_{x \rightarrow a} \{f(x) + g(x)\} = \lim_{x \rightarrow a} f(x) + \lim_{x \rightarrow a} g(x) = \ell + m$

That is limit of the sum of two functions is equal to the sum of their limits.

ii) $\lim_{x \rightarrow a} \{f(x) - g(x)\} = \lim_{x \rightarrow a} f(x) - \lim_{x \rightarrow a} g(x) = \ell - m$

That is limit of the difference of two functions is equal to difference of their limits.

iii) $\lim_{x \rightarrow a} \{f(x) \cdot g(x)\} = \lim_{x \rightarrow a} f(x) \cdot \lim_{x \rightarrow a} g(x) = \ell m$

That is limit of the product of two functions is equal to the product of their limits.

iv) $\lim_{x \rightarrow a} \{f(x)/g(x)\} = \{\lim_{x \rightarrow a} f(x)\} / \{\lim_{x \rightarrow a} g(x)\} = \ell/m$ if $m \neq 0$

That is limit of the quotient of two functions is equal to the quotient of their limits

v) $\lim_{x \rightarrow a} c = c$ where c is a constant

That is limit of a constant is the constant.

vi) $\lim_{x \rightarrow a} cf(x) = c \lim_{x \rightarrow a} f(x)$

vii) $\lim_{x \rightarrow a} F\{f(x)\} = F\{\lim_{x \rightarrow a} f(x)\} = F(\ell)$

viii) $\lim_{x \rightarrow 0^+} \frac{1}{x} = \lim_{h \rightarrow 0} \frac{1}{h} \rightarrow +\infty \quad (h > 0)$

$$\lim_{x \rightarrow 0^-} \frac{1}{x} = \lim_{h \rightarrow 0} \frac{1}{-h} \rightarrow -\infty \quad (h > 0)$$

∞ is a very-very large number called infinity

Thus $\lim_{x \rightarrow 0} \frac{1}{x}$ does not exist.

We now state some important limits

$$a) \lim_{x \rightarrow 0} \frac{(e^x - 1)}{x} = 1$$

$$b) \lim_{x \rightarrow 0} \frac{a^x - 1}{x} = \log_e a \quad (a > 0)$$

$$c) \lim_{x \rightarrow 0} \frac{\log(1+x)}{x} = 1$$

$$d) \lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x = e \quad \text{or} \quad \lim_{x \rightarrow 0} \frac{(1+x)^{\frac{1}{x}}}{x} = e$$

$$e) \lim_{x \rightarrow a} \frac{x^n - a^n}{x - a} = na^{n-1}$$

$$f) \lim_{x \rightarrow 0} \frac{(1+x)^n - 1}{x} = n$$

Continuity:

By the term “continuous” we mean something which goes on without interruption and without abrupt changes. Here in mathematics the term “continuous” carries the same meaning. Thus we define continuity of a function in the following way.

A function $f(x)$ is said to be continuous at $x = a$ if and only if

(i) $f(x)$ is defined at $x = a$

$$(ii) \lim_{x \rightarrow a^-} f(x) = \lim_{x \rightarrow a^+} f(x) \quad (iii) \lim_{x \rightarrow a} f(x) = f(a)$$

In the second condition both left-hand and right-hand limits exist and are equal.

In the third condition limiting value of the function must be equal to its functional value at $x = a$.

Useful Information:

- (i) The sum, difference and product of two continuous functions is a continuous function. This property holds good for any finite number of functions.
- (ii) The quotient of two continuous functions is a continuous function provided the denominator is not equal to zero.

Basic concepts of Differential and Integral Calculus

Derivatives:

(1) $\frac{d}{dx} (x^n) = nx^{n-1}$	(2) $\frac{d}{dx} (e^x) = e^x$	(3) $\frac{d}{dx} (a^x) = a^x \log_e a$
(4) $\frac{d}{dx} (\text{constant}) = 0$	(5) $\frac{d}{dx} (e^{ax}) = ae^{ax}$	(5) $\frac{d}{dx} (\log x) = \frac{1}{x}$

Note: $\frac{d}{dx} \{c f(x)\} = cf'(x)$ c being constant.

Function	Derivative of the function
(i) $h(x) = c.f(x)$ where c is any real constant (Scalar multiple of a function)	$\frac{d}{dx}\{h(x)\} = c \cdot \frac{d}{dx}\{f(x)\}$
(ii) $h(x) = f(x) \pm g(x)$ (Sum/Difference of function)	$\frac{d}{dx}\{h(x)\} = \frac{d}{dx}\{f(x)\} \pm \frac{d}{dx}\{g(x)\}$
(iii) $h(x) = f(x) \cdot g(x)$ (Product of functions)	$\frac{d}{dx}\{h(x)\} = f(x) \frac{d}{dx}\{g(x)\} + g(x) \frac{d}{dx}\{f(x)\}$
(iv) $h(x) = \frac{f(x)}{g(x)}$ (quotient of function)	$\frac{d}{dx}\{h(x)\} = \frac{g(x) \frac{d}{dx}\{f(x)\} - f(x) \frac{d}{dx}\{g(x)\}}{\{g(x)\}^2}$
(v) $h(x) = f\{g(x)\}$	$\frac{d}{dx}\{h(x)\} = \frac{d}{dz}f(z) \cdot \frac{dz}{dx}$, where $z = g(x)$

For the parametric equations $x = f(t)$ and $y = h(t)$ the differential coefficient $\frac{dy}{dx}$

is obtained by using $\frac{dy}{dx} = \frac{\frac{dy}{dt}}{\frac{dx}{dt}} = \frac{dy}{dt} \cdot \frac{dt}{dx}$

Integration:

i) $\int x^n dx = \frac{x^{n+1}}{n+1} + c, n \neq -1$ (If $n = -1, \frac{x^{n+1}}{n+1} = \frac{1}{0}$ which is not defined)

ii) $\int dx = x$, since $\int 1 dx = \int x^0 dx = \frac{x^1}{1} = x$

$$\text{iii) } \int e^x dx = e^x + c, \text{ since } \frac{d}{dx} e^x = e^x$$

$$\text{iv) } \int e^{ax} dx = \frac{e^{ax}}{a} + c, \text{ since } \frac{d}{dx} \left(\frac{e^{ax}}{a} \right) = e^{ax}$$

$$\text{v) } \int \frac{dx}{x} = \log x + c, \text{ since } \frac{d}{dx} \log x = \frac{1}{x}$$

$$\text{vi) } \int a^x dx = a^x / \log_e a + c, \text{ since } \frac{d}{dx} \left(\frac{a^x}{\log_e a} \right) = a^x$$

Note: In the answer for all integral sums we add +c (constant of integration) since the differentiation of constant is always zero.

Elementary Rules:

$$\int c f(x) dx = c \int f(x) dx \text{ where } c \text{ is constant.}$$

$$\int \{ f(x) dx \pm g(x) \} dx = \int f(x) dx \pm \int g(x) dx$$

IMPORTANT STANDARD FORMULAE

$$\text{(a) } \int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \log \frac{x-a}{x+a} + c$$

$$\text{b) } \int \frac{dx}{a^2 - x^2} = \frac{1}{2a} \log \frac{a+x}{a-x} + c$$

$$\text{c) } \int \frac{dx}{\sqrt{x^2 + a^2}} = \log \left| x + \sqrt{x^2 + a^2} \right| + c$$

$$\text{d) } \int \frac{dx}{\sqrt{x^2 - a^2}} = \log \left(x + \sqrt{x^2 - a^2} \right) + c$$

$$\text{e) } \int e^x \{ f(x) + f'(x) \} dx = e^x f(x) + c$$

$$\text{f) } \int \sqrt{x^2 + a^2} dx = \frac{x}{2} \sqrt{x^2 + a^2} + \frac{a^2}{2} \log \left(x + \sqrt{x^2 + a^2} \right) + c$$

$$\text{g) } \int \sqrt{x^2 - a^2} dx = \frac{x}{2} \sqrt{x^2 - a^2} - \frac{a^2}{2} \log \left(x + \sqrt{x^2 - a^2} \right) + c$$

$$\text{h) } \int \frac{f'(x)}{f(x)} dx = \log f(x) + c$$

Integration by parts:

$$\int u v dx = u \int v dx - \int \left[\frac{d(u)}{dx} \int v dx \right] dx$$

$$\int_a^b F(x) dx = f(b) - f(a)$$

Important Properties of Definite Integral

$$(I) \quad \int_a^b f(x) dx = \int_a^b f(t) dt$$

$$(II) \quad \int_a^b f(x) dx = - \int_b^a f(x) dx$$

$$(III) \quad \int_a^b f(x) dx = \int_a^c f(x) dx + \int_c^b f(x) dx, a < c < b$$

$$(IV) \quad \int_0^a f(x) dx = \int_0^a f(a-x) dx$$

$$(V) \quad \text{When } f(x) = f(a+x) = \int_0^{na} f(x) dx = n \int_0^a f(x) dx$$

$$(VI) \quad \begin{aligned} \int_{-a}^a f(x) dx &= 2 \int_0^a f(x) dx && \text{if } f(-x) = f(x) \\ &= 0 && \text{if } f(-x) = -f(x) \end{aligned}$$

Statistical Description of Data

Statistics is defined as Study of numbers. It has universal application. (Govt, business, day to day life etc.) It is also defined as science of:

- Collection
- Scrutiny
- Classification (organising)
- Presentation
- Analysis
- Interpretation of Data.

Statistics in Singular:

It is method used in the process of analysis. (Eg. Average marks of student.)

Statistics in Plural:

Set of numbers and numerical information. Eg. Marks of 3 Students (30, 40, 60).

Origins:

Latin- Status.

Italian- Statista.

German- Statistik.

French- statistique.

Data- It is defined as information about a characteristic. Eg. Marks of 3 Students (30, 40, 60).

Characteristic- It is a subject for which data is collected. (Eg. Marks)

Types of Characteristic:

1. Variable:

Numerically expressed i.e. Quantitative. (Eg. Marks of student)

It is further classified as:

- a) **Discrete variable** - expressed only in integers. It cannot be expressed in fractions or decimals. (Eg. No of boys.)
- b) **Continuous variable** – can be expressed in fractions/integers. (Eg. Weight of students)

2. Attribute:

Cannot be expressed numerically i.e. Qualitative. (Eg. Beauty or Smartness.)

Collection of Data:

Collection of data depends on type of data.

1) **Primary:** Data recorded by the investigator himself.

Methods to collect primary data are as follows:

- **Interview method:** In this method investigator communicates with the respondent and record information by asking them questions.

Features:

- ✓ It is suitable for small area.
- ✓ More accurate.
- ✓ Time consuming and expensive.

Types of interview are:

- ✓ **Personal Interview:** data is collected directly from the respondent. Eg. It is suitable to collect information in natural calamity.
- ✓ **Indirect Interview:** data is collected from the person other than respondent. Eg. It is used to record information in case of accident.
- ✓ **Telephonic interview:** Information is collected through telephone. It is suitable for quick response.
- **Mailed questionnaire:** In this method investigator prepares a list of question and sends it to respondent. Respondent has to answer the question and send back to the person.
Features:
 - ✓ It is suitable for coverage of wide area.
 - ✓ Non responses maximum.
- **Observation method:** in this method investigator collects the information by using an instrument. (Eg. Weight of a student is recorded using Machine.)

2) **Secondary:** Data collected by the investigator indirectly.

Sources of secondary data are as follows:

- **International sources:** Data collected and published by a international organisation is a source of secondary data. (Eg. WHO, IMF, World bank, ILO etc)
- **Govt sources:** Data collected & published by GOI. (Eg. CSO, Population sensex)
- **Quasi government source:** There are some organisations working according to the rules and regulation of Indian government. Data collected by these institutes is also considered as a source of secondary data. Eg. ISI (Indian standard Institute).
- **Unpublished data:** data which is not published i.e. data other than above.

Scrutiny of Data: It is a closed and careful investigation of data. It is necessary to check **accuracy and consistency** of data. Internal consistency can be checked if data of related series are given. (Eg. Population, density & area)_Error may creep in while writing or copying information by enumerator.

Classification (Organising) Data: It is process of arranging data on the basis of some characteristic into groups. Methods of classification:

- a) **Chronological** - data classified according to time intervals. (No of CPT students in last five years)
- b) **Geographical** - data classified according to regions. (No of CPT students in different states)
- c) **Qualitative** - data classified in respect of attribute. (Based on gender, nationality etc)
- d) **Quantitative** - data classified in respect of variable. (Based on weight, salaries etc)

Features:

- ✓ Puts data into condensed form
- ✓ Makes comparison & statistical analysis possible

Presentation of Data:

Modes of presentation of data are as follows:

1) **Textual:** In this method information is presented in form of statement.

Features:

- ✓ It is difficult to abstract acquired information.
- ✓ It is also difficult to comparison.

2) **Tabulation:** In this method information is presented in form of a statistical table.

Features:

- ✓ It is the **best and accurate method** of presentation of data.
- ✓ Facilitates comparison between rows and columns.
- ✓ Complicated data can also be tabulated
- ✓ It is must for diagrammatic representation
- ✓ Without tabulation, statistical analysis of data is not possible

Content of a table:

Table Number

Title

Head note/ Box head: It is used to explain common information about the data. Eg. (in cm, in kg.)

Caption: Column heading

Stub: Row heading

Body

Foot note: Any symbol, short-form or abbreviation used either in caption, stub or body is explained in foot note.

Source: explains source from where info is collected.

(Five parts of table – Title, Row, Column, Description & Footnote)

3) **Diagrammatic:** In this method information is presented in form of chart, diagrams etc.

Features:

- ✓ **Most attractive** method.
- ✓ It can be understood by both educated and uneducated sections.
- ✓ Hidden trend can be noticed.
- ✓ Less accurate as compared to tabular method.

They are of three types:

- a) Line chart. (One dimensional)
- b) Bar Diagram. (One dimensional)
- c) Pie diagram. (Two dimensional)

(Circle – Two Dimensional, Cube Three Dimensional)

- a) **Line Chart:** It is used to represent data that vary over time.
- ✓ **Simple line chart:** It is used to represent only one series of data.
 - ✓ **Multiple line chart:** It is used to represent two or more series of data which are expressed in same unit of measurement.
 - ✓ **Multiple axis:** It is used to represent two or more series of data which are expressed in different units.
 - ✓ **Ratio chart:** It is used when fluctuation in data is large. Absolute values are not considered but log of respective values are considered.
- b) **Bar Diagram:** They are:
- ✓ **Horizontal Bar Diagram:** It is used to represent qualitative data.
It is also used to represent data with respect to space or region.
Eg. Population of different district in Maharashtra.
 - ✓ **Vertical bar diagram:** It is used to represent quantitative data.
It is used to represent only one series of data.
It is also known as simple bar diagram.
Eg. No of students in 5 different divisions
 - ✓ **Multiple bar diagram:**
It is used to represent two or more series of data.
It is also called Joint bar Diagram.
Eg. No. of boys and no. of girls in 5 different divisions.
 - ✓ **Sub-divided or grouped:**
If value of component along with totals are to be represented in Sub-divided bar diagram is used.
Eg. Total no. of students and no. of boys and no. of girls in 5 different divisions.
 - ✓ **Percentage Bar diagram:**
It is used when related components are to be compared.
In this diagram height of each vertical component corresponds to 100.
Absolute values are converted into % and vertical bar diagram are sub-divided into different parts.
- c) **Pie diagram:**
It is a circular representation of data.
It is used for comparing different components and its relation to total.
Total of all components is represented by area of circle= 360° and value of each component is represented by area of sector.

Frequency Distribution: It means tabular representation of statistical data usually in ascending order with corresponding frequency. It arranges observations in groups. It relates to measurable characteristic. Broadly classified into two **types:**

1) Ungrouped frequency distribution: In this method all values of variable from smallest to largest are considered. It is suitable only for classification of discrete variable or attribute.

2) Grouped or class interval: In this method class intervals are considered.

Types of class intervals:

- **Inclusive:** It means upper limit of any class is not equal to lower limit of next class. Upper limit is included in the same group. It is suitable for only discrete variable. Eg. 15-19, 20-24, 25-29.
- **Exclusive:** upper limit of any class is equal to lower limit of next class. Upper limit does not belong to same class. It is suitable to classify for discrete as well as continuous. Eg. 15-20, 20-25, 25-30.
- **Open ended:** Lower limit of first class interval and upper limit of last class interval are not specified. It is suitable to classify the data in which very few observations are very small or extremely large. It is used in analysis only for particular statistical terms such as median, .., .., percentiles, etc.

Method to convert inclusive class intervals to exclusive class intervals:

Inclusive class interval

Eg. 10-19, 20- 29, 30- 39

Correction Factor= $\frac{20-19}{2} = 0.5$

Therefore, Exclusive class interval = 9.5- 19.5, 19.5-29.5, 29.5-39.5.

Class Limits:

Eg. 10-19, 20-29, 30-39

LCL= 10

UCL= 19

10-20, 20-30, 30-40

LCL= 10

UCL=20.

Class Boundaries:

Eg. 10-19, 20-29, 30-39

LCB= 9.5

UCB= 19.5

10-20, 20-30, 30-40

LCB= 10

UCB=20.

To calculate class boundary **class interval should be exclusive.**

Class mark/ Midpoint:

Eg. 10-19, 20-29, 30-39.

LCL= 10, UCL= 19

CM= $\frac{LCL+ UCL}{2} = \frac{10+19}{2} = 14.5$

Length of class interval or width or size of class interval:

=UCB-LCB. Eg. 19.5-9.5 = 10.

Types of frequency:

1. **Relative frequency:** It is defined as ratio of frequency of class interval with total.
Sum of all relative frequency is equal to 1
$$\text{Relative frequency} = \frac{\text{Frequency of class interval}}{\text{Total}}$$
2. **Percentage relative frequency:** It is defined as % ratio of frequency of class interval with total frequency.
Sum of % relative frequency = 100.
$$= \frac{\text{frequency class interval}}{\text{Total}} \times 100$$
3. **Frequency density:** It is the ratio of frequency to length of corresponding class interval.
It is used in construction of histogram if class intervals are of unequal length
$$\text{Frequency density} = \frac{\text{Frequency of class interval}}{\text{Length of class interval}}$$
4. **Cumulative frequency:** These are of two types:
 - **Less than cumulative frequency:** These frequencies are obtained from adding simple frequencies from top to bottom.
This frequency is referred to upper class boundary of corresponding class interval
 - **More than cumulative frequency:** These frequencies are obtained from adding simple frequencies in upward direction.
This frequency is referred to lower class boundary of corresponding class interval.

Graphical representation of frequency distribution:

1) Histogram: (Area Diagram) (Most Common)

- It is used to represent frequency distribution.
- Class boundaries are considered on x-axis and frequency are considered on y axis.
- In case of unequal class intervals, frequency density is considered on y axis.
- It is used to find mode graphically.

Frequency polygon:

- In this method, freq are plotted against mid-point of corresponding class interval.
- Polygon is closed on x axis.
- Width of class interval should remain same.

2) Ogives/ c.f graph:

- i. Less than c.f. graph/ less than ogives:
 - It is used to represent less than c.f.
 - In this method, LTCF are plotted against upper class boundary.
 - Plotted points are joined by free hand.
 - It is used to find out median, quartile, decile and percentile.
 - It is a line diagram
 - Unequal Class intervals do not affect them
- ii. More than ogives:
 - Used to represent more than c.f.
 - Points are plotted against lower class boundaries.
 - It is used to find out median, quartile, decile, percentiles

Intersection of less than ogive and more than ogive helps us to find out median.

Frequency Curves

It is a limiting form of histogram & frequency polygon. It is a smooth curve.

- 1) Bell shaped curve: If frequencies are minimum at extremes and max at centre then graph of distribution is Bell shaped curve. (eg. Height, sex, profit).
- 2) U shaped curve: If frequencies are maximum at extremes and minimum at centre then graph of distribution is u shaped.
- 3) J shaped curve: Initially frequency decreases and then frequency goes on increasing. Freq is max for last value of variable.
- 4) Mixed curve: combination of all curves.

Measures of Central Tendency

Every distribution has a tendency that most of the observations cluster around a single central value. This tendency is called as central tendency.

- Method used to find it is called as measures of central tendency.
- It is commonly known as average.
- It is used to reduce data into one single number.
- It facilitates comparison.
- It is representative of complete data.
- Central tendency is the first characteristic of distribution.

Types of averages:

Mathematical:	Positional
It is based on all observations	It is not based on all observations
It is rigidly defined	It is not rigidly defined,
It is capable of further algebraic treatment	It is not capable of further algebraic treatment
It consists of following: • Arithmetic mean • Geometric mean. • Harmonic mean.	It consists of following: • Median. • Mode.

1) Arithmetic mean: (Most Common)

AM is defined as sum of all observations divided by no. of observations. **It is the best measure of central tendency but it is affected by sampling fluctuations.** Most commonly used.

$$AM = \frac{\text{Sum of all observation}}{\text{No. of observation}}$$

Step deviation method: (Shift of origin & change of scale.)

Shift of origin: Process of subtracting/adding a common no. from each observation is called as Shift of origin.

Change of scale: Process of dividing/ multiplying a common no. from each observation is called Change of Scale.

$$U = \frac{x-a}{c}$$

a= constant of Shift of origin:

c= constant of Change of scale

$$\bar{x} = a + c\bar{u}$$

Note:

1. Arithmetic mean cannot be calculated for any missing number of data.
2. Class intervals can be inclusive or exclusive (steps will remain the same).
3. AM cannot be found for open end class interval.
4. AM can be found for unequal class intervals.

Combined arithmetic mean:

$$\text{Combined AM} = \frac{\bar{x}_1 n_1 + \bar{x}_2 n_2}{n_1 + n_2}$$

Properties of arithmetic mean:

- AM is dependent on shift of origin.
- AM is dependent on change of scale.
- Sum of deviation from arithmetic mean is zero.
For raw data $\sum (x - \bar{x}) = 0$.
For grouped or ungrouped data $\sum f(x - \bar{x}) = 0$.
- AM satisfies the linear relationship between two variable.
If $Y = a + bx$, then $\bar{y} = a + b\bar{x}$.
 x and y are variables. y is called as dependent variable and x is called as independent variable.
 a and b are called constants.
If we put value of x we get value of y .

Median: (partition value)

Median means middlemost value when data is arranged in ascending or descending order. **It is not much affected by sampling fluctuation. It divides data into two equal parts. Each part contains 50% of observations. Note:**

1. Median can be found if extreme values are missing but total no. of observations are given.
2. If inclusive class intervals are given then while taking L_1 L_2 be careful. Take class boundaries by converting inclusive class intervals to exclusive class intervals.
3. Median can be found for open end class intervals. **(most appropriate)**
4. Median can be calculated for class interval of unequal lengths.

Correction in median:

1. If wrong observation & correct observations are both less than median or both are greater than median then median remains the same.
2. If equal no. of observations are added or deleted from both the sides of median, median remains the same.

Properties of median:

- Median is dependent on shift of origin and change of scale.
- Sum of absolute deviation from median is minimum. i.e $\sum |x - m_e| = \min$.
- Median satisfies linear relationship between 2 variables.
If $Y = a + bx$, then $y_{me} = a + b x_{me}$

Partition value: Number which divides distribution into equal parts are known as partition values.

1) Quartiles: It divides data into 4 equal parts. Each part contain 25% of observations. There are three points of division. $Q_1 = 1^{st}$ / lower quartile. $Q_2 = 2^{nd}$ / median quartile. $Q_3 = 3^{rd}$ / upper quartile.

2) Deciles: It divides data into 10 equal parts. Each part contains 10% of observations.

There are 9 points of division.

3) Percentiles: It divides data into 100 equal parts. Each part contains 1% of observations.

There are 99 points of division.

Mode: (Mo or Z): Mode means number repeated maximum number of times. It is most popular. **Mode cannot be found for unequal class intervals.** There are cases where mode remains undefined. If $Y = a + bx$, then $y_{mo} = a + bx_{mo}$

Continuous data:

- Find out modal class.
- $$\text{Mode} = L_1 + \frac{(L_2 - L_1)(F_1 - F_0)}{2F_1 - F_0 - F_2}$$

L_1 = Lower boundry of modal class.
 L_2 = upper class.
 F_1 = Frequency of modal class.
 F_0 = Frequency of previous class
 F_2 = Frequency of next class.

Geometric mean: It is defined as the n^{th} root of product of observations.

- GM cannot be found if any observation is zero.
- GM cannot be found if any observation is negative.
- GM is most significant average to find out average rate of change ie. average rate of increase or decrease.
- GM is also expressed as ratio of given observation. i.e If GM of x_1 & x_2 is x then ,
$$\frac{x_1}{x} = \frac{x}{x_2}$$
- GM does not satisfy linear relationship.
- If $z = xy$ then, $\text{GM}(z) = \text{GM}(x) \times \text{GM}(y)$.
- If $z = x/y$ then
$$\text{GM}(z) = \frac{\text{GM}(x)}{\text{GM}(y)}$$
- If all no. are constant then GM is also constant.

Harmonic mean:

1. It is defined as reciprocal of arithmetic mean of reciprocal of observations.
2. It is defined as
$$\frac{\text{No of observations}}{\text{Sum of reciprocal of observations}}$$
3. It is most suitable average to find out average rate of speed.
4. It cannot be calculated if any observation is zero.
5. It does not satisfy linear relationship.

Combined Harmonic Mean:

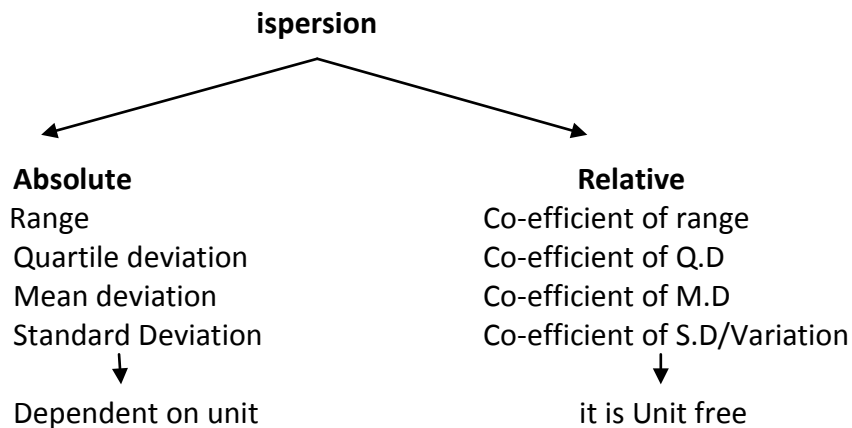
$$\text{CHM} = \frac{n_1 + n_2}{\frac{n_1}{H_1} + \frac{n_2}{H_2}}$$

Relation between AM, GM and HM

1. $GM^2 = (AM)(HM)$.
2. For positive number.
 $AM \geq GM \geq HM$.
3. For distinct positive number.
 $AM > GM > HM$.
4. For equal positive no.
 $AM = GM = HM$.

Dispersion

Dispersion: Dispersion may be defined as the amount of deviation of the observations, usually, from an appropriate measure of central tendency. Two distributions may be identical w.r.t Central tendency, yet it may differ on account of dispersion. Dispersion is study of scatterness of data. It is used to study variation or consistency of data. Dispersion is second important characteristic of distribution. **All dispersions are always positive.**



NOTE:

- For comparing two or more distributions relative measures are used and not absolute.
- Compared to absolute measures, relative measures are difficult to compute.

Range:

- It is defined as difference between highest and lowest data.
- It is quickest to compute.
- Affected by extreme observations.
- Based only on two observations.
- It is independent of frequencies.
- Range = H-L. (Highest – Lowest).
- In case of class intervals, class boundaries are taken. (Therefore class interval should be exclusive, if not change).
- If Range increases, Dispersion Increases.

Co-efficient of Range:

$$\text{Co-efficient of Range} = \frac{H - L}{H + L} \times 100$$

Range is not affected by shift of origin but it is affected by change of scale.

If $y = a + bx$, then $R_y = |b| R_x$.

Quartile Deviation: Inter – quartile range = $Q_3 - Q_1$.

Q.D is defined as semi- inter quartile range.

$$\text{Hence, Q.D} = \frac{Q_3 - Q_1}{2}$$

Quartile deviation is also rigidly defined, easy to compute and not much affected by sampling fluctuations. The presence of extreme observations has no impact on quartile deviation since quartile deviation is based on the central fifty-percent of the observations. However, quartile deviation is not based on all the observations and it has no desirable mathematical properties. Q.D is best measure of dispersion for open end classification.

Co-efficient of Q.D = $\frac{Q_3 - Q_1}{Q_3 + Q_1} \times 100$

It is not affected by shift of origin but it is affected by change of scale.

If $y = a + bx$, then $Q.D_y = |b| Q.D_x$.

Mean Deviation (MD):

It is defined as Arithmetic mean of absolute deviation obtained from any average. It is calculated for AM or Median or Mode.

- It is more accurate as compared to range and quartile deviation.
- It is rigidly defined, based on all observations and not much affected by sampling fluctuations.
- Difficult to compute.
- Mean deviation does not possess mathematical properties.
- **It is not affected by shift of origin but affected by change of scale.**
- If $y = a + bx$, then $M.D_y = |b| M.D_x$.
-

$$M.D = \frac{\sum |x - \text{avg}|}{N} \quad (\text{Avg} = \text{median/ Mean/ Mode})$$

$$M.D \text{ for freq} = \frac{\sum f |x - \text{avg}|}{N}$$

When MD is taken from median answer is minimum.

Co-efficient of M.D:

Co-efficient of M.D = $\frac{M.D}{\text{Avg}} \times 100$

Standard Deviation (SD)

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n}}$$

For a grouped frequency distribution, the standard deviation is given by

$$s = \sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{N}}$$

SD is defined as root mean square deviation.

It is best method of dispersion.

It is most widely & commonly used measure.

It is rigidly defined, based on all the observations, not too difficult to compute, not much affected by sampling fluctuations and moreover it has some desirable mathematical properties.

Variance:

$$\text{Variance} = (S.D)^2$$

Co-efficient of S.D: (Co-efficient of variation)

$$\text{Co-efficient of S.D/ Variation} = \frac{S.D}{\text{Mean}} \times 100$$

S.D is not affected by shift of origin but affected by change of scale.

If $y = a + bx$, then $S.D_y = |b| S.D_x$.

If all observations are constant then SD is zero.

Eg. SD of 2, 2, 2, 2, 2, 2 is zero.

Note: If SD is more, then dispersion is more and consistency is less.

Combined Standard Deviation:

If there are two groups containing n_1 & n_2 observations. And $\bar{x}_1$ and $\bar{x}_2$ as their AM and S_1 and S_2 are their S.D then,

$$s = \sqrt{\frac{n_1 s_1^2 + n_2 s_2^2 + n_1 d_1^2 + n_2 d_2^2}{n_1 + n_2}}$$

where, $d_1 = \bar{x}_1 - \bar{x}$
 $d_2 = \bar{x}_2 - \bar{x}$

and $\bar{x} = \frac{n_1 \bar{x}_1 + n_2 \bar{x}_2}{n_1 + n_2} = \text{combined AM}$

Correlation and Regression

Correlation:

- It is analysis of multi variate distribution.
- For CPT, only bivariate.
- Correlation analysis is used to find association or lack of it between two variables.
- The extent or amount of correlation is provided by diff measures of correlation.

Different measures of correlation:

1. Scatter Diagram.
2. Karl Pearson's product moment correlation co-efficient.
3. Spearman's rank correlation co-efficient.
4. Coefficient of concurrent deviation.

From bivariate freq distribution, we can extract two univariate distributions:

1. Marginal Distribution.
 - a) X and total
 - b) Y and total
2. Conditional Distribution.
 - a) X but condition on Y
 - b) Y but condition on X

If there are m classification for x and n classification for y than total no. of classification = $m+n$. Two variables may be correlated or associated if change in one variable is reciprocated by corresponding change in other variable (either direct/ inverse). Otherwise they are called as uncorrelated or dissociated or independent variable.

Types of Correlation:

1. Positive correlation: If two variables move in same direction.
Eg. Height and weight, investment and profit.
2. Negative Correlation: If two variables move in opposite direction.
Eg. Price and demand.
3. No Correlation: If movement in one does not produce movement in other.
Eg. Shoe size and intelligence.

Different Measures of Correlation:

1. Scatter Diagram:

- It is diagrammatic method to establish correlation between two variables.
- It is used for both linear as well as non linear relationship.
- It is used to distinguish type of correlation but does not measure exact extent of correlation.
- Correlation co-efficient is denoted by 'r'.
- Correlation coefficient is always between -1 & 1 both inclusive.

- If there is perfect positive correlation than $r=1$.
- If there is +ve correlation than $0 < r < 1$.
- If there is high +ve relationship than r would be near 1, if low +ve relationship than r near 0.
- If perfect –ve correlation than $r = -1$.
- If –ve correlation than $-1 < r < 0$.
- If high –ve than near -1 and low –ve than near 0.
- If no correlation than $r = 0$.

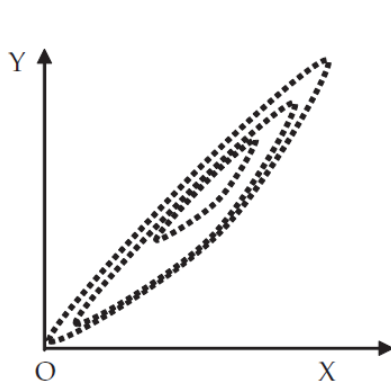


FIGURE 12.1
Showing Positive Correlation
($0 < r < 1$)

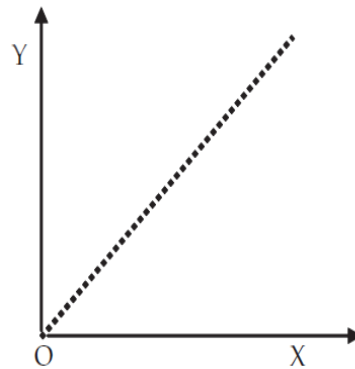


FIGURE 12.2
Showing perfect
Correlation
($r = 1$)

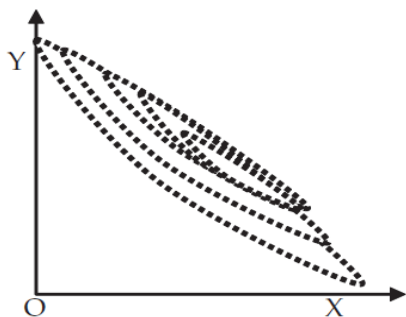


FIGURE 12.3
Showing Negative Correlation
($-1 < r < 0$)

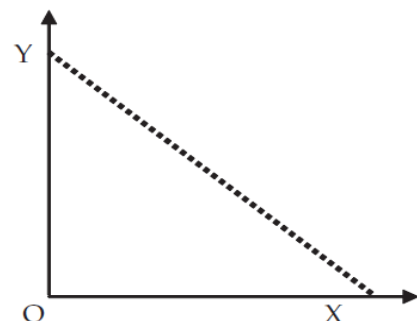


FIGURE 12.4
Showing perfect Negative
Correlation
($r = -1$)

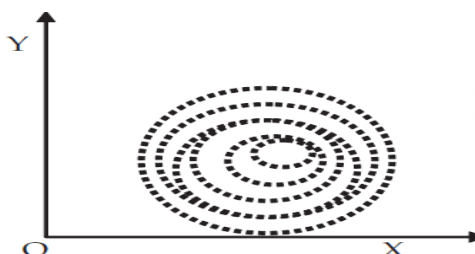


FIGURE 12.5
Showing No Correlation
($r = 0$)

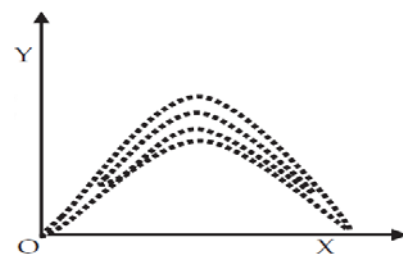


FIGURE 12.6
Showing Curvilinear
Correlation
($r = 0$)

2. Karl Pearson's product moment correlation co-efficient:

It is the best method, but it is used to find only linear relationship.

$$r = r_{xy} = \frac{\text{Cov}(x, y)}{S_x \times S_y}$$

where

$$\text{cov}(x, y) = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{n} = \frac{\sum x_i y_i}{n} - \bar{x} \bar{y}$$

$$S_x = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n}} = \sqrt{\frac{\sum x_i^2}{n} - \bar{x}^2}$$

$$\text{and } S_y = \sqrt{\frac{\sum (y_i - \bar{y})^2}{n}} = \sqrt{\frac{\sum y_i^2}{n} - \bar{y}^2}$$

A single formula for computing correlation coefficient is given by

$$r = \frac{n \sum x_i y_i - \sum x_i \times \sum y_i}{\sqrt{n \sum x_i^2 - (\sum x_i)^2} \sqrt{n \sum y_i^2 - (\sum y_i)^2}}$$

Properties of correlation coefficient.

- It is unit free.
- It is not affected by shift of origin and change of scale.

$$\begin{array}{cc} x & y \\ \downarrow & \downarrow \\ u & v \\ u = \frac{x-a}{b} & , \quad v = \frac{y-c}{d} \\ r_{xy} = \frac{b.d}{|b| |d|} r_{uv} \end{array}$$

3. Spearman's rank correlation co-efficient:

- It is used to find relationship between qualitative characteristic.
- It is also used to find level of agreement/ disagreement between two judges so far as assessing qualitative characteristic is concerned.
- It is easy to compute.

- $r = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$

Where $d = x - y = \text{diff in rank}$.

$n = \text{no. of individuals}$.

$$r_R = 1 - \frac{6 \left[\sum_i d_i^2 + \sum_j \frac{(t_j^3 - t_j)}{12} \right]}{n(n^2 - 1)}$$

In this formula, t_j represents the j^{th} tie length and the summation $\sum_j (t_j^3 - t_j)$ extends over the lengths of all the ties for both the series.

4. Coefficient of concurrent deviation:

- When we are not serious about the magnitude of the variable, this method is used.
- It is very simple and casual method.

$$r_c = \pm \sqrt{\pm \frac{(2c - m)}{m}}$$

If $2c - m > 0$, then take '+' sign both inside and outside.

If $2c - m < 0$, then take '-' sign both inside and outside.

Where $c = \text{no. of concurrent deviation}$

$m = \text{total no. of deviation}$.

Regression:

It is used to estimate one value of variable for a given value of other variable on the basis of average mathematical relationship. Eg. Profits & investments. We can estimate profit for given amount of investment. Profit is dependent and investment is independent variable. If $y \rightarrow x$, then y is dependent variable and x is independent variable.

Regression line is given by: $y = a + bx$.

a and b are constant (regression parameters)

y is dependent variable and x is independent variable.

b_{yx} is called as regression co-efficient of y on x .

$$\begin{aligned} b &= \frac{\text{Cov}(x, y)}{S_x^2} \\ &= \frac{r S_x S_y}{S_x^2} \\ &= \frac{r S_y}{S_x} \end{aligned}$$

$$a = \bar{y} - b\bar{x}$$

Single formula for b_{yx} :

$$b^{\wedge} = b_{yx} = \frac{n \sum x_i y_i - \sum x_i \cdot \sum y_i}{n \sum y_i^2 - (\sum y_i)^2}$$

- We may define regression line of y on x as line of best fit obtained by method of least squares.
- Using regression we can find out estimated values of dependent variable. The difference between observed and estimated value is known as error or residue denoted by 'e'.
- To find regression line of y on x we use minimisation of vertical distances in scatter diagram.
- To find regression line of x on y we use minimisation of horizontal distances in scatter diagram.
- Regression coefficient remains unchanged due to shift of origin but changes due to change of scale.

x	y
$u = \frac{x - a}{p}$	$v = \frac{y - c}{q}$
$b_{yx} = \frac{q}{p} b_{vu}$	$b_{xy} = \frac{p}{q} b_{uv}$

- The two lines of regression i.e. $y = a + bx$ and $x = a + by$ intersect at point. $(\bar{x}, \bar{y})$ i.e. when we solve two equation simultaneously we would find $\bar{x}$ and $\bar{y}$

$$r = \pm \sqrt{b_{yx} \times b_{xy}}$$

- Karl Pearson's formula is used to find only linear relationship.
- When it is given that variables are unrelated then, $r = 0$ i.e. neither linear nor non linear relationship. However, if it is given that $r = 0$, this implies that there is no linear relationship. However, there might be some non –linear relationship.
- Two variables may not be casually related. However due to existence of third variable, they become related. Such a relation is spurious co-relation.
Eg. Production of rice and production of iron.

Square of corelation/ coefficient of determination:

$$r^2 = \frac{\text{explained variance}}{\text{Total variance.}}$$

Eg. If $r = 0.6$ then $r^2 = 0.36 = 36\%$.

This 36% of variance has been accounted for by factor under consideration and remaining 64% is due to other factors which is known as co efficient of non- determination.

Coefficient on non –determination= $1 - r^2 = 1 - 0.36 = 0.64$.

- If $r = -1/+1$ then the two regression lines coincide with each other
- If $r = 0$ then two regression lines are perpendicular to each other.
- If regression equation is $y = a + bx$ and $b > 0$ then $r = +1$, If $b < 0$ then $r = -1$.

Probability and Expected Value by Mathematical Expectation

$$P(A) = \frac{n_A}{n} = \frac{\text{No. of equally likely events favourable to A}}{\text{Total no. of equally likely events}}$$

Properties:

- (a) The probability of an event lies between 0 and 1, both inclusive.

$$\text{i.e. } 0 \leq P(A) \leq 1$$

When $P(A) = 0$, A is known to be an impossible event and when $P(A) = 1$, A is known to be a sure event.

- (b) Non-occurrence of event A is denoted by A' or A^c or $\bar{A}$ and it is known as complimentary event of A. The event A along with its complimentary A' forms a set of mutually exclusive and exhaustive events.

$$\text{i.e. } P(A) + P(A') = 1$$

$$\Rightarrow P(A') = 1 - P(A)$$

$$\begin{aligned} 1 - \frac{m_A}{m} \\ = \frac{m - m_A}{m} \end{aligned}$$

- (c) The ratio of no. of favourable events to the no. of unfavourable events is known as odds in favour of the event A and its inverse ratio is known as odds against the event A.

$$\begin{aligned} \text{i.e. odds in favour of A} &= m_A : (m - m_A) \\ \text{and odds against A} &= (m - m_A) : m_A \end{aligned}$$

$$P(A) = \lim_{n \rightarrow \infty} \frac{F_A}{n}$$

This statistical definition is applicable if the above limit exists and tends to a finite value.

$$P(A \cup B)$$

$$P(A + B) = P(A) + P(B)$$

whenever A and B are mutually exclusive

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

If A and B are not mutually exclusive.

$$P(A \cup B \cup C) = P(A) + P(B) + P(C) - P(A \cap B) - P(A \cap C) - P(B \cap C) + P(A \cap B \cap C)$$

$$P(B/A) = \frac{P(B \cap A)}{P(A)} = \frac{P(A \cap B)}{P(A)}$$

Independent Events:

$$P(A \cap B) = P(A) \times P(B)$$

$$P(A \cap C) = P(A) \times P(C)$$

$$P(B \cap C) = P(B) \times P(C)$$

$$P(A \cap B \cap C) = P(A) \times P(B) \times P(C)$$

It may be further noted that if two events A and B are independent, then the following pairs of events are also independent:

- (i) A and B'
- (ii) A' and B
- (iii) A' and B'

Expected Value:

$$\mu = E(x) = \sum p_i x_i$$

$$E(x^2) = \sum p_i x_i^2$$

$$V(x) = \sigma^2 = E(x - \mu)^2$$

$$= E(x^2) - \mu^2$$

Properties of Expected Values

1. Expectation of a constant k is k
i.e. $E(k) = k$ for any constant k.(13.51)
2. Expectation of sum of two random variables is the sum of their expectations.
i.e. $E(x + y) = E(x) + E(y)$ for any two random variables x and y. (13.52)
3. Expectation of the product of a constant and a random variable is the product of the constant and the expectation of the random variable.
i.e. $E(kx) = k.E(x)$ for any constant k (13.53)
4. Expectation of the product of two random variables is the product of the expectation of the two random variables, provided the two variables are independent.
i.e. $E(xy) = E(x) \times E(y)$ (13.54)

Whenever x and y are independent.

Theoretical Distributions

Two important discrete probability distributions are:

(a) Binomial Distribution and (b) Poisson distribution.

Some important continuous probability distributions are:

- (a) Normal Distribution
- (b) Chi-square Distribution
- (c) Student-Distribution
- (d) F-Distribution

Binomial distribution:

It is derived from a particular type of random experiment known as Bernoulli process named after the famous mathematician Bernoulli. The number of trials is a finite positive integer. The probability of a success, usually denoted by p , and hence that of a failure, usually denoted by $q = 1-p$, remain unchanged throughout the process.

A discrete random variable x is defined to follow binomial distribution with parameters n and p , to be denoted by $x \sim B(n, p)$, if the probability mass function of x is given by

$$f(x) = P(X=x) = {}^n C_x p^x q^{n-x} \text{ for } x = 0, 1, 2, \dots, n \\ = 0, \text{ otherwise}$$

We may note the following important points in connection with binomial distribution:

(a) As $n > 0$, $p, q \geq 0$, it follows that $f(x) \geq 0$ for every x

$$\text{Also } \sum_x f(x) = f(0) + f(1) + f(2) + \dots + f(n) = 1 \dots \dots (14.2)$$

(b) Binomial distribution is known as biparametric distribution as it is characterised by two parameters n and p . This means that if the values of n and p are known, then the distribution is known completely.

(c) The mean of the binomial distribution is given by $\mu = np \dots (14.3)$

(d) Depending on the values of the two parameters, binomial distribution may be unimodal or bi-modal. μ_0 , the mode of binomial distribution, is given by $\mu_0 =$ the largest integer contained in $(n+1)p$ if $(n+1)p$ is a non-integer $(n+1)p$ and $(n+1)p - 1$ if $(n+1)p$ is an integer $\dots (14.4)$

(e) The variance of the binomial distribution is given by

$$\sigma^2 = npq \dots \dots \dots (14.5)$$

Since p and q are numerically less than or equal to 1, $npq < np$

$\Rightarrow$ variance of a binomial variable is always less than its mean.

Also variance of X attains its maximum value at $p = q = 0.5$ and this maximum value is $n/4$.

(f) Additive property of binomial distribution.

If X and Y are two independent variables such that

$$X \sim \beta (n_1, P)$$

$$\text{and } Y \sim \beta (n_2, P)$$

$$\text{Then } (X+Y) \sim \beta (n_1 + n_2, P) \dots\dots\dots (14.6)$$

Poisson distribution:

Poisson distribution is a theoretical discrete probability distribution which can describe many processes. Simon Denis Poisson of France introduced this distribution way back in the year 1837. **The probability of finding success in a very small time interval is very low.**

A random variable X is defined to follow Poisson distribution with parameter λ , to be denoted by $X \sim P(m)$ if the probability mass function of x is given by

$$f(x) = P(X=x) = \frac{e^{-m} \cdot m^x}{x!} \text{ for } x = 0, 1, 2, \dots$$
$$= 0 \quad \text{otherwise} \quad \dots\dots (14.9)$$

Poisson distribution is known as a uniparametric distribution as it is characterised by only one parameter m.

The mean of Poisson distribution is given by m i.e $\mu = m$. (14.11)

The variance of Poisson distribution is given by $\sigma^2 = m$ (14.12)

Like binomial distribution, Poisson distribution could be also unimodal or bimodal depending upon the value of the parameter m.

We have $\mu_0 =$ The largest integer contained in m if m is a non-integer
 $= m$ and $m-1$ if m is an integer (14.13)

Poisson approximation to Binomial distribution

If n, the number of independent trials of a binomial distribution, tends to infinity and p, the probability of a success, tends to zero, so that $m = np$ remains finite, then a binomial distribution with parameters n and p can be approximated by a Poisson distribution with parameter m (= np).

Additive property of Poisson distribution

If X and y are two independent variables following Poisson distribution with parameters m_1 and m_2 respectively, then $Z = X + Y$ also follows Poisson distribution with parameter $(m_1 + m_2)$.

i.e. if $X \sim P(m_1)$

and $Y \sim P(m_2)$

and X and Y are independent, then

$$Z = X + Y \sim P(m_1 + m_2) \dots\dots (14.15)$$

Application of Poisson distribution

Poisson distribution is applied when the total number of events is pretty large but the probability of occurrence is very small. Thus we can apply Poisson distribution, rather profitably, for the following cases:

- a) The distribution of the no. of printing mistakes per page of a large book.
- b) The distribution of the no. of road accidents on a busy road per minute.
- c) The distribution of the no. of radio-active elements per minute in a fusion process.
- d) The distribution of the no. of demands per minute for health centre and so on.

Normal or Gaussian distribution:

A continuous random variable x is defined to follow normal distribution with parameters μ and σ^2 , to be denoted by

$$X \sim N(\mu, \sigma^2) \dots\dots\dots (14.16)$$

If the probability density function of the random variable x is given by

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} \cdot e^{-(x-\mu)^2/2\sigma^2}$$
$$\text{for } -\infty < x < \infty \dots\dots\dots (14.17)$$

The normal distribution is known as biparametric distribution as it is characterised by two parameters μ and σ^2 . Once the two parameters are known, the normal distribution is completely specified.

Standard Normal Variate:

If we take $\mu = 0$ and $\sigma = 1$ in (14.17), we have

$$f(x) = \frac{1}{\sqrt{2\pi}} e^{-z^2/2} \quad \text{for } -\infty < z < \infty \dots\dots\dots (14.18)$$

The standard deviation of the normal distribution is given by σ .

Mean deviation of normal distribution is

$$\sigma\sqrt{2/\pi} \cong 0.8\sigma \dots\dots\dots (14.21)$$

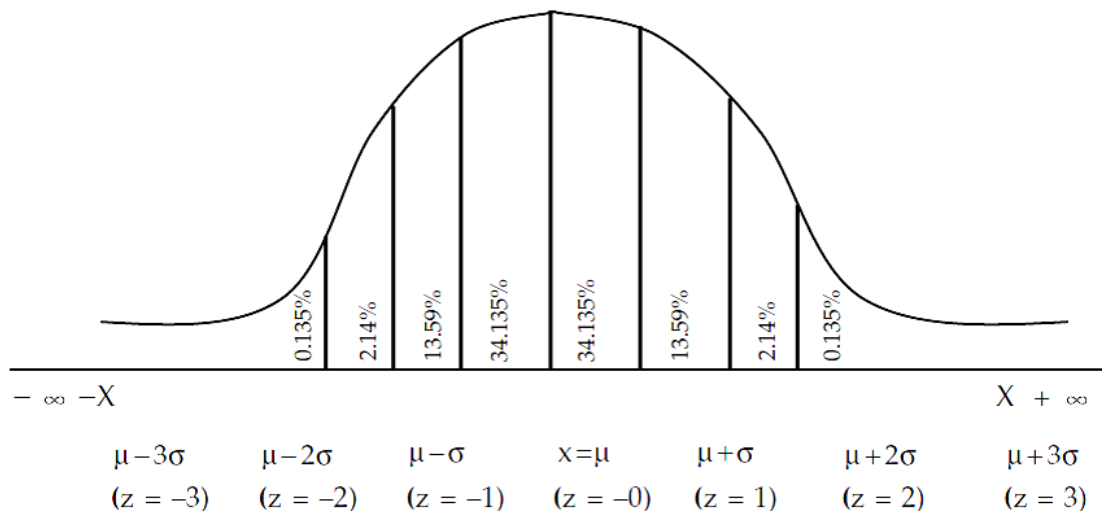
The first and third quartiles are given by

$$Q_1 = \mu - 0.675 \sigma \dots\dots\dots (14.22)$$

$$\text{and } Q_3 = \mu + 0.675 \sigma \dots\dots\dots (14.23)$$

$$\text{so that, quartile deviation} = 0.675 \sigma \dots\dots\dots (14.24)$$

The normal curve $y = f(x)$ has two points of inflexion to be given by $x = \mu - \sigma$ and $x = \mu + \sigma$ i.e. at these two points, the normal curve changes its curvature from concave to convex and from convex to concave.



If x and y are independent normal variables with means and standard deviations as μ_1 and μ_2 and σ_1 and σ_2 respectively, then $z = x + y$ also follows normal distribution with mean $(\mu_1 + \mu_2)$ and $SD = \sqrt{\sigma_1^2 + \sigma_2^2}$ respectively.

i.e. If $x \sim N(\mu_1, \sigma_1^2)$
 and $y \sim N(\mu_2, \sigma_2^2)$ and x and y are independent,
 then $z = x + y \sim N(\mu_1 + \mu_2, \sigma_1^2 + \sigma_2^2)$

Chi-square distribution, t-distribution and f – distribution:

If a continuous random variable X follows Chi-square distribution with n degrees of freedom (df) i.e. n independent condition without any restriction or constraints, to be denoted by $X \sim \chi_n^2$ then the probability density function of X is given by

$$f(x) = k \cdot e^{-x/2} x^{n/2 - 1}$$

(Where k is a constant) for $0 < x < \infty$ (14.40)

The important properties of χ^2 (chi-square) distribution are mentioned below:

- (i) Mean of the chi-square distribution = n
- (ii) Standard deviation of chi-square distribution = $\sqrt{2n}$
- (iii) Additive property of chi-square distribution.

If x and y are two independent chi-square distribution with m and n degrees of freedom, then $(x + y)$ also follows chi-square distribution with $(m + n)$ df.

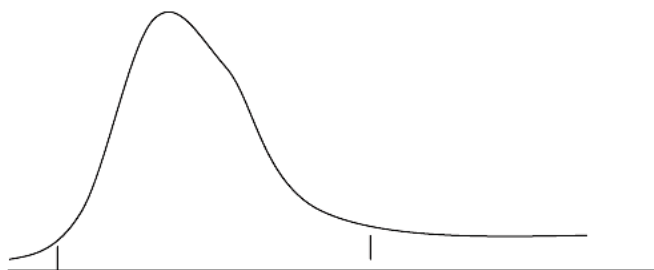
i.e., if $x \sim \chi_m^2$

and $y \sim \chi_n^2$

and x and y are independent,

then $\mu = x + y \sim \chi_{m+n}^2$ (14.41)

Chi-square distribution is positively skewed i.e. the probability curve of the chi-square distribution is inclined more on the right.



t – distribution: If a continuous random variable t follows t – distribution with n df, then its probability density function is given by

$$f(t) = k \left[1 + t^2 / n \right]^{-(n+1)/2}$$

(where k is a constant) for $-\infty < t < \infty$ 14.45

This is denoted by $t \sim t_n$.

The important properties of t -distribution are mentioned below:

- (i) Mean of t -distribution is zero.
- (ii) Standard deviation of t -distribution $\propto \sqrt{n/(n-2)}$, $n > 2$
- (iii) t -distribution is symmetrical about $t = 0$.
- (iv) For large n (> 30), t -distribution tends to the standard normal distribution.

F – Distribution

If a continuous random variable F follows F – distribution with n_1 and n_2 degrees of freedom, to be denoted by $F \sim F_{n_1, n_2}$, then its probability density function is given by

$$f(F) = k \cdot F^{n_1/2 - 1} \cdot (1 + n_1 F / n_2)^{-(n_1 + n_2)/2}$$

(where k is a constant) for $0 < F < \infty$ (14.49)

Important properties of F – distribution

1. Mean of the F – distribution $= \frac{n_2}{n_2 - 2}$, $n_2 > 2$
2. Standard deviation of the F – distribution

$$= \frac{n_2}{n_2 - 2} \sqrt{\frac{2(n_1 + n_2 - 2)}{n_1(n_2 - 4)}}, n_2 > 4$$

$$\text{and for large } n_1 \text{ and } n_2, \text{ SD} = \sqrt{\frac{2(n_1 + n_2)}{n_1 n_2}}$$

3. F – distribution has a positive skewness.

Sampling theory

Basic principles of sample survey:

- (a) Law of Statistical regularity
- (b) Principle of Inertia
- (c) Principle of Optimization
- (d) Principle of Validity

When complete information is collected for all the units belonging to a population, it is defined as **complete enumeration or census**. In most cases, we prefer sample survey to complete enumeration.

Errors in Sample Survey:

Errors or biases in a survey may be defined as the deviation between the value of population parameter as obtained from a sample and its observed value. Errors are of 2 types. I. Sampling Errors II. Non-Sampling Errors

$$SE(\bar{x}) = \frac{\sigma}{\sqrt{n}} \text{ for SRS WR}$$

$$= \frac{\sigma}{\sqrt{n}} \cdot \sqrt{\frac{N-n}{N-1}} \text{ for SRS WOR}$$

$$SE(p) = \sqrt{\frac{pq}{n}} \text{ for SRS WR}$$

$$= \sqrt{\frac{pq}{n}} \cdot \sqrt{\frac{N-n}{N-1}} \text{ for SRS WOR .}$$

SRSWR and SRSWOR stand for simple random sampling with replacement and simple random sampling without replacement.

The factor $\sqrt{\frac{N-n}{N-1}}$ is known as finite population correction (fpc) or finite population multiplier and may be ignored as it tends to 1 if the sample size (n) is very large or the population under consideration is infinite when the parameters are unknown, they may be replaced by the corresponding statistic.

Different types of sampling which are:

I. Probability Sampling:

- Simple Random Sampling (SRS)
- Stratified Sampling
- Multi Stage Sampling

II. Non – Probability Sampling:

Purposive or Judgement sampling

III. Mixed Sampling

Systematic Sampling

Theory of Estimation:

The criterion for an ideal estimator are

- (a) Unbiasedness and minimum variance
- (b) Consistency and Efficiency
- (c) Sufficiency

Point Estimation:

The point estimator of population mean, population variance and population proportion are the corresponding sample statistics.

Statistical Measure	Mean	Std. Deviation	Proportion	Size
Sample	$\bar{X}$	s	p	n
Population	μ	σ	P	N

Parameter is associated with population & Statistic is associated with Sample.

Interval Estimation: Instead of estimating a parameter by a single value, we may consider an interval of values which is supposed to contain the parameter.

INTERVAL ESTIMATION OF POPULATION MEAN (μ) FROM A LARGE SAMPLE ($n \geq 30$)

Level of Significance α	Confidence level $1 - \alpha$	Critical Value Z_α	Lower limit $\bar{X} - [Z_\alpha \times S.E.(\bar{X})]$	Upper limit $\bar{X} + [Z_\alpha \times S.E.(\bar{X})]$
10%	90%	1.64	$\bar{X} - [1.64 \times S.E.(\bar{X})]$	$\bar{X} + [1.64 \times S.E.(\bar{X})]$
5%	95%	1.96	$\bar{X} - [1.96 \times S.E.(\bar{X})]$	$\bar{X} + [1.96 \times S.E.(\bar{X})]$
2%	98%	2.33	$\bar{X} - [2.33 \times S.E.(\bar{X})]$	$\bar{X} + [2.33 \times S.E.(\bar{X})]$
1%	99%	2.58	$\bar{X} - [2.58 \times S.E.(\bar{X})]$	$\bar{X} + [2.58 \times S.E.(\bar{X})]$
0.27%	99.73%	3.00	$\bar{X} - [3.00 \times S.E.(\bar{X})]$	$\bar{X} + [3.00 \times S.E.(\bar{X})]$

INTERVAL ESTIMATION FROM A SMALL SAMPLE (When $n < 30$ & σ is not known)

C. I. for $\mu = \bar{X} \pm \left[t_{\left(\frac{\alpha}{2}, n-1\right)} \times S.E.(\bar{X}) \right]$	C. I. for P = $p \pm \left[t_{\left(\frac{\alpha}{2}, n-1\right)} \times S.E.(p) \right]$
--	--

Here $\frac{\alpha}{2}$ is the level of significance & $(n - 1)$ is the degrees of freedom

DETERMINATION OF SAMPLE SIZE

The determination of sample size for estimating a mean or proportion is a crucial question. If the sample size is too small it may affect reliability & a larger one will mean more cost & time. To determine the sample size for any specified level of precision, we use the following methods:

SAMPLE SIZE FOR ESTIMATING POPULATION MEAN

$$n = \left(\frac{Z\sigma}{E} \right)^2$$

E is the permissible error while estimating μ
 σ is the population standard deviation

SAMPLE SIZE FOR ESTIMATING A PROPORTION

$$n = \frac{Z^2 P Q}{E^2}$$

E is the permissible error while estimating P
P is population proportion (If not known use p)

Index Numbers

It is a special average to measure relative change in a set of observations (price/qty) from time to time or place to place. Index number is defined as ratio or average of ratio expressed as percentage.

Index Time Series: It is a list of index no. for two or more periods where each index no. employs same base.

Two broad types of index numbers:

(A) Simple (Only 1 variable is involved)

(B) Composite (multiple variables are involved).

Three principle types of index numbers:

1. Price Index Numbers:

P_{01} -

0= base year,

1 = current year.

It is also called as index of 1 on 0.

$$\text{Price Index Relative} = \frac{P_n}{P_0} \times 100$$

2. Quantity Index Number:

Q_{01} -

$$\text{Quantity Index Relative} = \frac{Q_n}{Q_0} \times 100$$

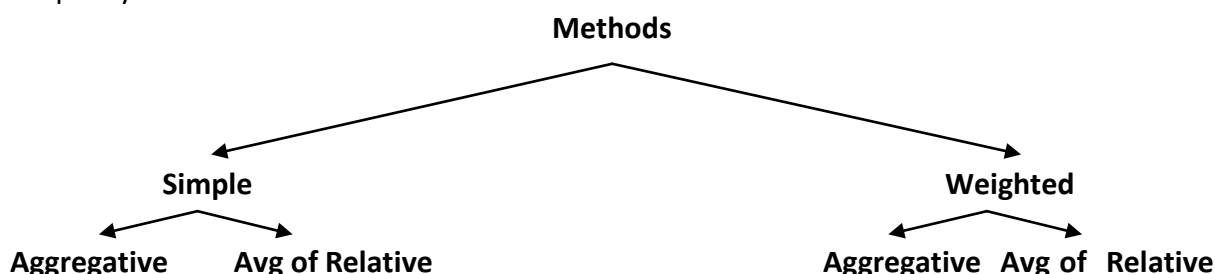
3. Value Index number:

V_{01} -

$$\text{Value Index Relative} = \frac{P_n Q_n}{P_0 Q_0} \times 100$$

Use of average for Index Number:

GM is better in averaging relatives. However most of the index no. use AM because of simplicity.



1. Simple Aggregative Method:

$$\frac{\sum P_n}{\sum P_0} \times 100$$

Demerits:

Price becomes default weights. However weight should be given on basis of relative imp. It is affected by units.

2.Simple average of relative:

$$AM = \frac{\sum \frac{P_n}{P_0} \times 100}{N}$$

It is not affected by units but equal importance is given.

Weighted methods:

$$\text{Weighted Aggregative} = \frac{\sum P_n \cdot W}{\sum P_0 \cdot W} \times 100$$

a) **Laspeyres's Index no.** $= \frac{\sum P_n Q_0}{\sum P_0 Q_0} \times 100$

Wt. is qty of base year. (Wholesale Price Index)

b) **Pasche's no.** $= \frac{\sum P_n Q_n}{\sum P_0 Q_n} \times 100$

Wt. is current year quantity.

c) **Fischer's price Index:**

Fisher's ideal Price Index: This index is the geometric mean of Laspeyres' and Paasche's.

$$\text{Fisher's Index} = \sqrt{\frac{\sum P_n Q_0}{\sum P_0 Q_0} \times \frac{\sum P_n Q_n}{\sum P_0 Q_n}} \times 100$$

- It considers both base year quantity and current year quantity.
- It is an ideal index number.

d) **Marshall Edgeworth price index:**

$$= \frac{\sum P_n Q_0 + \sum P_n Q_n}{\sum P_0 Q_0 + \sum P_0 Q_n} \times 100$$

e) **Kelly's / weighted agg. With fixed weights**

$$= \frac{\sum P_n Q}{\sum P_0 Q} \times 100$$

f) **Dorbish boweley's price index**

$$= \frac{L + P}{2}$$

Weighted average of Price relative:

Arithmetic mean:

$$\frac{\sum \frac{P_n}{P_o} \times (P_o Q_o)}{\sum P_o Q_o} \times 100 = \frac{\sum P_n Q_o}{\sum P_o Q_o} \times 100$$

Chain Index number:

First find out link relatives i.e. Price of current year

Price of previous year

$$\text{i.e. } \frac{P_n}{P_{n-1}} \times 100$$

Chain index with fixed base

$$= \frac{\text{Link relatives of current period} \times \text{Chain index of previous year}}{100}$$

Earlier formulae were based on fixed base method and they reflex relative change in any year with change in fixed year called base year.

For chain index no. series of index no. are computed considering preceding year as base year (link relative), then link relatives are chained together by successive multiplication to form a chain index.

Deflating:

Deflated value is real purchasing power of money.

To find out real wages we use concept of deflating.

$$\text{Deflated value} = \frac{\text{Current value} \times 100}{\text{Price index of current year}}$$

Shifting & Splicing of index numbers:

1. Shifting:

$$\text{Shifted index no.} = \frac{\text{Original price index} \times 100}{\text{Price index of year on which it has to be shifted}}$$

2. Splicing:

It is a process of merging two or more sets of overlapping index no.

Test of adequacy:

There are four tests that have been suggested to determine adequacy of index no. formula.

1. **Unit Test:** This test is satisfied when index no. formula is independent of units.

Except simple agg method, all formula satisfy this test.

2. **Time reversal test:** To satisfy this test $P_{01} \cdot P_{10} = 1$.

Time reversal test is satisfied by following:

- Simple aggregate.
- Simple GM of price relative.
- Fisher.
- Marshall Edgeworth.

- Kelly.
- Weighted GM of price relative.

Following does not satisfy this test:

- Simple Am of price relative.
- Laspeyre.
- Paasche.
- Weighted Am of price relative.

3. Factor Reversal test:

This test is satisfied when $P_{01} \times Q_{01} = V_{01}$

$$P_{01} \cdot Q_{01} = \frac{\sum P_1 Q_1}{\sum P_0 Q_0}$$

This test is satisfied by Fisher. Hence it is the ideal method.

This implies that two items i.e. price & quantity can be interchanged.

4. Circular test:

- It is an extension of time- reversal test.
- It is concerned with measurement of price changes over a period of years when it is desirable to shift base.
- If $P_{01} \cdot P_{12} \cdot P_{20} = 1$.
- This test is satisfied by
 - a) Simple GM of price relative.
 - b) Weighted agg with fixed base i.e Kelly.

CA – CPT

**General Economics
(50 Marks)**

Revision Notes

Introduction to Micro Economics

'Economics' - Origin -Greek word 'Oikonomia' (Household)

Definitions and Scope of Economics:

1) Science of wealth:

Adam Smith (Father of Economics) - 1776 - Book "The Nature and Causes of Wealth of Nations": "An inquiry into the nature and causes of wealth of nations."

J B Say : "Science which deals with wealth".

Demerits: i) It is too materialistic. ii) Neglect of Welfare.

2) Science of material well-being:

Alfred Marshall (Neo-Classicist) "Economics is a study of mankind in the ordinary business of life. It examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of well-being"

A.C. Pigou: "The range of our inquiry becomes restricted to that part of social welfare that can be brought directly or indirectly into relation with the measuring rod of money".

Marshall and Pigou have considered the ethical aspects of Economics which obviously are normative.

Demerits: i) It is also materialistic. ii) The concept of welfare is very vague.

3) Science of choice making:

Prof. Lionel Robbins - Book "Nature and Significance of Economics" (1931): "Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses"

Demerits: Impersonal and colourless (Excluding normative aspects).

4) Science of dynamic growth and development:

Paul A. Samuelson: "Economics is the study of how men and society choose, with or without the use of money, to employ scarce productive resources which could have alternative uses, to produce various commodities over time and distribute them for consumption now and in the future amongst various people and groups of society".

Prof Henry Smith: "Economics, is the study of how in a civilized society one obtains the share of what other people have produced and of how the total product of society changes and is determined".

Jacob Viner: "Economics is what Economists do".

Micro and Macro-Economics:

1) Micro Economics: Greek word 'mikros'. **Prof. Boulding:** "Microeconomics is the study of particular firms, particular households, individual price, wages, income, individual industries and particular commodities". It is thus a study of a particular unit rather than all the units combined.

2) Macro Economics: Greek word 'makros'. It is the study of overall economic phenomena or the economy as a whole, rather than its individual parts. It includes: (i) national income and output; (ii) general price level; (iii) balance of trade and payments; (iv) external value of money; (v) saving and investment; and (vi) employment and economic growth.

Nature of Economics:

- 1) Economics is a science:** i) It is a systematised body of knowledge which studies the relationship between cause and effect.
ii) It is capable of measurement. (The measurement is in terms of money)
iii) It has its own methodological apparatus. (Induction and deduction)
iv) It has the ability to forecast.

However it is to be noted that Economics is not a perfect science as Economists do not have uniform opinion.

2) Economics is an art: Whereas science teaches us to know, art teaches us to do. Unlike science which is theoretical, art is practical. If we analyse Economics, we find that it has the features of an art also. It is science in its methodology and art in its application.

3) Positive Science: Positive Economics is the one that simply states facts. A positive or pure science analyses cause and effect relationship between variables, but it does not pass value judgment.

4) Normative Science:

It is prescriptive in nature and describes 'what should be the things'. Example: "This tax should be reduced."

Professor Robbins emphasised the positive aspects of science but Marshall and Pigou have considered the ethical aspects of science which obviously are normative.

Method of Studies: There are two methods of deriving generalisations or laws:

(1) Deductive method: Abstract, analytical and a priori method. Conclusions and generalisations are drawn **based on certain fundamental assumptions** or accepted truths. The logic proceeds from **general to particular**.

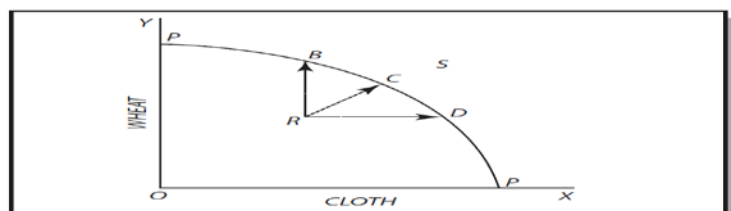
(2) Inductive Method: Under this method conclusions are drawn on the basis of collection and analysis of facts relevant to the inquiry. The logic in this case proceeds from the particular to general.

Central Economic Problems:

There is no economy without scarcity.

- (i) What to produce? (ii) How to produce? (iii) For whom to produce? (iv) What provision should be made for economic growth?

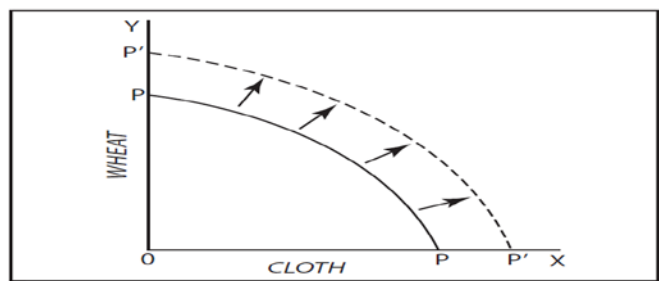
Production Possibility Curve: Production-possibility curve (PPC) or "transformation curve": Shows the different rates of production of two goods that can be produced with limited productive resources.



Increasing opportunity cost that makes the PPC concave to the origin. If opportunity costs were constant, PPC would be a straight line. Further PPC has negative slope due to scarcity of resources. **Optimum Level of production is on the Curve. Point R represents underutilisation. Point S is not possible due to limited resources.**

Economic growth and shift in Production Possibility Curve:

When the economy makes progress in technology, that is, when scientists and engineers discover new and better ways of doing things, the production possibilities curve will shift outward and to the right showing that more of both goods can be produced than before.



How do different Economies Solve their Central Economic Problem?

Capitalist economy: Capitalism is an economic system in which all means of production are owned and controlled by private individuals for profit. (Free market or laissez-faire economy)

(1) **The right of private property:** Under private ownership.

(2) **Freedom of enterprise:** Everybody free to set up any firm to produce goods and services

(3) **Freedom to choice by the consumers:** Consumer sovereignty.

(4) **Profit motive**

(5) **Competition**

(6) **Inequalities of incomes**

How do capitalist economies solve their central problems?

No central planning authority to decide what, how and for whom to produce. Such an economy uses the impersonal forces of market demand and supply or the price mechanism to solve its central problems.

Deciding what to produce: Question regarding what to produce is ultimately decided by consumers who show their preferences by spending on the goods which they want.

Deciding how to produce: Relative prices of factors of production.

Deciding for whom to produce: For those who have the buying capacity.

Deciding about consumption, saving and investment: Savings governed by the rate of interest prevailing in the market. Higher the interest rate, higher is the savings. Investment decisions depend upon the rate of return on capital.

Merits of Capitalist economy:

1. It results in high standard of living.
2. Capitalism works automatically through price mechanism.
3. Maximum efficiency in production.
4. It rewards men of initiative and enterprise.

Demerits of Capitalism

1. Rich becomes richer and poor becomes poorer.
2. Welfare is not protected
3. Economic instability
4. Class conflict arises between employer and employee.
5. Productive resources are misused.
6. Formation of monopolies.
7. There is no security of employment.

Socialist economy: Material means of production i.e. factories, capital, mines etc. are owned by the whole community represented by the State with the objective of Social Welfare. [“Command Economy” or a “Centrally Planned Economy”].

(i) Collective Ownership (ii) Central Planning Authority (iii) Absence of Consumer Choice (iv) Relatively Equal Income Distribution (v) Minimum role of Price Mechanism or Market forces

Merits of Socialism:

1. Equitable distribution of wealth and income
2. Planned economy. Better utilization of resources
3. Unemployment is minimised, business fluctuation are eliminated
4. Avoids class war.
5. Labourers and consumers are protected.

Demerits of Socialism:

1. Predominance of bureaucracy. There may also be corruption, redtapism, favouritism, etc.
2. It restricts the freedom of individuals
3. It will not provide necessary incentive to hard work in the form of profit.
4. State monopolies created by socialism will sometimes become uncontrollable.
5. The extreme form of socialism is not at all practicable.

The Mixed Economy: Aim is to develop a system which tries to include the best features of both the controlled economy and the market economy while excluding the demerits of both. Planning is done by the State Authority called Planning Commission.

Features of mixed economy:

(i) Co-existence of private and public sector

(ii) Existence of Economic Planning

(iii) Administered Price: In the private sector, prices of goods and factors of production are determined through the free play of market forces of demand and supply. In the public sector, the state determines the prices of various products.

Merits of Mixed Economy

1. Merits of both capitalism and socialism while avoiding the evils of both.
2. Mixed economy protects individual freedom.
3. Price mechanism is allowed to operate under mixed economy.
4. Reducing the inequalities of wealth and class struggle is one of the aims.
5. Economic fluctuations can be avoided

Demerits of Mixed Economy

1. Mixed economy is difficult to operate.
2. Excessive controls and heavy taxes are likely to prevail under mixed economy.
3. Problems of red-tapism, nepotism, favouritism, officialdom, etc.
4. Described by Schumpeter as “Capitalism in the oxygen tent”. It is only a trick of the capitalists to cheat the working class by offering them some temporary advantages like social security, upliftment of the depressed classes, etc.

Theory of Demand & Supply

Meaning of Demand (Flow Concept):

Demand = Desire + Ability to buy + willingness to Pay.

What determines Demand?

(1) **Price of the commodity:** Inversely related

(2) **Price of related commodities:** i.e. Price of

(a) Complementary goods (E.g. Tea & Sugar) (Inverse)

(b) Competing goods or Substitutes (E.g. Tea & Coffee) (Direct)

(3) **Level of income of the household:** Directly related. **But exceptions** i.e. There are certain commodities for which quantities demanded decrease with an increase in money income. These goods are called **inferior goods**.

(4) **Tastes & preferences of consumers**

(5) **Size of population:** Larger the size of population, greater is the demand in general. (Direct relationship)

(6) **Composition of population**

(7) **Distribution of income:** Usually Rich population less, poor population more. Therefore demand for durable goods will be less and demand for non durable goods will be more.

Law of Demand:

Alfred Marshall: Higher the price of a commodity, the smaller is the quantity demanded and vice versa. Downward sloping demand curve from left to right. It has negative slope. [Convex Curve]

Why does demand curve slope downwards? [Why Convex]

(1) **Law of diminishing marginal utility**

(2) **Substitution effect: (Hicks and Allen)** Example: X and Y are Substitutes. When the price of a commodity X falls, it becomes relatively cheaper compared to commodity Y. It induces consumers to substitute the commodity. As the result the total demand for the commodity X increases.

(3) **Income effect:** As the price of the commodity falls, consumer's purchasing power increases. This induces him to buy more of that commodity. Thus, demand for that commodity (whose price has fallen) increases.

(4) **Arrival of new consumers:** When the price of a commodity falls, number of consumers increases and hence the demand for the commodity increases.

(5) **Different uses:** If prices fall commodities can be used for varied purposes and demand for such commodities will increase. E.g. Electricity

Exceptions to the Law of Demand:

(1) **Conspicuous goods:** Articles of prestige value (**Veblen effect**) [Snob appeal]

(2) **Giffen goods:** Examples of such goods are coarse grains like **bajra, low quality rice and wheat** etc.

(3) **Conspicuous necessities:** These goods, due to their constant usage, have become necessities of life. For example, television sets, refrigerators, coolers, cooking gas etc.

(4) **Future expectations about prices**

(5) **Speculative goods**

Expansion and Contraction of Demand: [Movement along the Demand Curve]

[Only due to price]

Increase and Decrease in Demand: [Shift in Demand Curve]

[It is due to change in factor other than price]

(i) **A rightward shift in demand curve:** (when more is demanded at same price) Example: If level of income increases, then consumer will demand more goods at same price.

(ii) **A leftward shift in demand curve:** (when less is demanded at same price) Example: If level of income decreases, then consumer will demand fewer goods at same price.

Elasticity of Demand:

Elasticity of demand is defined as the responsiveness of the quantity demanded of a good to changes in prices, income of the consumers, taste etc (factors) on which demand depends.

Price Elasticity:

In symbolic terms

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

Point elasticity: [Small Change]

In point elasticity, we measure elasticity at a given point on a demand curve.

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

(dq = change in quantity) (dp = change in price) (p = Original price) (q = Original Quantity)

[Or else information will be given to calculate derivative]

Given a straight line demand curve tT, point elasticity at any point say R can be found by using the formula.

$$\frac{RT}{Rt} = \frac{\text{lower segment}}{\text{upper segment}}$$

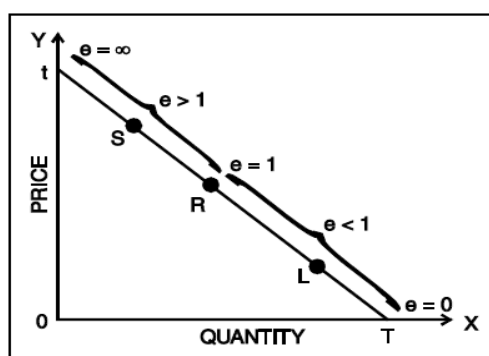


Fig.: 6(a) : Elasticity at different points on the demand curve

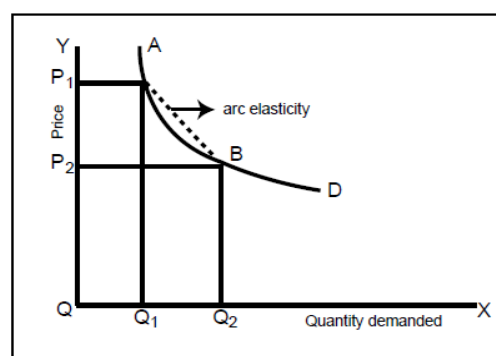
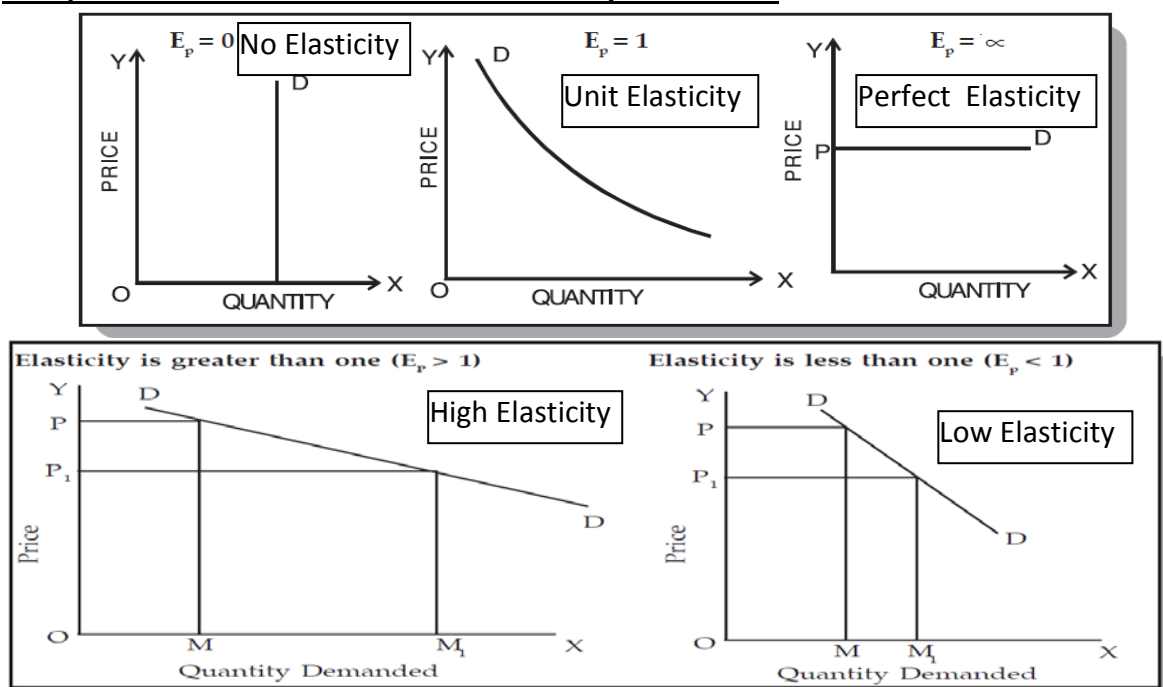


Fig. 7 : Arc Elasticity

Arc-elasticity: (Just a new method)

$$E_p = \frac{q_1 - q_2}{q_1 + q_2} \times \frac{p_1 + p_2}{p_1 - p_2}$$

Interpretation of numerical values of elasticity of demand:



Total Outlay Method of Calculating Price Elasticity:

- (i) Price increase or decrease & Total Expenditure remain same, **then Unit Elasticity**
- (ii) Price Increase & Total Expenditure increase or
Price decrease & Total expenditure decrease,
then Low elasticity.
- (ii) Price Increase & Total Expenditure Decrease or
Price decrease & Total expenditure Increase,
then High elasticity.

Determinants of Price Elasticity of Demand:

- (1) **Availability of substitutes:** [$S \uparrow E \uparrow$ & Vice Versa]
- (2) **Position of a commodity in a consumer's budget:** [Share in Income $\uparrow E \uparrow$ & Vice Versa]
- (3) **Nature of need that a commodity satisfies:** [If Luxury then $E \uparrow$ & if Necessities then $E \downarrow$]
- (4) **Number of uses to which a commodity can be put:** [Number of use $\uparrow E \uparrow$ & Vice Versa]
- (5) **Time period:** [Time Period $\uparrow E \uparrow$ & Vice Versa]
- (6) **Consumer habits:** [Addiction $\uparrow E \downarrow$ & Vice Versa]
- (7) **Tied demand:** Normally inelastic.
- (8) **Price range:** Goods which are in very high price range or in very low price range have inelastic demand, but those in the middle range have elastic demand.

Income Elasticity of Demand:

Income elasticity of demand is the degree of responsiveness of quantity demanded of a good to a small change in the income of consumers.

Consumer Behaviour:

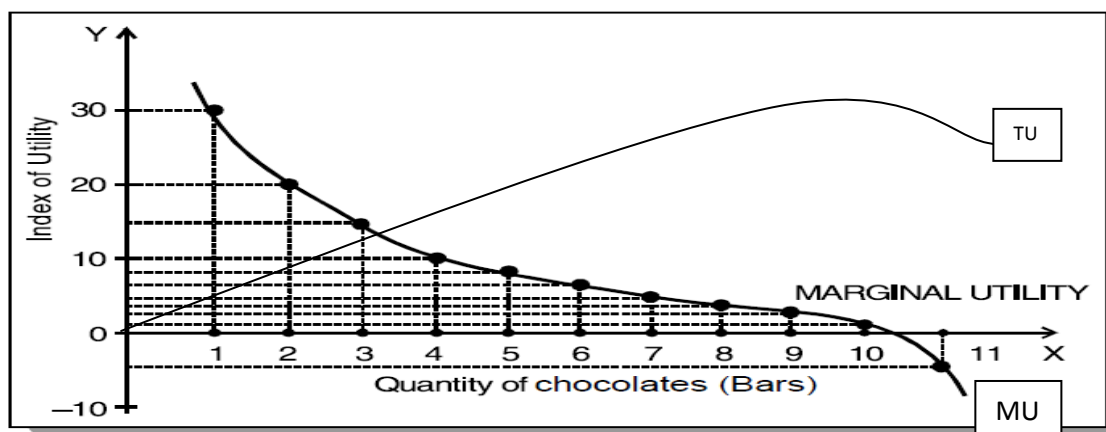
All Desires + Tastes + Motives = Human Wants.

Classification of wants: 1) Necessaries 2) Comforts 3) Luxuries

What is Utility? Utility is the want satisfying power of a commodity. The concept of utility is ethically neutral.

The Law of Diminishing Marginal Utility:

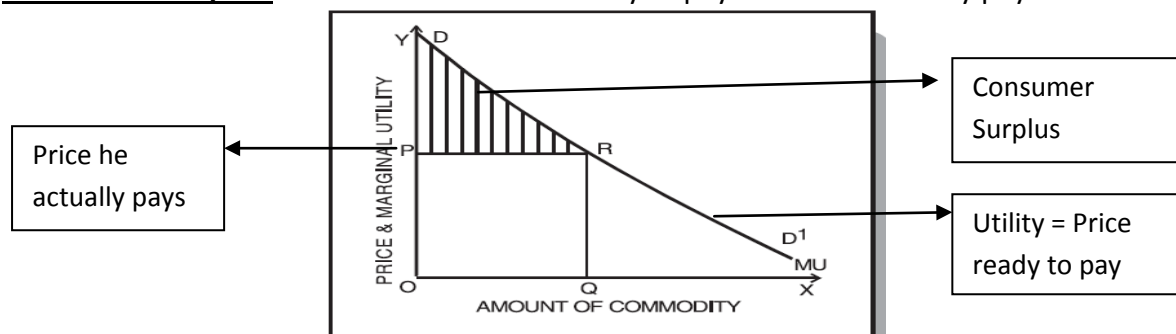
"The additional benefit which a person derives from a given increase in stock of a thing diminishes with every increase in the stock that he already has"



Limitations of the Law: (Assumptions) (1) Homogenous units (2) Standard units of Consumption (3) Continuous Consumption (4) The Law fails in the case of prestigious goods

Extra Assumptions: (1) The Cardinal Measurability of Utility (2) Constancy of the Marginal Utility of Money

Consumer's Surplus: = What a consumer is ready to pay - What he actually pays.

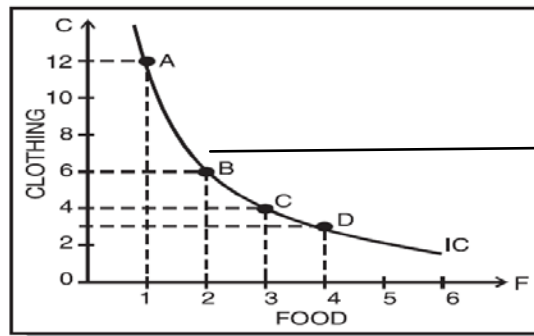


[At equilibrium $MU = \text{Price}$ i.e. at point R. So Consumer Surplus = 0]

[If TU given then surplus = TU (We get) – MU*Number of Units (We Pay)]

Indifference Curve Analysis: An ordinal concept.

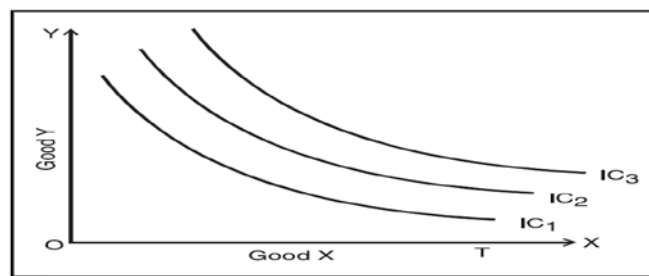
Indifference Curves: An indifference curve is a curve which represents all those combinations of two goods which give same satisfaction to the consumer. Since all the combinations on an indifference curve give equal satisfaction to the consumer, the consumer is indifferent among them.



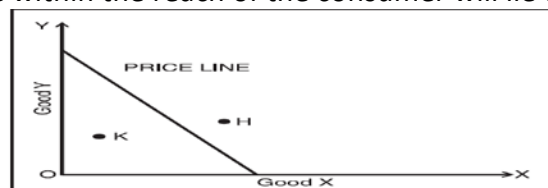
Convex –
Because
opportunity
cost i.e. MRS
goes on
reducing.
[Reason
DMU]

[Indifference curve is a L- Shaped (Right angled) curve if goods are perfect compliments]
[If MRS increases shape will become – Concave]

Indifference Map:



Budget Line: A budget line shows all those combinations of two goods which the consumer can buy spending his given money income on the two goods at their given prices. All those combinations which are within the reach of the consumer will lie on the budget line.



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

Consumer's Equilibrium:

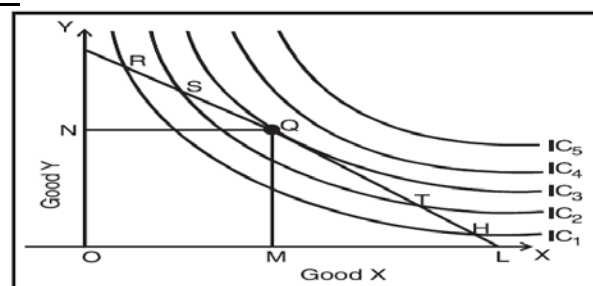


Fig. 18 : Consumer's Equilibrium

Therefore consumer attains Equilibrium at the point where budget line is tangent to the Indifference Curve. (I.e. point Q)

At equilibrium point Q,

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

Supply: 'Supply' refers to the amount of a good or service that the producers are willing and able to offer to the market at various prices during a period of time. (Flow Concept)

Determinants of Supply:

- (1) **Price of the good** [Price ↑ Supply ↑ and vice versa]
- (2) **Prices of related goods** [Price of related goods ↑ Supply of concerned goods ↓ and vice versa]
- (3) **Prices of factors of production**
- (4) **State of technology** [Better technology – more supply and vice versa]
- (5) **Government Policy** [Taxes ↑ Supply ↓ & vice versa][Subsidies ↑ Supply ↑ & vice versa]

Law of Supply:

Other things remaining constant, the quantity of a good produced and offered for sale will increase as the price of the good rises and decrease as the price falls.

Expansion and Contraction of Supply: [Movement along the Supply Curve] [Only due to price]

Increase and Decrease of supply: [Shift in Supply Curve] [It is due to change in factor other than price]

Elasticity of Supply:

The elasticity of supply is defined as the responsiveness of the quantity supplied of a good to a change in its price.

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

Point Elasticity:

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

Arc-Elasticity:

$$E_s = \frac{q_1 - q_2}{q_1 + q_2} \times \frac{p_1 + p_2}{p_1 - p_2}$$

Equilibrium Price: At Point Demand = Supply

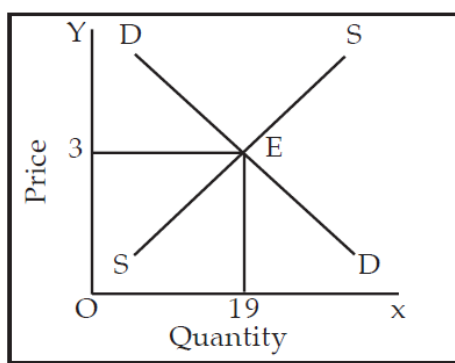


Fig. 27 : Equilibrium Price

Theory of Production & cost

Meaning of Production: Making of any material goods or providing any service is considered as production, provided it satisfies the wants of some people. Process of production is nothing but creation of form utility, place utility, time utility and personal utility.

Factors of Production:

1) Land: It does not mean soil or earth's surface alone, but refers to all free gifts of nature which would include natural resources, fertility of soil, water, air, natural vegetation etc. It is a passive factor.

2) Labour: Labour, to have an economic significance, must be one which is done with the motive of some economic reward. It implies that any work done for the sake of pleasure or love does not represent labour in Economics.

(i) Labour is perishable (ii) The supply of labour and wage rate are directly related. It implies that, as the wage rate increases the labourer tends to increase the supply of labour by reducing the hours of leisure (iii) Labour is mobile (Active)

Land and labour are not produced factors but are primary or original factors of production.

3) Capital: We may define capital as that part of wealth which is used for further production i.e 'produced means of production'. Machine, tools, instruments, factories, dams, canals, transport equipment etc., are some of the examples of capital.

Types of Capital:

i) **Fixed capital** (For example tools, machines, etc.)

ii) **Circulating capital** (For example stock of raw materials, etc.)

iii) **Real capital** refers to physical goods such as building, plant, machines, etc.

iv) **Human capital** refers to human skill and ability.

v) **Intangible capital.** For example, goodwill, patent rights, etc.

vi) **Individual capital** is the personal property owned by an individual or group of individuals.

vii) **Social Capital** is what belongs to the society as a whole in the form of roads, bridges, etc.

Capital formation: [Consumption ↓ Savings ↑ Investment ↑ Capital ↑]

Stages of capital formation: a) Savings b) Mobilisation of savings (Bank or Financial Institution mobilises savings) c) Investment (By entrepreneurial class)

4) Entrepreneur: Entrepreneur mobilises above factors, combines them in the right proportion, initiates the process of production and bears the risks involved in it.

Functions of an entrepreneur: (i) Initiating a business enterprise and resource co-ordination (ii) Risk bearing (iii) Innovations

Production Function: [Technical relationship between input and output]

The maximum amount of output that can be produced with given quantities of inputs under a given state of technical knowledge.

Cobb-Douglas production function: $Q = KL^a C^{(1-a)}$

Where 'Q' is output, 'L' the quantity of labour and 'C' the quantity of capital. 'K' and 'a' are positive constants. The conclusion drawn from this famous statistical study is that labour contributed about 3/4th and capital about 1/4th of the increase in the manufacturing production.

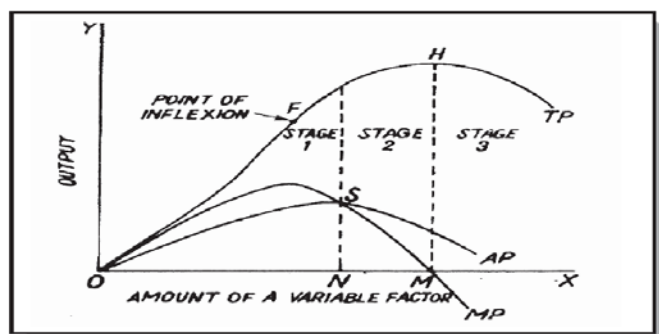
Law of variable proportions: (Short Run Concept)

The law states that as we increase the quantity of one input which is combined with other fixed inputs, the marginal physical productivity of the variable input must eventually decline.

Total Product (TP): Total output from all the factors of production.

Average Product (AP): Output per unit of the variable factor.

Marginal Product (MP): Change in total product per unit change in the variable factor.

**Relationship between Average Product and Marginal Product:**

- (i) When average product rises, marginal product is more than the average product.
- (ii) When average product is maximum, marginal product is equal to average product. In other words, the marginal product curve cuts the average product curve at its maximum.
- (iii) When average product falls, marginal product is less than the average product.

Particulars	Short Run	Long Run
Normal Assumptions	At least 1 factor fixed	All factors can change
Law of Variable Proportions Assumptions	Only 1 factor changes	-

Stage 1: The Law of Increasing Returns: (Reason)

- a) The efficiency of the fixed factors (E.g. Machine) increases as additional units of the variable factors (E.g. Labour) are added to them. (Indivisibility of fixed factors)
- b) As more units of the variable factors are employed, the efficiency of the variable factors itself increases due to division of labour and specialisation.

Stage 2: Law of diminishing returns: This is because once the amount of variable factor is sufficient to ensure efficient utilisation of the fixed factor, any further increases in the variable factor will cause marginal and average product to decline. This stage is very important because the firm will seek to produce in its range.

Stage 3: Law of negative returns: This stage is called the stage of negative returns since the marginal product of the variable factor is negative during this stage. This is due to the fact that the quantity of the variable factor becomes too excessive relative to the fixed factor so that they get in each other's ways with the result that the total output falls instead of rising.

Stage of Operation:

A rational producer will also not produce in stage 1 where the marginal product of the fixed factor is negative. A rational producer will never produce in stage 3 where marginal product of the variable factor is negative. These stages are called stages of economic absurdity or economic non-sense. Thus a rational producer will always produce in stage 2.

Law of Returns to Scale: (Long Run Concept) All factors of production are increased or decreased.

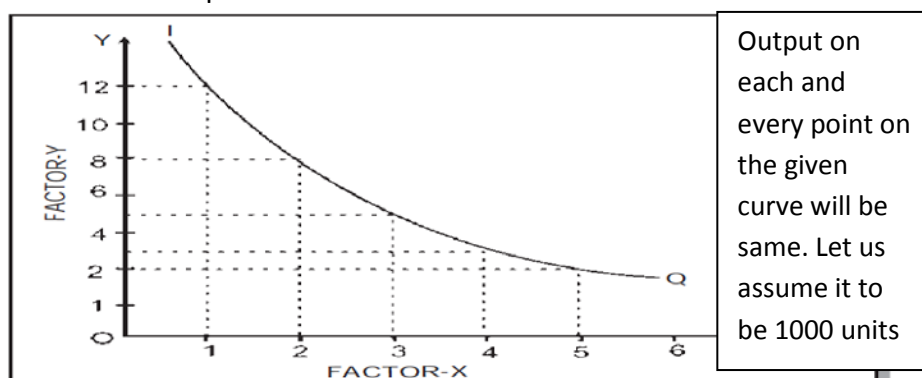
Increasing returns to scale: Increasing returns to scale means that output increases in a greater proportion than the increase in inputs. When a firm expands, increasing returns to scale are obtained in the beginning. (External and Internal Economies)

Constant returns to scale: Constant returns to scale means that with the increase in output in some proportion, output increases in the same proportion.

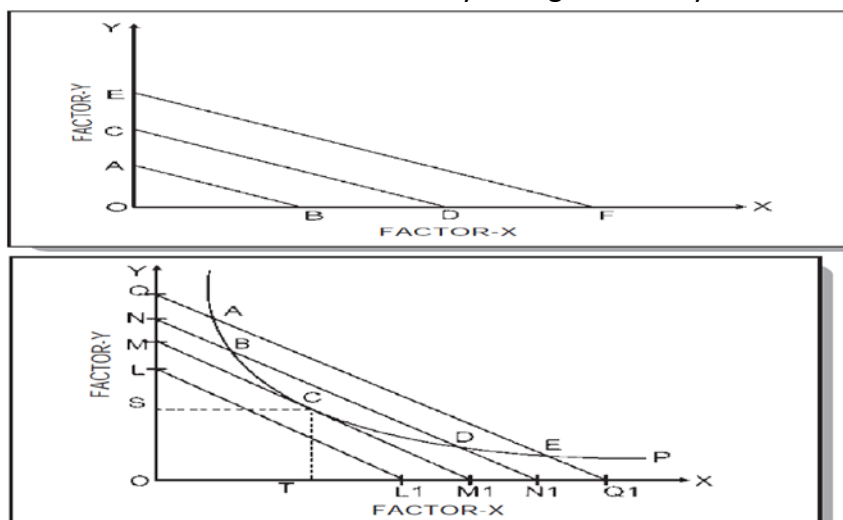
Decreasing returns to scale: When output increases in a smaller proportion with an increase in all inputs, decreasing returns to scale are said to prevail. Eventually when the firm has expanded to a very large size, it is difficult to manage it with the same efficiency.

Production Optimisation: Helps to determine what combination of inputs would minimise its cost of production.

1) Isoquants: An isoquant represents all those combinations of inputs which are capable of producing the same level of output.



Iso-cost or Equal-cost Lines: Iso-cost line represents the prices of factors. It shows various combinations of two factors which the firm can buy with given outlay



Equilibrium Point: Point C (Lowest cost for given output)

Theory of Cost:

1) Accounting costs (Explicit cost) and economic costs (Explicit + Implicit cost):

Accounting costs - Cash payments

Economic costs - In addition, it also takes into account the amount of money that could have earned if factors of production was invested in the next best alternative uses.

2) Outlay costs (Explicit) and opportunity costs (Implicit cost)

3) Direct or traceable costs and indirect or non-traceable costs:

Direct costs - Readily identified and are traceable to a particular product.

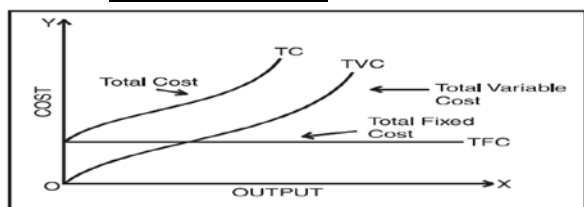
Indirect costs - Neither readily identified nor visibly traceable to specific goods.

4) Fixed and variable costs:

Fixed - Do not vary with output. (Inescapable or uncontrollable costs) (Rent)

Variable costs - Are a function of output. E.g. Wages.

Short Run Costs: $TC = TFC + TVC$



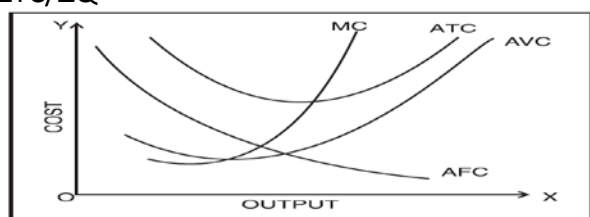
Short run average cost: (Plant Curves)

1) **Average fixed cost (AFC):** $(AFC = TFC/Q)$ TFC remains constant, Q changes. Therefore AFC curve goes on decreasing (Downward Sloping Curve).

2) **Average Variable Cost:** $(AVC = TVC/Q)$ TVC changes as Q changes. Therefore if plotted on graph AVC will first fall, then will again start increasing.

3) **Average Total Cost:** $(ATC = TC/Q)$ or $(AFC + AVC)$ As both AFC and AVC fall in the beginning, even ATC will first fall and then begins to rise.

4) **Marginal Cost:** $MC = \Delta TC / \Delta Q$



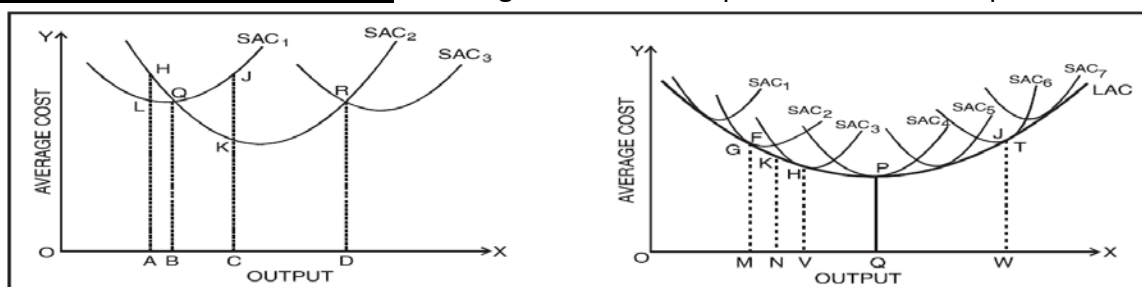
Relationship between Average Cost and Marginal Cost:

(1) When average cost falls, marginal cost is less than average cost.

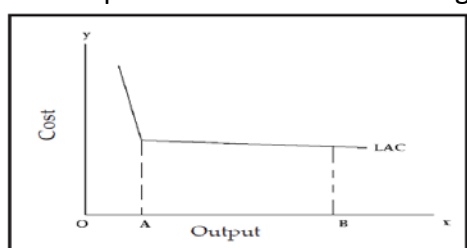
(2) When average cost rises, marginal cost is more than average cost.

(3) When average cost is minimum, marginal cost is equal to the average cost.

Long Run Average Cost Curve: Planning curve or Envelope curve or Boat shape Curve.



However Modern firms face L shaped cost curve due to change in technology.



Price Determination in Different Markets

Concept of Total Revenue, Average Revenue and Marginal Revenue:

Total Revenue: $TR = P \times Q$

Average Revenue: $AR = TR/Q$ or $AR = P \times Q/Q$ or $AR = P$

Marginal Revenue: $MR = \Delta TR / \Delta Q$ or $MR_n = TR_n - TR_{n-1}$

Marginal Revenue, Average Revenue, Total Revenue and Price Elasticity of Demand:

$MR = AR \times \frac{e-1}{e}$, Where e = price elasticity of demand

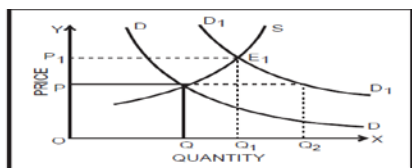
Thus if $e = 1$, $MR = AR \times \frac{1-1}{1} = 0$.

and if $e > 1$, MR will be positive

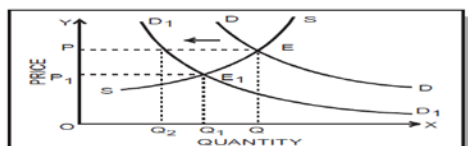
and if $e < 1$, MR will be negative

(MR corresponding to the middle point of the demand curve will be zero as $e = 1$)

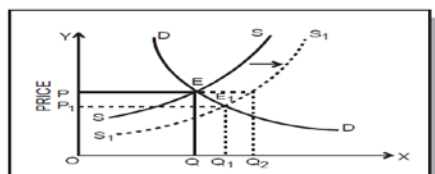
Changes in Demand & Supply: (Word change implies change in Demand or Supply for reason other than Price)



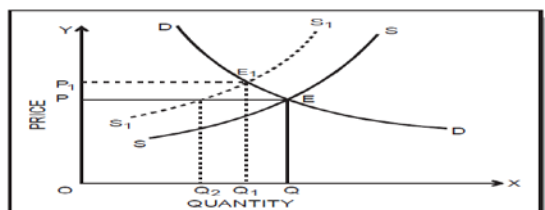
Increase in Demand, causing an increase in equilibrium price and quantity



Decrease in Demand resulting in a decrease in price and quantity demanded

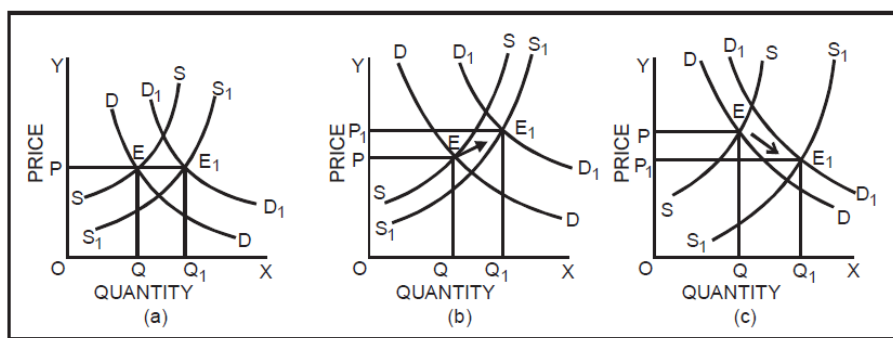


Increase in supply, resulting in decrease in equilibrium price and increase in quantity demanded and supplied.



Decrease in supply causing an increase in the equilibrium price and a fall in quantity demanded and supplied.

Simultaneous Changes in Demand and Supply:



a) Increase in Demand = Increase in Supply. The New Equilibrium Price = The Old Equilibrium Price. [Price same but quantity increases]

b) Increase in demand > Increase in supply. Hence, The New Equilibrium Price > The Old Equilibrium Price. [Price increases and quantity also increases]

c) Increase in Supply > Increase in Demand. Hence, The New Equilibrium Price < The Old Equilibrium Price. [Price decreases but quantity increases]

Perfect Competition: (Vegetable market – Potato) (Myth) (Ideal)

(1) There are large numbers of buyers and sellers and no buyer or seller is in a position to influence the demand or supply in the market.

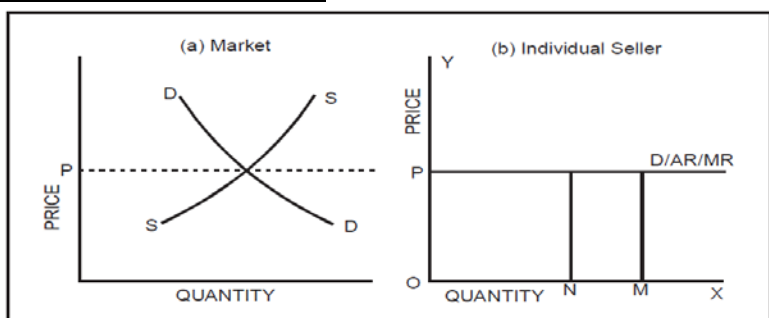
(2) The commodity dealt in it is homogeneous, i.e. identical in nature.

(3) Every firm is free to enter the market or to go out of it.

(4) The commodity or the goods are sold at a uniform price throughout the market.

(5) Industry – Price Maker, Firm – Price – Taker.

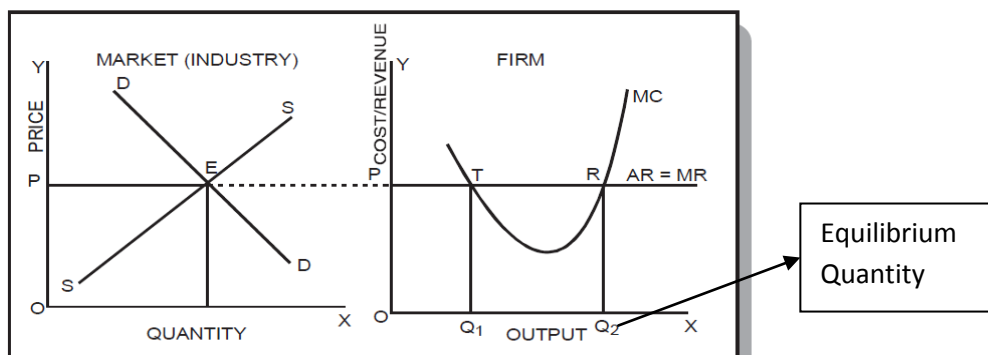
Equilibrium of the Firm (Price Taker):



Conditions for equilibrium of a firm:

(i) $MR = MC$.

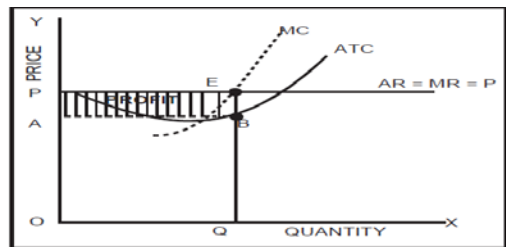
(ii) The MC curve should cut MR curve from below.



Short Run:

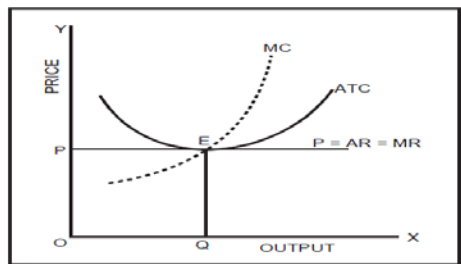
Supernormal Profits:

If $AR > ATC$

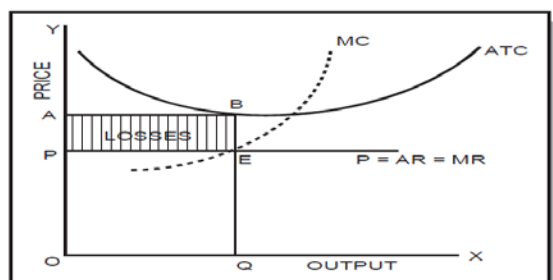


[For calculation of equilibrium we see MR & MC] [For calculation of profit - AR & ATC]

Normal profits: When $AR = ATC$.



Losses: $AR < ATC$

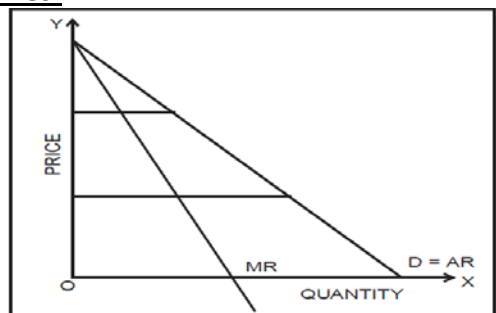


Long Run Equilibrium of the Firm: (Always Normal Profit)

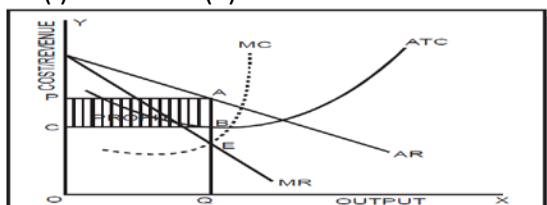
Monopoly: (Curve is inelastic) Monopoly is a situation in which there is a single seller of a product which has no close substitute. Pure monopoly is never found in practice. However, in public utilities such as transport, we generally find a monopoly form of market.

(1) Single seller of the product (So Market = Individual Seller) (2) Restrictions to Entry (3) No close-substitutes (Cross elasticity = Zero)

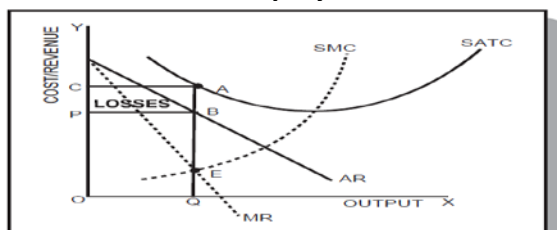
Monopolist's Revenue Curves:



Equilibrium of the monopoly firm: A monopolist has to determine not only his output but also the price of his product. The twin conditions for equilibrium in a monopoly market are the same as discussed earlier. (i) $MC = MR$ (ii) MC curve must cut MR curve from below.



Firm's equilibrium under monopoly : maximisation of profits



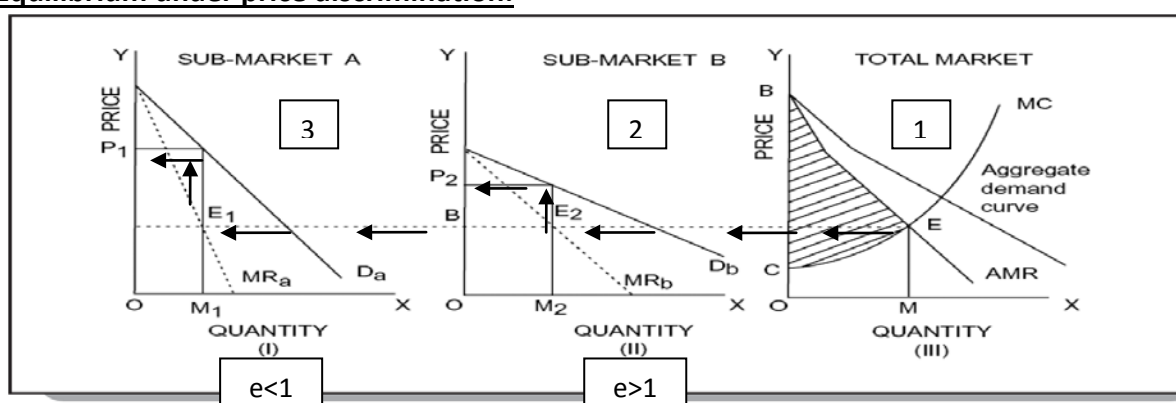
Equilibrium of the monopolist : Losses in the short run

However, one thing is certain: The monopolist will not continue if he makes losses in the long run. He will continue to make super normal profits even in the long run as entry of outside firms is blocked.

Price Discrimination: Conditions for price discrimination:

- (i) Monopoly power necessary to discriminate price.
- (ii) The seller should be able to divide his market into two or more sub-markets.
- (iii) The price-elasticity of the product should be different in different sub-markets. The monopolist fixes a high price for his product for those buyers whose price elasticity of demand for the product is less than one.
- (iv) It should not be possible for the buyers of low-priced market to resell the product to the buyers of high-priced market.

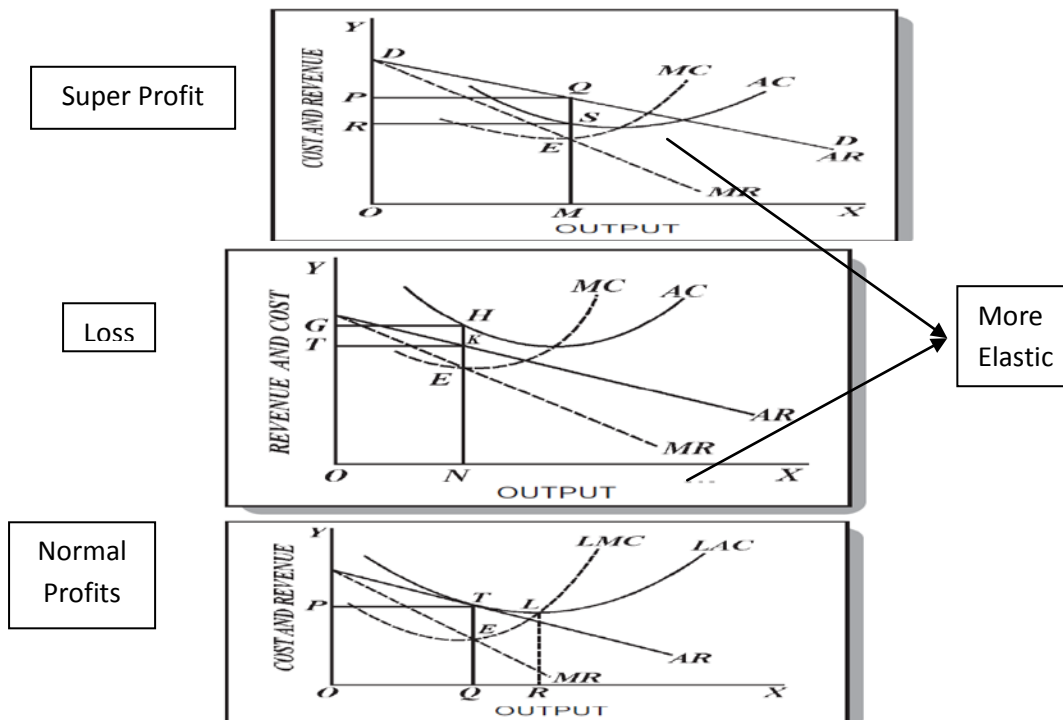
Equilibrium under price discrimination:



Imperfect Competition – Monopolistic Competition: (E.g. Soaps & detergents)

Features of Monopolistic Competition: (i) Large number of sellers (ii) Product differentiation (iii) Freedom of entry or exit (iv) Non-price competition

Equilibrium of a firm: (i) $MC = MR$ (Maximum profits or minimum losses) (ii) MC curve must cut MR curve from below.

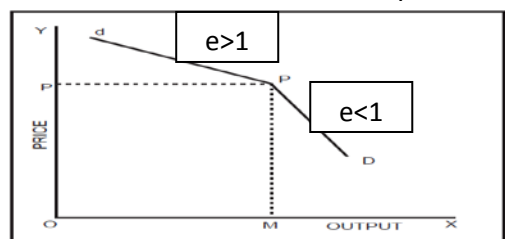


Oligopoly: When there are few (two to ten) sellers in a market selling homogeneous or differentiated products, oligopoly is said to exist.

Types of Oligopoly:

- 1) Pure oligopoly or perfect oligopoly** occurs when the product is homogeneous in nature. **Differentiated or imperfect oligopoly** is based on product differentiation.
- 2) Open and closed oligopoly:** In an open oligopoly market new firms can enter the market and compete with the existing firms. But, in closed oligopoly entry is restricted.
- 3) Collusive and Competitive oligopoly:** When few firms of the oligopolistic market come act in collusion with each other in fixing price and output, it is collusive oligopoly. When there is an absence of such understanding among the firms and they compete with each other, it is called competitive oligopoly.
- 4) Partial or full oligopoly:** Oligopoly is partial when the industry is dominated by one large firm which is considered or looked upon as the leader of the group. The dominating firm will be the price leader. In full oligopoly, the market will be conspicuous by the absence of price leadership.

Characteristics of Oligopoly Market: (1) Interdependence (2) Importance of advertising **Kinked Demand Curve:** (American economist Paul A. Sweezy - Sweezy's Model) It is because the segment of the demand curve above the prevailing price level is highly elastic and the segment of the demand curve below the prevailing price level is inelastic.



Chapter 5: Indian Economy – A Profile

Features of an Underdeveloped Economy:

- 1) Nearly 60 to 80 % of the population is engaged in agriculture. In India - Independence – 72 %. Today, nearly **49 %**.
- 2) Poverty is wide-spread. In India - One third of the world's poor live in India. 21.9% of population in India is poor.
- 3) Population grows at about more than 2 % per annum.
- 4) The standard of living of people is generally low. India's Per Capita Income (PCI) = \$1499 in 2013.
- 5) Saving and capital formation rate is low.

In India, Gross Domestic Savings Rate = **30.1%**. Gross Domestic Capital Formation = **34.8 %**.

- 6) The incidence of unemployment and underemployment is quite high.

In India - Unemployment rate = **5.6 % (Given by NSSO) (National Sample Survey Organisation)**

- 7) The level of human well-being is generally low. It is measured by (HDI) developed by (UNDP) (Composite of three basic indicators of human development - longevity, knowledge and standard of living). India's relative global ranking on this index has remained at a low of 136 among 187 countries. **Further HDI improved to 0.554 in 2012 (Higher HDI is better) (But China , Srilanka ,Thailand have better HDI)**

- 8) Income inequalities are widespread.

In order to measure the Inequality of income and wealth, Gini Index is used.

If Gini Index = 0 = Perfect Equality, If Gini Index = 1 = Perfect Inequality.

In India, Gini index = 0.334. **(But it is better than South Africa, Brazil, Thailand , China & even USA)**

We may rush to the conclusion that Indian economy is an underdeveloped economy. But that is not completely true.

India – A Developing Economy:

(1) Rise in National income: NNP Increased to **Rs 50,00,000** cr in 2013-14 (**18** times since 1950 – 51)

(2) Rise in Per Capita Income: Per capita income rose to Rs **39904** in **2013-14**. (**4.5** times since 1950 – 51)

(3) Significant changes in occupational distribution of population:

Table 1: Occupation Distribution of Working Population in India

Occupation	Latest (2011-12)
Primary Sector	48.9%
Secondary Sector	24.3%
Tertiary Sector	26.9%

Table 2 : Composition of GDP

Area	Latest (2013-14)
Agriculture	13.9%
Industry	26.1%
Service	59.9%

(4) Development of strong industrial base: E.g. Iron & steel, Machine tools, etc.

(5) Improvements in social overhead capital:

- Indian railways covers more than 65,000 kilometres. Indian railways is world's fourth largest rail network.
- The Indian road network has become *one of the largest networks* in the world aggregating 4.86 million kilometers.
- In 2011-12, the installed electricity generating capacity was about more than 2,43,000 MW
- Similarly, irrigation facilities have increased to 63 million-hectares in 2012-13. Currently, 45 percent of the net cropped area is irrigated.
- Number of primary educational institutions has nearly quadrupled; the numbers of middle/senior basic schools and higher secondary educational institutions have increased by around 23 times. There are now around 35,000 colleges and 642 universities. The literacy rate has increased to 73 per cent in 2011.
- The number of doctors has increased to about 9 lakh in 2012. The bed-population ratio is now 1.03 per 1,000 population.

Role of Different Sectors in India:

1) Agriculture:

- (1) Provides employment: Around 49 percent
- (2) Share in national income: Around 14 per cent
- (3) Supports industries. (E.g. Textiles, sugar, tea, paper)
- (4) Share in foreign trade: Cotton textiles, jute and tea earlier. Now Agricultural exports = **12%** of the national exports. Agro-imports = 3 % of national imports.
- (5) Supplier of food and fodder
- (6) Savings of capital: It requires lesser capital per unit of output compared to industries.
- (7) Solving problems of urban congestion and brain drain

Growth of agriculture during planning period:

1) Increase in production and productivity: In last 6 decades, **4 times**. Food grains production has increased to about 265 million tonnes. The per capita availability of foodgrains has improved to 511 gm. **[High Yielding Varieties Programmes (HYVP)] [Green Revolution -1966 - Also known as Wheat Revolution]** This program was launch only on 5 crops i.e. Rice , Wheat , Bajra , Maize , Jowar.

2) Improved Agrarian system

3) Other Developments:

- a) Farmers have been getting material inputs at subsidised rates.
- b) They are getting credit at low rates of interest.
- c) Government is helping them in procuring their products at predetermined rates and marketing them.
- d) Minimum wage levels have been fixed for agricultural labourers.
- e) Special programmes such as Swarnjayanti Gram Swarajgar Yojana (SGSY) and **Mahatma Gandhi National Rural Employment Scheme (MGNREGS)** etc., are in place in rural areas to provide employment to the rural people.
- f) **The National Food Security Mission (NFSM) was launched in 2007-08 (Aim-self sufficiency)**

g) To enhance food security and to make Indian agriculture more resilient to climate change, **National Mission for Sustainable Agriculture (NMSA) was launched in 2011-12.**

h) During 11th plan a growth of 3% was achieved as against target of 4%. In 12th plan target of 4% has been setup.

Problems of agricultural sector in India:

(1) Slow and uneven growth: India has the largest area under rice and wheat in the world and is the second largest producer of these crops, but in terms of productivity its world rank is 52nd in rice and 38th in wheat.

(2) Not so modern agriculture: The HYVP was initiated on just 44 per cent of the gross cropped area. Only 45 per cent of the gross cropped area has irrigation facilities. The current level of farm mechanization at 25 percent is very low as compared to about 90 percent in developed countries.

(3) Flaws in Land reforms

(4) Problems relating to finance: Share of moneylenders has reduced to about 27 %.

(5) Problems relating to warehousing and marketing: As a result 10 - 15 % of agriculture produce gets spoiled or eaten by rats.

2) Role of Industry in India:

1) Modernizing agriculture 2) Providing employment 3) Share in the GDP 4) Contribution to exports (more than 2/3rd of the export) 5) Raising incomes of the people 6) Enhancing further the economic growth

Types of industries:

On the basis of end-use: (a) Basic goods industries (like minerals, fertilizers, cement, iron and steel, electricity etc.) (b) Capital goods industries (like machinery, machine tools, rail-road equipments etc.) (c) Intermediate goods (like chemicals, rubber, plastic, coal and petroleum products) (d) Consumer goods - consumer durables and non durables (like beverages, watches, cosmetics, perfumes etc.).

Pattern of Industrial Development since planning period i.e. 1951:

(1) The Tenth Plan (2002-2007) aimed at achieving a growth rate of 10 % in the industrial sector but the growth of around 8.7 % p.a. was only achieved.

(2) The Eleventh Plan aimed at 10 % p.a. growth in the industrial sector but industry grew at a rate of about 7.4 % p.a.

(3) The programme of industrialisation was started on a massive scale in the Second Plan (1956-61) based on the Mahalanobis model. This Plan emphasized on building basic and capital goods industries. Three Steel Plants were set up in the public sector at Bhilai, Rourkela and Durgapur.

(4) Micro Enterprise – Investment up to 25lakhs, Small Enterprise – from 25lakhs to 5crs, Medium Enterprise – from 5crs to 10crs of Manufacturing Sector. For Service Sector - < 10L, 10L-2cr, 2cr- 5cr

(5) The growth rate of small-scale sector is more than 10% p.a.

(6) The number of small-scale units is around **45** million MSMEs.

(7) The MSME sector employed nearly **100** million persons.

(8) It is estimated that small scale sector contributes over 40 per cent of the total exports.

(9) Employment generated by the small scale sector per Rs 1 lakh investment was 1.39.

(10) Industry Targets – Growth of 12-14%, target share in GDP-25%

Problems of Industrial Development in India:

(1) Poor performance of public sector: The net loss of the loss making enterprises (79 in number) stood at Rs28,000 crore in 2012-13

(2) Regional imbalances: Large scale industries are concentrated in a very few states like Tamil Nadu, Maharashtra, Andhra Pradesh and Gujarat. These four States account for 50% of total factories and 50% of productive capital.

(3) Industrial sickness: There were 2.5 lakh sick units out of which more than 90 percent were small units.

3) Role of service sector in India:

(1) Increasing share in the GDP (2) Providing employment (27% of population)

(3) Contribution to Exports: Services account for over 1/3rd of total exports.

Growth of service sector during planning period:

The Eleventh Plan aims at a growth rate of 9.4 % p.a but the actual growth rate of the service sector has been a little less than 10 per cent per annum. For the Twelfth plan, a target of 9 per cent per annum growth rate has been kept in the Draft plan.

National Income in India:

National income is the money value of all the final goods and services produced by a country during a period of one year.

Basic Concepts of National Income and Output:

(1) Gross Domestic Product (GDP): Gross domestic product is the money value of all final goods and services produced in the domestic territory of a country during an accounting year.

(2) GDP at Current Prices: If the domestic product is estimated on the basis of the prevailing prices it is called gross domestic product at current prices.

(3) GDP at Factor Cost and GDP at Market Price: $GDP_{F.C} = GDP_{M.P.} - IT + S$. (Where IT = Indirect Taxes, S = Subsidies) (-IT + S = Net Indirect Taxes)

(4) Net Domestic Product: $NDP = GDP - \text{depreciation}$

(5) Gross National Product (GNP): In order to estimate the gross national product of India we have to add net factor income from abroad. In brief $GNP = GDP + NFIA$ (where NFIA is the net factor income from abroad).

(6) Net National Product (NNP): $NNP = NDP + NFIA$

(7) NNP at factor cost or National Income: NNP figure is available at market prices we will subtract indirect taxes and add subsidies to the figure to get NNP at factor cost or national income of the economy.

Methods of Measuring National Income:

(i) Value Added Method: Value added method measures the contribution of each producing enterprise in the domestic territory of the country.

Care should be taken to include the value of the following items:

(a) Own account production of fixed assets by government, enterprises and households.

(b) Production for self-consumption.

(c) Imputed rent of owner occupied houses.

Care should also be taken not to include sale of second-hand machines because they were counted as a part of production in the year in which they were produced.

(ii) Income Method: Aggregate of factor incomes of all the factors of production of all the producing units form the subject matter of calculation of national income by income

method. Only incomes earned by owners of primary factors of production are included in national income. Transfer incomes are excluded from national income. Thus, while wages of labourers will be included, pensions of retired workers will be excluded from national income. Similarly, illegal incomes, windfall gains, death duties, gift tax, interest on unproductive national debt and sale proceeds of second-hand goods are not included while calculating national income.

(iii) Expenditure Method:

(a) Net domestic expenditure = Consumption expenditure + net domestic investment.

(b) Net national expenditure = Consumption expenditure + net domestic investment + net foreign investment.

(c) Gross national expenditure = Consumption expenditure + net domestic investment + net foreign investment + replacement expenditure (**depreciation**)

Understanding of Tax System in India: Taxes which are not shifted are direct taxes. Taxes, the burden of which is shifted are indirect taxes.

Direct Taxes: (Central Govt) (Progressive in Nature)

Income Tax: Personal income tax is levied on the income of individuals, Hindu Undivided Families, unregistered firms and other association of people. They are taxed at slab rate after giving certain exemptions. Earlier income tax was as high as 97.75 % for the highest income slab. At present, tax for the highest slab is 30 %.

Indian Company -> 30%, Partnership -> 30%, Foreign company ->40%

Wealth Tax: Abolished

Gift tax: Income tax on gifts (received without adequate consideration) was partially reintroduced in April 2005, under the income tax **under the head IFOS -> Income from other source if it exceeds Rs. 50,000/-**

Merits of Direct Taxes:

(i) They are imposed according to the ability of the person to pay. (Progressive)

(ii) They best serve the purpose of transference of income from the rich to the poor.

Demerits of Direct Taxes

(i) It is also sometimes said that direct taxes are taxes on the honesty of the person.

(ii) Necessitate proper maintenance of accounts.

(iii) The assessment procedure is also cumbersome.

Indirect Taxes: (Differential in Nature)

Custom Duties: Custom duties are levied on exports and imports as a percentage of the price of the commodity. Successively custom duty has been reduced to 10 %. (Central Govt)

Excise Duties: An excise duty is levied on production. Mostly it is levied by the Central Govt, however states levy excise duty on alcohol, drugs etc. Further Central Value-Added Tax [CENVAT] was introduced in 2000-01.

Sales Tax: Being replaced by Value Added Tax in all states. Central sales tax is inter-state sales tax which is being phased out in stages. At present central sales tax is 2 per cent.

VAT: A major benefit of VAT over sales tax is that the VAT avoids double taxation. VAT was introduced in 1999 and was implemented in April, 2005 in some states.

Service Tax: Service tax is a form of indirect tax imposed on services. Introduced in the year 1994- 95, service tax network has expanded to cover almost all services except a negative list of services.

Merits of Indirect Taxes:

- (i) The most important merit is convenience in assessment & a relative difficulty in evasion.
- (ii) Indirect taxes on drinks, tobacco, etc serve a social purpose.

Demerits of Indirect Taxes:

- (i) Regressive character. (More burden on poor than rich)
- (ii) The consumers have to bear the ultimate burden of indirect taxes.

Features of Tax Structure in India:

- (1) Tax revenues = 17 % of National Income of India.
- (2) Tax revenue > **Rs 17,18,000 Crores** in 2012-13
- (3) Share of direct taxes in the gross tax revenue was 38.5 % in 2012-13. (Balance Indirect)
- (4) Less than 3 % of the population pays income tax in India.
- (5) The total tax revenue is highly insufficient to meet the expenditure requirements.
- (6) In 2012-13, the most important contributor to tax revenue is corporation tax (34.4 per cent) followed by personal income tax (19 per cent) excise duties (17 per cent), custom duties (16 per cent) and service tax (12.8 per cent).
- (7) The agriculture income is mostly exempt from the income-tax.
- (8) It is also noticed that the cost of tax collection for the Income Tax Department is one of the lowest in the world at the rate of less than 60 paise for every Rs. 100 collected as a direct tax.
- (9) It has been estimated that black money (tax not paid) is generated at the rate of 50 % of GDP.
- (10) Direct taxes (centre and states combined) is 7 per cent of GDP in 2012-13.
- (11) GST would replace most indirect taxes currently in place thus avoiding multiple layers of taxation that currently exist in India.

Extra:

- 1) Year of Great Divide – 1921
- 2) Indian Council of Agriculture Research and Development was established in 1929
- 3) State with highest number of schedule caste people and highest mortality rate – UP
- 4) Banking and financial sector:
1975 - Government Established Regional Rural Banks (RRBs)
1982 - National Bank for Agriculture and Rural Development (NABARD).
- 5) TRYSEM (Training of Rural Youth for Self-Employment) is a programme of Rural Development.
- 6) Food Corporation of India – provides food storage facility.
- 7) Green Revolution = Wheat Revolution
- 8) Chairman of Planning Commission – Prime Minister
- 9) National Nutrition Policy, 1993 – Goal of Annual production of 250 million tones.
- 10) Share of service sector in world output is 3.3%
- 11) BPO- Business Process Outsourcing
- 12) India has 3rd largest scientific & technical man power in world.
- 13) AGMARK – Related to agriculture produce
- 14) ICAR (Indian Council of agriculture Research)

Chapter 6: Select Aspects of Indian Economy

Population: It means total number of people residing in India.

Demographic Trends in India:

1) Size of population: Population in 1901 = 23.84 crores. Population in 2011 = 121.02 crores. Growth rate = 1.64% (2001-2011). UP+Maharashtra population is more than USA population. Highest growth rate → Bihar; Lowest growth rate → Kerala. Highest total population = UP, followed by Maharashtra.

In respect of size of population, India ranks 2nd in the world after China.

Annual Addition to India's population is equal to Australia's Population

India has about 2.4% of world's area, but less than 1.2% of world's income but accommodates about 17.5% of world's population. i.e. every 6th person in world is an Indian. 1921 is year of 'Great Divide' since then population increased @ 2%p.a. The slow or negative growth during 1901-21 was due to rapid and frequent occurrence of epidemics like cholera, plague, influenza and famines

2) Birth Rate and Death Rate: Birth rate is no. of births/thousand.

2012 = 21.6; Highest in Bihar (27.7)/1000; Lowest in Kerala (14.9)/1000

Death Rate is no. of deaths/thousand (It has been decreasing).

2012 = 7.0; Highest in Orissa (8.5); Lowest in West Bengal & Maharashtra (6.3)

3) Density of population: It means no. of persons per square km.

In 2011 = 382. Most densely populated state is Bihar (1102), followed by West Bengal (880)

If States + Union territories are considered, Then Delhi = 11297, And Chandigarh = 9252

Lowest density in Arunachal Pradesh = 17

4) Sex Ratio: No. of females per 1000 males. In 2011: 943:1000 (overall) 946:1000 (rural) 900:1000 (Urban); 1084:1000 (Kerala); 879:1000 (Haryana)

5) Life expectancy: (It has improved over years)

In 2011: Male- 64.6; Female- 67.7; Overall- 66.1; Kerala – 71.4 (highest); M.P – 58 (lowest)

6) Literacy Ratio: No. of literate as a % of total population.

In 2011, Male=82.1; Female=65.5; Overall = 4; Kerala = 92% (highest); Bihar = 53% (lowest)

Goa = 82% (After Kerala 2nd Highest); Himachal Pradesh – 76% , Maharashtra = 75%

Stages of population explosion:

1st Stage- High BR & DR; 2nd Stage- High BR & Low DR (India); 3rd Stage- Low BR & Low DR.

Unproductive consumer: In India, around 63 per cent of the population is in the age group 15-64 and 37 per cent of the population is under 15 or above 64. That means about 37 percent of the population is dependent on 63 per cent of the population or we say that the dependency rate is more than 57 per cent. Therefore, there is a load on contributing factor.

Government measures for solving population problem:

1952- Family planning program.

1966- Full fledged FP department was created.

1976- FPP was converted into family welfare program.

2000- National population policy.

Maternal Mortality Rate (MMR) = No. of maternal deaths/ 1,00,000 live births.

As of now: (178 per 1,00,000) (i.e. 1.78 per 1000)

Infant M.R = No. of babies dying before the age of 1yr/ 1000 live birth.

IMR is highest in M.P (62); And Lowest in Kerala (13); IMR → 42 (Overall)

Poverty: Poverty is defined as a situation where an individual in a country is unable to earn sufficient income to purchase the bare minimum means of subsistence. In India, poverty is wide spread. 21.9% per cent of the population is below the poverty-line. (Rural – 25.7%, Urban – 13.7)

Absolute Poverty	Relative Poverty
It is not related to income or consumption-expenditure distribution. It relates to low standard of living.	It is related to income or consumption - expenditure distribution of one person compared with other.
For less developed economy	For developed economy
Can be removed	Difficult to remove
In India, we have this concept	Gini- Co efficient is used for measuring this.

As per planning commission, a person is said to be below poverty line if his daily consumption of **calories** is less than: 2400 in rural areas; 2100 in urban areas It has estimated the poverty lines at all India level as an monthly per capita expenditure (MPCE) of RS 816 for rural area and Rs 1000 for urban areas in 2011-12. India has a poverty index of 0.283 with a rank of 119 among 169 countries.

Following measures are taken by Govt to decrease Poverty:

1) Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)- (4.78 cr household have been benefited by it) (At least 100 days of employment)

2) Swarn Jayanti Gram Swarozgar Yojana (SGSY): Now has been renamed as Aajeevika.

3) Swarna Jayanti Shahari Rozgar Yojana (SJSRY) = Nehru Rozgar yojana + Urban Basic Service Programmes. + PM's Integrated Urban Poverty Eradication program. A total of about 8,00,000 beneficiaries have been assisted in 2013-14.

Poverty Estimates : It uses two types of recall periods – uniform recall period (URP) and mixed recall period (MRP). While the URP uses 30-day recall/ reference period for all items of consumption, MRP uses 365 day recall/reference period for five infrequently purchased non-food items namely, clothing, footwear, durable goods, education and institutional medical expenses.

Extra:

1) Pradhan Mantri Gram Sadak Yojana (PMGSY)- Road development.

2) Indira Awas Yojana (IAY)- construction of Houses.

3) Swarn Jayanti Gram Swarozgar Yojana (SJSY) – Rural development.

4) IRDP (Integrated Rural Development Program) Started in 5th year plan & was merged with Swarn Jayanti Gram Swarozgar Yojana (SGSY) plan.

5) NFFWP- National Food For Work Program was launched in Nov, 2005.

6) EAS – Employment Assurance Scheme

Unemployment: Unemployment rate in India in 2013 is 8.8%

In India, the problem of unemployment has become serious as around 6.6% (2009-10) (CDS) of the labour force is unemployed. (5.6% in 2011-12)

	Capacity	Willingness	Jobs Available
Voluntary	Yes	No	Yes
Involuntary	Yes	yes	No

Types of Unemployment: 1) Frictional Unemployment: Temporary due to strikes or lockout. (Due to changing jobs) It is due to imperfect mobility of labour.

2) Casual Unemployment: Workers are employed on day to day basis.

3) Seasonal Unemployment: Employment only for a certain period.

4) Structural Unemployment: Changes in Infrastructure or Decrease in demand and so disinvestment and hence decrease in labour. Maximum in India.

5) Cyclical: Depression phase due to decrease in demand. It can be removed by fall easy money policy .i.e. increase supply of money and intern the demand (2nd most maximum in India) (Short term)

6) Chronic: Long term. (Underdeveloped Country)

7) Disguised: Zero marginal productivity of some workers. It also implies underemployment of labour. Usually found in Agriculture sector. 1/3rd of work force is disguisedly unemployed in India.

8) Technological Unemployment: Increase in machines, so decrease in labour

Measurement of Unemployment:

1) **Usual Status**- No. of persons who may said to be chronically unemployed. (Usually less)

2) **Current weekly Status**- Ref period = 1 week, A person is said to be employed for a week even if he is employed only for a day during that week.

3) **Current daily status**- Ref period= a day, Said to be employed even if worked for half day.

Unemployment rate – CDS > CWS > US i.e 5.6 > 3.7 > 2.3

Infrastructural Challenges:

Energy India: 6th largest energy producer in world = 3% of world's total energy produced. 4th largest energy consumer after China, USA & Russia. Consumption = 5% of world's total energy consumption. India's per capita energy consumption is one of the lowest in the world. In India 22% of energy consumed is obtained from traditional sources/non-commercial sources (water, sun, wind). Till date 14% of villages are not electrified.

Users of Electricity:-

Industry 37%, Domestic 25%, 21% agricultural, 10% Commercial establishment, 8% others

Difficulties and Problems relating to energy:

(1) Demand and Supply imbalances

(2) Growing oil imports bill: Petroleum, oil and lubricants (POL) constitute around 37 per cent of our import bill.

(3) Major problem by Power Cos are Transmission & Distribution, Loss = 20%

(4) Sick SEBs

(5) Operational inefficiency : PLF during 2013-14 declined to 65 per cent

It is lowest in Eastern region (62 per cent in 2012-13) and highest in *Southern* region (81 per cent in 2012-13). If we consider SEBs, central sector and private sector, we find that PLF was 65 per cent in SEBs, 79 per cent in central sector and 79 per cent in the private sector in 2012-13.

(6) Inadequate electrification : Till date, many of villages are not electrified.

Recent steps taken to meet the above problem: (1) Electricity Act was passed in 2003 and Electricity Amendment Bills 2005 was passed in 2005.

(2) So as to provide electricity access to all villages, Rajiv Gandhi Gramin Vidutikaran Program was launched. Free electricity was provided to below poverty line people. Under the scheme, more than 1,00,000 villages have been electrified and connections to more than 200 lakh BPL households have been released.

Transportation

1) **Indian Railways:** Fourth largest in world;

From Railways, revenue structure is Freight - 70% , Passenger - 30%.

Total route length of railways= 65400kms (21000 km electrified)

2) **Road (Loss making corporation):** One of the largest Road network of 4.86 million kms.

National Highway (NH) = < 2% of total length of roads (92,851 kms) and carries > 40% of total traffic. Rural roads connect 65% of all roads.

Roads (carry): 65% freight & 80% passenger traffic

3) **Water transport:** India has 14500 km of navigable waterways (rivers, canals, creeks etc)

A long coastline of 7517 km, 12 major ports, 200 minor ports. Almost 95 per cent of India's global merchandise trade is carried through the sea route. The fleet at the end of March 2013 was 1186 vessels (1 per cent of world fleet). Kandla- top traffic handler in last 5 years.

4) **Air Transport:** There are 10 scheduled passenger operators (three in public sector and seven in private sector) and three cargo operators in the country with the combined fleet size of 413 aircrafts. Indian Airlines and Air India were amalgamated. Private sector is playing a crucial role. (Total Share 82% of Private players). Airport Authority of India (AAI) is the main organization managing 125 airports across the country.

Domestic passenger traffic handled at Indian airports reached 122 million during 2013-14

- India is a 2nd largest civil aviation market.
- FDI up to 100% is allowed in green field airport.
- Up to 49% FDI is allowed in domestic carriers
- NRI can invest up to 100%
- There are 10 passengers operator & 3 cargo operators

Airport Economic Regulatory Authority (AERA)

Civil Aviation Economic Advisory Council (CAEAC)

GEO augmented Navigation (GAGAN)

Communication:

Postal service (Year - 1837): Largest network in the world; 1.55 lakh post offices, out of which 90% are in rural areas; IPO serves 7175 person & 21.21 sq km area; More than 14000 PO are computerized. Department of Posts launched a pilot project "Project Arrow" with the aim of providing fast and reliable postal services to the consumers.

Telecommunication= telephone & telex service:

March 2014 more than 935 million connection. Target 1200 millions. 98% of villages are covered by Village Public Telephone. (VPT). 2nd largest in world. (After China). Tele density (number of phones per 100 persons) of 75.23 percent. While tele density in rural areas is 44 percent, the urban Tele density shot up to 145 percent in March, 2014. TRAI (Telecom Regulatory Authority of India) & NIXI (National Internet Exchange of India) are regulatory authority. Foreign Direct Investment ceiling has been raised to 100 percent from 74 percent earlier. National Telecom Policy (NTP) was announced in 2012. The internet connections increased to around 165 million in March 2013 and broadband subscribers have increased to about 15 million in March, 2013.

Health: NRHM= National Rural Health Mission was started in 2005. National Urban Health Mission (NUHM); ASHA's= Accredited social Health Activists; Janani Suraksha Yojana (JSY); Janani Shishu Suraksha Karyakaram (JSSK); Universal Health Coverage (UHC)

Stats: (2012): Health centres- 1,77,248; Dispensary +Hospitals- 63,002; Beds- 11, 75,374; Nursing personnel- 18,94,968 (2010); Doctors- (Modern) 8,83,812

Education:- India has one the largest education system in the world. 84% of rural habitation in India have a primary school within a distance of 1 km. National Policy of Expenditure (NPE) was made to set a goal of expenditure of 6% on GDP on education. Actual expenditure was 3.3%. Right of children to free & Compulsory Education Act (RTE ACT) has made free education for all children between 6-14yrs. NLM aimed to literate people in the age group of 15-35 yrs. Sarva Shiksha Abhiyan (SSA) launched in 2001-02. National Programme for Education of Girls at Elementary Level (NPEGEL) is an important component of SSA. Another important component of SSA is the Education Guarantee Scheme and Alternative and Innovative Education (EGS + AIE). Apart from the above, Mid-day meal scheme, Kasturba Gandhi Balika Vidyalaya (KGBV), Parambhik Shiksha Kosh (PSK) are other schemes for encouraging people for elementary education. Rashtriya Madhyamik Shiksha Abhiyan (RMSA). National Scheme of Incentive to Girls for Secondary Education (NSIGSE) and Inclusive Education for the Disabled at the Secondary Stage (IEDSS).

In the Eleventh Plan, although 74 per cent literacy rate has been achieved

Inflation: It means upward movement in general price level. It results in decline in purchasing power. Inflation means on an average, there is a rise of 5% p.a at least in the price of goods.

Types of Inflation:

- 1) **Demand pull inflation:** When demand for goods are more than its supply their price rises. It is a situation when more money chases relatively less quantity of goods.
- 2) **Cost push Inflation:** Price rise due to increased cost of production. Difficult to control.
- 3) **Stagflation:** Combination of demand pull+ cost push inflation.
- 4) **Deflation** is a state when price are falling & so the purchase power of money is increasing. Therefore Deflation is the opposite of Inflation.

In India, the variation in prices are measured in terms of Wholesale Price Index (WPI). This basket comprises 676 items which carry different weights. A consumer price index (CPI) measures changes in the price level of consumer goods and services purchased by households. In 2013-14, WPI was @ 6%. CPI was around 9-10 %.

Causes of Inflation:

- 1) **Increase in Public Expenditure:** This Increase the purchasing power of employee. Therefore, Demand increases and so inflation increases.
- 2) **Deficit financing:** Indian finances its debt by borrowing of loans or by printing of more currency. Therefore there is more money in market and so demand increases and also there is an increase in inflation.
- 3) **Erratic agricultural growth:** Because of poor growth during scarcity the price increases and hence inflation increases.
- 4) **Upward revision of administered prices:** Prices of few goods are kept by govt and goods are produced in public sector. Govt keeps on raising prices so as to cover loss in public sector. So price increases.

5) Inadequate rise in industrial production: Since production decrease, demand increases and so price also increases.

6) Agricultural price policy of the Government: This ensures certain minimum price to the farmers. This policy benefited farmers in India but this has been a major contributory factor to the inflationary price rise in the country.

Maximum Inflation Rate = 14.4% in 1966- 67.

In 2013-14, Inflation is @ 6% after averaging around 8.6% in previous 3 years.

According to new series, Consumer Price Index remained sticky at around 9-10 percent owing to higher inflation during last couple of years. (2013-2014)

For the year 2013-14, whereas the average WPI was 5.98 per cent, the average CPI for Industrial Workers was 9.68 per cent.

Budget & Fiscal Deficits: The Government of India, every year prepares budget which shows the expected receipts and expenditures of the government in the coming financial year.

If receipts are equal to expenditure, the budget is said to be balanced one.

If receipts are higher than the expenditure, the budget is said to be surplus one and

If receipts are lower than the expenditure, the budget is said to be deficit one.

If borrowings and other liabilities are added to the budget deficit, we get fiscal deficit.

To restore fiscal discipline, the Fiscal Responsibility and Budget Management (FRBM) Bill was introduced in 2000 and FRBM Act was passed in 2003. The Act aims at reducing gross fiscal deficit by 0.5 per cent of the GDP in each financial year. Fiscal deficit fell down to 4.5% of GDP in 2013-14 against 5.7 % in 2011-12.

Balance of Payments: It is a systematic record of all economic transactions between the residents of one country and the residents of the rest of the world in a year.

Balance of Trade: If Export = Import, then BOT Equilibrium, If Export > Import, then BOT Surplus, If Export < Import, then BOT Deficit.

Balance of Payments: Overall balance of payments is the sum of balance of current account and balance of capital account.

Balance of Current Account: It includes balance of services and balance of unilateral transfers (i.e. gifts/donations/ grants) besides including balance of trade. Therefore Current A/c includes = Balance of Trade + Balance of Services + Interest Payments + Unilateral Transactions.

Balance of Payment on capital account: Balance of payments on capital account includes balances of private direct investments, private portfolio investments and government loans to foreign governments. Trade deficit = 7.9% of GDP in 2013. Current account deficit = 1.7% Foreign Exchange Reserve of India – 304 billion US dollar

External Debts: External assistance to India has been in two forms – grants and loans. While grants do not involve any repayment obligation, loans carry an obligation to pay interest and repay the principal. About 90 per cent of the external assistance received by India has been in the form of loans. India's external debt was more than Rs. 22,00,000 crore at end March, 2013. Debt = 23% of GDP (March 2013). The World Bank has categorized India as the 3rd most indebted country in 2012 after China & Brazil.

Chapter 7: Economic Reforms in India

Following was noticed in 1991 which led to reforms:

Low foreign exchange reserves: 3 weeks finance was left out.

Burden of National Debt - (60% of GNP) Gross National Product.

Inflation(12%)

Industrial Sector:

- Industrial licensing was abolished for all projects except for 18 industries
- At present there are only 5 industries remain under the purview of industrial licensing:
These are:
 1. Distillation and brewing of alcoholic drinks.
 2. Cigars and Cigarettes of tobacco and manufactured tobacco substitutes.
 3. Electronic Aerospace and Defense equipment: all types.
 4. Industrial explosives including detonating fuses, safely fuses, gun powder, nitrocellulose and matches.
 5. Specified Hazardous chemicals.
- At present, there are only 2 industries which are reserved for the public sector. They are (i) atomic energy, (ii) rail transport.
- Recently (July 2013), the government allowed increase in FDI in defense beyond 26 percent subject to permissions.

MRTA Act: [Monopoly Restrictive Trade Practice Act (1969)] Under the new Industrial Policy of 1991, this requirement of taking permission from CG (Central Government) for purchasing assets was abolished. Thus, there were no restrictions.

Banking Sector Reforms:

CRR (Cash Reserve Ratio – It has been reduced from 15% to 4% - July 14) (Now: 22.5.16 -4%)

SLR (Max. 38.5%)(Statutory Liquidity Ratio reduced to 22 % - Sept14) (Now: 22.5.16-21.25%)

Prime lending rates now entirely within the purview of the banks and not set by the RBI.

Bank rate has been reduced to 9% - Sept.'14. (Now: 22.5.16 - 7 %)

Rate of interest on saving deposits of commercial banks has been raised to 4 per cent.

Recovery of Debt Due Act,1993 was enacted.

Basel II norm were introduced from March 08 to bring financial stability.

Basel III norm were introduced in 2013 & are to be implemented from 2019 to strengthen banks capital requirement.

Following are the major measures which have been undertaken to reform the external sector of the country:

Exchange Rate Stabilization: Through Globalization, Devaluation & Liberalization

Encouragement of Foreign Investment: 100 per cent FDI (Foreign Direct Investment) is now allowed in drugs and pharmaceuticals, hotels and tourism, courier services, oil refining, mass rapid transport system, airports, business to business e- commerce, special economic zones industries, electronic mail and voice mail, advertising film sector, tea and certain telecom industries and internet services providers, etc . Apart from this, 100 per cent FDI is now allowed in asset reconstruction companies, single brand retail trading, and basic and cellular services. But in these, while up to 49 % FDI is allowed through automatic route, FDI above this is allowed through government approval route i.e. after getting permission from Foreign Investment Promotion Board (FIPB).

Similarly, 74 per cent FDI is allowed in private sector banking (up to 49 per cent through automatic route, above that after getting FIPB permission), telecom sector in certain services, service providers like Direct to Home (DTH) in broadcasting sector (increased from 49 per cent) and credit Information companies.

51 per cent FDI is now allowed in multi-brand retail.

49 per cent FDI is allowed in the domestic carriers (by foreign airlines), and power exchanges.

26 per cent FDI is allowed in defense production, insurance, and print media. (This is of course, subject to certain conditions).

20% percent FDB is allowed in public sector banking

FDI is prohibited in: i) Activities / sectors not open to private sector investment e.g. Atomic Energy and Railway Transport ii) Lottery Business iii) Gambling and Betting iv) Business of Chit Fund v) Nidhi Company

vi) Agricultural (excluding Floriculture, Horticulture, Development of seeds, Animal Husbandry, and cultivation of vegetables, mushrooms, etc. under controlled conditions) and Plantations activities (other than Tea Plantations)

vii) Real Estate business (except development of townships, construction of residential/commercial premises, roads or bridges to the extent notified in Government's notification)

viii) Trading in Transferable Development Rights (TDRs).

ix) Manufacture of cigars, cheroots, cigarillos and cigarettes, of tobacco or of tobacco substitutes.

Import Licensing: EXIM Policy in 1992. Restrictions on 715 items were removed in year 2001-02 and in 2000- 01 restriction on 714 items were removed.

Import Tariff: India has lowered its average tariff rate from 125 per cent in 1990-91 to 10 per cent in 2007-08.

Tax Reforms: In August 1991, the Government of India constituted a Tax Reforms Committee (TRC) to recommend a comprehensive reform of both direct and indirect tax laws.

Extra:

- IIFT – Indian Institute of Foreign Trade
- IDBI – Industrial Development Bank of India
- FIPB- Foreign Investor Promotion Board
- TDR- Transferrable Development Right
- TRC-Tax Reform Committee
- FRBMA (2003)– Fiscal Responsibility and Budget Management Act
- CENVAT – Central Value Added Tax
- GST- Good & Service Tax
- DFEC – Duty Free Export Credit
- Drawing right - 1969
- FIEO – Federation of India Export Organisation
- SEZ – Special Economic Zones
- FERA – Foreign exchange Regulation Act
- FEMA – Foreign exchange management Act (FEMA replaced FERA)
- EPGC - Export Promotion Capital Goods
- According to the World Bank's 'Doing Business Report ' 2014, India ranks 134 out of 189 countries

Liberalization: Liberalization refers to relaxation of previous government restrictions.

Privatization: Privatization refers to the transfer of assets or service functions from public to private ownership. Privatization can be achieved in many ways-franchising, leasing, contracting and disinvestment.

Disinvestment: Disinvestment means disposal of public sector's unit's equity in the market.

<u>Minority Disinvestment:</u>	<u>Majority Disinvestment:</u>	<u>Complete Privatisation:</u>
Govt. retains 51% of the stake. Minority sale could be through auction or an offer for sale.	Here govt. retains a minority stake in the company i.e. it sells off a majority stake.	Here Govt. holds 0%.
Eg.: Power Grid Corp. of India Ltd., Rural Electrification Corp. Ltd.,	Few examples being Kochi Refinery Limited (KRL) to Bharat Petroleum Corporation (BPCL).	Eg.: Centaur Hotel

Progress of Disinvestment: The disinvestment program was started in 1991-92. By the year end 2013-14, the Government could auction off very small portion of its investment in the public sector, raising around Rs. 1.5 lakh crore in the process. A close examination of the 39 PSUs which had been chosen for disinvestment/privatisation during 1991-98 revealed that out of them only 3 PSUs posted losses.

Meaning of Globalisation: Globalisation means integrating the domestic economy with the world economy.

Effect of Globalisation on Indian Economy: India's export growth rate of 22 per cent in 2011-12 over and above the 40 per cent growth of 2010-11 is one of the highest in the world. Exports now finance more than 70 per cent of imports of goods and services

The International Monetary Fund: Organised in 1946 and commenced its operation in March, 1947. The Fund now has a membership of 188(as of July 2012) countries. It is financed by the participating countries

The World Bank: International Bank for Reconstruction and Development (IBRD) more popularly known as the World Bank was formed in 1945 at Bretton woods. The World Bank was floated in order to give loan to members' countries, initially for the reconstruction of their (world) war-ravaged economies, and later for the development of the economies of the poorer member countries. The World Bank provides its member countries (188 in numbers) **long term investment loan** on reasonable terms. Apart from the World Bank itself, it comprise of the International Development Association (IDA), the International Finance Corporation (IFC), and the Multi-lateral Investment Guarantee Agency [MIGA(1988)] and the International Centre for Settlement of Investment Disputes [ICSID(1966)].

IDA: The International Development Association (IDA) is the part of the World Bank that helps the world's poorest countries. Established in 1960, IDA aims to reduce poverty by providing interest free credits and grants for programs that boost economic growth, reduce inequalities and improve people's living conditions. IDA is also called soft lending arm of the World Bank.

The World Trade Organisation: World Trade Organisation (WTO) came into existence on 1st January, 1995 in Geneva. At present there are 160 member countries. It aims at making the whole world a big village where there is free flow of goods and services and where there are no barriers to trade. General Agreement on Tariff & Trade (GATT) was replaced by WTO in 1995.

Chapter 8: Money & Banking

Meaning of Money:

Anything which performed the following three functions is known as money

- (i) Served as medium of exchange
- (ii) Served as a common measure of value and
- (iii) Served as a store of values, was termed as money.

It thus includes, not only currencies and demand deposits (Saving Account) of banks, but also includes a host of financial assets such as bonds, government securities, and time deposits with banks (Fixed Deposit) and equity shares which serve as a store of value.

Bills of exchange are sometimes known as Near Money

Money Stock in India:

M1 = Currency with the public i.e., coins and currency notes + Demand deposits of the public known as narrow money.

M2 = M1 + Post office saving deposits.

M3 = M1 + Time(fixed) deposits of the public with banks called broad money.

M4 = M3 + Total post office deposits. (Excluding National Saving Certificates)

The third RBI working group (1998) redefined its parameters for measuring money supply and introduced new monetary aggregates (NM).

NM1 = Currency + Demand deposits + Other deposits with RBI.

NM2 = NM1 + Time liabilities portion of saving deposits with banks + Certificates of deposits issued by banks + Term deposits maturing within a year excluding FCNR (B) (Foreign Currency now Residential Bank) Deposits.

NM3 = NM2 + Term deposits with banks with maturity over one year + Call / term borrowings of the banking system.

NM4 has been excluded from the scheme of new monetary aggregates. Three liquidity aggregates

Functions of Bank:

- (a) Receipt of deposits
- (b) Lending of money
- (c) Agency services (eg: Payment of bill)
- (d) General services (locker, issue DD)
- (e) ATM (Automatic Teller Machine) / Automated Banking Machine (ABM)
- (f) RTGS (Real time gross settlement):
- (g) NEFT (National electronic fund transfer)
- (h) (ECS) Electronic Clearing Service

Commercial Banking in India: Government announced the nationalisation of 14 major commercial banks with effect from July, 1969. Six more banks were nationalised in 1980. (Two banks were merged in 1993, so at present there are 19 nationalised banks).

Scheduled: Under RBI [Co-op, Private (ICICI, HDFC), Public (National Banks, SBI, Union Bank), Foreign (Citi Bank)]

Not Scheduled: Not directly Under RBI

Factors responsible for Nationalization of Commercial Banks:

- (i) Private ownership of commercial banks and concentration of economic power
- (ii) Urban-bias
- (iii) Neglect of agricultural sector
- (iv) Violation of norms and granted loans to even those industries which figured nowhere in the priority list.
- (v) Neglect of priority sectors

Progress of Commercial Banks after Nationalisation:

- (i) Expansion of branches:** Increased to 1,11,723. As a result, the population per bank office has reduced to around 12,000 in 2013.
- (ii) Branch opening in rural and unbanked areas:** Percentage of rural branches bank improved to about 38 per cent in June, 2013.
- (iii) Deposit mobilisation:** Increased to around Rs 60,00,000 crore in 2012. Considering state-wise deposit mobilisation, we find Maharashtra leads all other states and accounts for 22 per cent of the aggregate deposits received by the banks.
- (iv) Bank lending:** It has gone up to about Rs. 60,00,000 crore in *April, 2014*. Banks have taken special care of the priority sectors in their lending operations.
- (v) Promotion of new entrepreneurship**
- (vi)** Due to stringent credit norms the gross NPAs have fallen. As a percentage of gross advances, they have fallen from 10.5 per cent in 2001-02 to 3.6 per cent in 2012-13.

Reserve Bank of India (RBI):

Meaning and Functions of a Central Bank: A Central Bank is one which constitutes the apex of the monetary and banking structure of a country

Functions of Reserve Bank of India:

- (i) Issue of currency: Other than one rupee coins and notes and subsidiary coins, the magnitude of which is relatively small.
- (ii) Banker to the government
- (iii) Banker's Bank
- (iv) Custodian of Foreign Exchange Reserves
- (v) Controller of Credit
- (vi) Promotional Functions
- (vii) Collection and publication of Data

Indian Monetary Policy:

Monetary Policy is usually defined as the Central Bank's policy pertaining to the control of the availability, cost and use of money and credit with the help of monetary measures in order to achieve specific goals.

I. Quantitative or General Measures:**(a) Bank Rate Policy:**

(BR increase – Supply of Money Decrease – Inflation decrease & Vice Versa)

(b) Open market operations: Open market operations imply deliberate direct sales and purchases of securities in the market by the Central Bank on its own. (Market Security sell, Money supply in market decrease, inflation decrease & Vice Versa)

(c) Variable reserve requirements: (i) Cash Reserve Ratio (CRR) (ii) Statutory Liquidity Ratio (SLR). Cash reserve ratio refers to that portion of total deposits which a commercial bank has to keep with the Central Bank in the form of cash reserves. Statutory liquidity ratio refers to that portion of total deposits which a commercial bank has to keep with itself in the form of liquid assets viz - cash, gold or approved government securities. By changing these ratios, the Central Bank controls credit in the economy.
(CRR/SLR increase – Supply of Money Decrease – Inflation decrease & Vice Versa)

(d) Repo Rate and Reverse Rate: Repo rate is the rate at which our banks borrow rupees from RBI. Repo rate is 8 per cent - September 2014. (Now: 22.5.16 - 6.5%)
Reverse Repo rate is the rate at which Reserve Bank of India (RBI) borrows money from banks. Reverse Repo rate is 7 per cent - September 2014. (Now: 22.5.16 - 6%)
(Repo increases, supply decreases, inflation decreases & vice versa)
(Reverse Repo increases, supply decreases, inflation decreases & vice versa)

II. Qualitative or Selective Measures:

(a) Securing loan regulation by fixation of margin requirements

(b) Consumer credit regulation: Number of Instalments & Down Payment

(c) Issue of directives to CB (Commercial Bank)

(d) Rationing of credit: Regulating the purpose for which credit is granted or allocated by commercial banks

(e) Moral suasion: Moral suasion implies persuasion and request made by the Central Bank to the commercial banks to co-operate with the general monetary policy

(f) Direct Action: The Central Bank may take direct action against the erring commercial banks.

Extra's:

- RBI was nationalized in 1949
- Land development Bank provides loans for a period of 15-20 years
- "Minimum Reserve System" method of note issue is prevailing in India.
- Banking ombudsman means a person who redresses customer's grievances