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Reference Material for Three Years

Bachelor in Business Administration (General)

Code : 017

Semester – IV



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INDEX

S.NO.	SUBJECTS	CODE	PG.NO.
1	HUMAN RESOURCE MANAGEMENT	BBA 202	4 – 72
2	FINANCIAL MANAGEMENT	BBA 204	43-103
3	RESEARCH METHODOLOGY	BBA206	104-147
4	INFORMATION SYSTEM MANAGEMENT	BBA 210	148-176

SUBJECT: HUMAN RESOURCE MANAGEMENT

PAPER CODE: BBA 202

Q 1: Define the term ‘Human Resource Management’. What is the significance of Human Resource Management? Discuss the objectives of Human Resource Management in detail. What are the functions of Human Resource Management?

A 1: In simple words, HRM is a process of making the efficient and effective use of human resources so that the set goals are achieved. Let us also consider some important definitions of HRM.

According to Flipppo, “ Human resource management is the planning, organizing, directing and controlling of the procurement development compensation integration, intendance, and separation of human resources to the end that individual, organizational and social objectives are accomplished”.

Objectives:

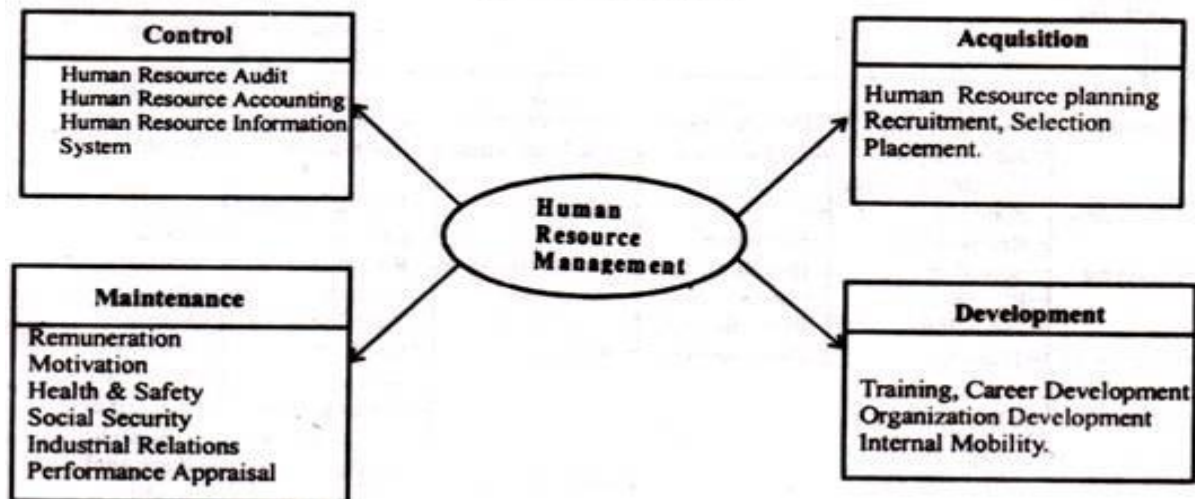
1. To help the organisation to attain its goals effectively and efficiently by providing competent and motivated employees.
2. To utilize the available human resources effectively.
3. To increase to the fullest the employee’s job satisfaction and self-actualisation.
4. To develop and maintain the quality of work life (QWL) which makes employment in the organisation a desirable personal and social situation.
5. To help maintain ethical policies and behaviour inside and outside the organisation.
6. To establish and maintain cordial relations between employees and management.

HRM Objectives and Functions:

<i>HRM Objectives</i>	<i>Supporting Functions</i>
1. Societal Objectives	1. Legal compliance 2. Benefits 3. Union-management relations
2. Organisational Objectives	1. Human resource planning 2. Employee relations 3. Selection 4. Training and development 5. Appraisal 6. Placement 7. Assessment
3. Functional Objectives	1. Appraisal 2. Placement 3. Assessment
4. Personal Objectives	1. Training and development 2. Appraisal 3. Placement 4. Compensation 5. Assessment

Scope:Accordingly, the scope of HRM consists of acquisition, development, maintenance/retention, and control of human resources in the organization>

Fig. 1.1: Scope of HRM



The National Institute of personnel Management, Calcutta has specified the scope of HRM as follows:

1. The Labour or Personnel Aspect:

This is concerned with manpower planning, recruitment, selection, placement, transfer, promotion, training and development, lay-off and retrenchment, remuneration, incentives, productivity, etc.

2. Welfare Aspect:

It deals with working conditions, and amenities such as canteen, creches, rest and lunch rooms, housing, transport, medical assistance, education, health and safety, recreation facilities, etc.

3. Industrial Relations Aspects:

This covers union-management relations, joint consultation, collective bargaining, grievance and disciplinary actions, settlement of disputes, etc.

Functions:

The functions performed by managers are common to all organizations. the function performed by the resource management can broadly be classified into two categories, viz.

- (1) Managerial functions (2) Operative functions

(1) Managerial Functions:

Planning:

Planning is a predetermined course of actions. It is a process of determining the organisational goals and formulation of policies and programmes for achieving them. Thus planning is future oriented concerned with clearly charting out the desired direction of business activities in future. Forecasting is one of the important elements in the planning process. Other functions of managers depend on planning function.

Organising:

Organising is a process by which the structure and allocation of jobs are determined. Thus organising involves giving each subordinate a specific task establishing departments, delegating authority to subordinates, establishing channels of authority and communication, coordinating the work of subordinates, and so on

Staffing:

This involves deciding what type of people should be hired, recruiting prospective employees, selecting employees, setting performance standard, compensating employees, evaluating performance, counseling employees, training and developing employees.

Directing/Leading:

Directing is the process of activating group efforts to achieve the desired goals. It includes activities like getting subordinates to get the job done, maintaining morale motivating subordinates etc. for achieving the goals of the organisation.

Controlling:

It is the process of setting standards for performance, checking to see how actual performance compares with these set standards, and taking corrective actions as needed.

(2) Operative Functions:

The operative, also called, service functions are those which are relevant to specific department. These functions vary from department to department depending on the nature of the department Viewed from this standpoint, the operative functions of HRM relate to ensuring right people for right jobs at right times. These functions include procurement, development, compensation, and maintenance functions of HRM.

A brief description of these follows:

Procurement:

It involves procuring the right kind of people in appropriate number to be placed in the organisation. It consists of activities such as manpower planning, recruitment, selection placement and induction or orientation of new employees.

Development:

This function involves activities meant to improve the knowledge, skills aptitudes and values of employees so as to enable them to perform their jobs in a better manner in future. These functions may comprise training to employees, executive training to develop managers, organisation development to strike a better fit between organisational climate/culture and employees.

Compensation:

Compensation function involves determination of wages and salaries matching with contribution made by employees to organisational goals. In other words, this function ensures equitable and fair remuneration for employees in the organisation. It consists of activities such as job evaluation, wage and salary administration, bonus, incentives, etc.

Maintenance:

It is concerned with protecting and promoting employees while at work. For this purpose virus benefits such as housing, medical, educational, transport facilities, etc. are provided to the employees. Several social security measures such as provident fund, pension, gratuity, group insurance, etc. are also arranged.

Q2: What do you understand by Personnel Management? How personnel management is different from human resource management?

A2: Definitions:

“The personnel function is concerned with the procurement, development, compensation, integration, and maintenance of the personnel of an organisation for the purpose of contributing toward the accomplishment of that organisation’s major goals or objectives. Therefore, personnel management is the planning, organising, directing, and controlling of the performance of those operative functions.” — Edwin B. Flippo, Principles of Personnel Management

“Personnel management is that field of management which has to do with planning, organising, and controlling various operative activities of procuring, developing, maintaining

and utilizing a labour force in order that the objectives and interest for which the company is established are attained as effectively and economically as possible and the objectives and interest of all levels of personnel and community are served to the highest degree.” — M. J. Jucius, Personnel Management

3. “Manpower management effectively describes the processes of planning and directing the application, development, and utilisation of human resources in employment.” — Dale Yodder, Personnel Management and Industrial Relations.

Objectives of Personnel Management:

These are classified into two:

(a) General Objectives:

These reveal the basic philosophy of top management towards the labour force engaged on the work and its deep underlying conviction as to the importance of the people in the organisation. The following are the most important objectives.

(i) Maximum individual development:

The employer should always be careful in developing the personality of each individual. Each individual differs in nature and therefore management should recognise their individual ability and make use of such ability in an effective and make use of such ability in an effective manner..

ii) Desirable working relationship between employer and employees:

It is the main objective of personnel management to have a desirable working relationship between employee and employees so that they may co-operate the management.

(iii) Effective molding of human resources as contrasted with physical resources: Man is the only active factor of production, which engages the other factors of production to work.

(b) Specific Objectives:

(i) Selection of right type and number of persons required to the organisation.

(ii) Proper orientation and introduction of new employees to the organisation and their jobs.

(iii) Suitable training facilities for better job performance and to prepare the man to accept the challenge of higher job.

(iv) Provision of better working conditions and other facilities such as medical facilities.

(v) To give a good impression to the man who is leaving the organisation.

(vi) Maintaining good relations with the employees.

Functions of Personnel Management:

Personnel management involves two categories of functions—managerial and operative.

Basic Managerial Functions:

Planning, organising, motivating and controlling—are common to all managers including personnel managers and are performed by all of them. That is why it is said that general management and personnel management are one and the same.

The planning function of a personnel manager pertains to the steps taken in determining a course of action. This involves developing a personnel programme and specifying what and how operative personnel functions are to be performed.

After plans have been developed, the personnel manager must establish an organisation to carry them out. This function, therefore, calls for groupings of personnel activities, assignment of different group of activities to different individuals, delegation of authority to carry them out and provision for coordination of authority relationships horizontally and vertically in the organisation structure.

Motivation involves guiding and supervising the personnel. Personnel manager must inculcate in the workers a keen appreciation of the enterprise policies. He must guide them towards improved performance and motivate them to work with zeal and confidence.

Control involves measuring performance, correcting negative deviations and assuring the accomplishment of plans. Through direct observation, direct supervision, as well as reports, records and audit, personnel management assures itself that its activities are being carried out in accordance with the plans.

DIFFERENCE BETWEEN PERSONNEL MANAGEMENT AND HRM:

<i>Dimensions</i>	<i>PM</i>	<i>HRM</i>
a. Nature of relations	Pluralist	Unitarist or neo-unitarist
b. Perception of conflict	Conflict is institutionalized	Conflict is pathological
c. Contract	Emphasis on compliance	Beyond contract-commitment
d. Role of procedures	Rules dominated	Culture and values dominated
e. Planning perspective	Ad hoc, reactive	Integrated, proactive
f. Acceptability of unions	Acceptable	Not desirable
g. Level of trust	Low	High
h. Key relation	Labour-management	Customer
i. Management's role	Transactional	Transformational
j. Basis of job design	Division of labour	Teams
k. Key people	PM/IR specialists	Line people and general managers
l. Skill acquisition	Training & Development	Learning organization
m. Reward management	Standardized job evaluation	Performance related

Q3: Define the term ‘Strategic Human Resource Management’. What is the significance, scope and objectives of Strategic Human Resource Management? What is the difference between HRM and SHRM?

A3: The term ‘strategy’ is widely used in and presupposes importance. In the words of the Oxford Concise Dictionary, strategy means ‘generalship’. Thus, strategy is associated with the long-term decisions taken at the top of the enterprise. The original literary meaning of strategy is ‘the art and science of directing military forces’.

Strategy is a unified, comprehensive and integrated plan that relates the strategic advantages of the firm to the challenges of the environment. It is designed to ensure that the basic objectives of the enterprise are achieved through proper execution by the organisation.”

Basically any strategic process can be broken down into two phases:

1. Strategy formulation
2. Strategy implementation

Strategic formulation is concerned with making decisions with regard to defining the organisation’s vision and mission, establishing long- and short-term objectives to achieve the organisation’s vision and selecting the strategy to be used in achieving the organisation’s objectives.

Strategic implementation is concerned with aligning the organisation structure, systems and processes with the chosen strategy. It involves making decisions with regard to matching strategy and organisational structure and providing organisational leadership pertinent to the strategy and monitoring the effectiveness of the strategy in achieving the organisation's objectives.

“Strategic management is the process of formulating, implementing and evaluating business strategies to achieve organisational objectives. Cunningham’ has defined strategic management as a manner by which organisations plan to deal with the various aspects of management like problem perception, divergent thinking, substantial resources, decisions making, innovations, taking risks and facing uncertainty.”

Benefits of strategic management according to Fred R. David’ :

1. Allows identification, prioritisation and exploitation of opportunities.
2. Provides an objective view of management problems.
3. Represents a framework for improved co-ordination and control of activities.
4. Minimises the effects of adverse conditions and changes.
5. Allows major decisions to better support established objectives.
6. Allows more effective allocation of time and resources to identified opportunities.
7. Allows fewer resources and lesser time to be devoted to correcting erroneous or adhoc decisions.
8. Creates a framework for internal communication among personnel.
9. Helps to integrate the behaviours of individuals into a total effort.
10. Provides a basis for the clarification of individual responsibilities.
11. Gives encouragement to forward thinking.
12. Provides a co-operative, integrated and enthusiastic approach to tackling problems and opportunities.

Objectives of SHRM :

1. To focus the HR policies, programmes and practices as the means through which the people can be deployed to gain better and competitive advantages;
2. To manage and maintain human capital resources, skill, knowledge, efficiency and intelligence of the employees;
3. To find out the ways and means for effective and efficient utilisation of human resources;

4. To emphasise that human resources treated as the primary source of competitive advantages of the organisation;
5. To integrate the HR strategies with the Business strategies for the betterment of organisation;
6. To make an appropriate direction for people, practices and performance towards the achievements of the goals of the organisation;
7. To develop stable employee relations by way of effective resource utilisation, optimizing remuneration, better productivity and better work culture; etc.

Significance:

- i. Human resource management activities and policies are aspects of explicitly formulated business strategy.
- ii. Design and management of personnel systems based on employment policy and manpower strategy underpinned by 'philosophy'.
- iii. The use of planning to maximize advantage from human resource management

Difference between traditional and strategic HRM		
	Traditional HRM	Strategic HRM
Responsibility for HRM	Staff specialists	Line managers
Focus	Employee relations	Partnerships with internal and external customers
Role of HR	Transactional, change follower, and respondent	Transformational, change leader and initiator
Initiatives	Slow, reactive, fragmented	Fast, proactive, integrated
Time horizon	Short term	Short, medium, long (as necessary)
Control	Bureaucratic-roles, policies, procedures	Organic-flexible, whatever is necessary to succeed
Job design	Tight division of labor, independence, specialization	Broad, flexible, cross-training, teams
Key investments	Capital, products	People, knowledge
Accountability	Cost center	Investment center

Q4: Define Empowerment, flexi time, mentoring?

A4: Empowerment is the process of giving employees in the organisation the power, authority, responsibility, resources, freedom to take decisions and solve work related problems. In order to take such initiatives and decisions, they are given adequate authority and resources.

This allocation of authority is not based on the concept of “delegation” based relationship. In empowerment it is a “trust based relationship”, which is established between management and employees. It is a continuous process.

Empowerment is the process of shifting authority and responsibility to other in the organizational setting. Empowerment takes place when higher management transfers the power, authority, and responsibility to lower level employees. Shifting of authority and responsibility to the workers is made to take over the charge of the work they do.

characteristics:

1. Empowered organizations put emphasis on delegation, decentralization, and diffusion of power and information.
2. Their organizational hierarchy is flat instead of series of levels which command and control the one immediately beneath them.
3. They appoint fewer managers with wider responsibilities. The span of management is well above twenty in which a manager's role shifts from controller to coach and mentor.
4. They set unstructured guidelines so that the employees know their decision-making parameters.
5. Their employee-related core value is employee satisfaction.
6. They invest lot of time and effort to ensure that newly recruited employees are able to handle workplace freedom.

Objectives:

The prime objective of empowerment is allocation of power between management and employees in such a way that employees' commitment can be enhanced. Managers in contemporary organisations advocate performance improvement through employee empowerment and decentralization.

According to Bower, and Lawler, three types of employee empowerment are possible.

These are as follows:

Type # 1. Suggestion Involvement:

It represents a small shift away from the traditional control model. Employees are encouraged to contribute ideas through formal suggestion programs or quality circles. They can only offer suggestions, the power to accept suggestions and implement those rests with the management.

Type # 2. Job Involvement:

In this type of empowerment, the jobs are redesigned so that employees use a variety of skills. Employees believe their tasks are significant, they have considerable freedom in deciding how to do the work, they get enough feedback about their performance and each handles a whole identified piece of work.

Type # 3. High Involvement:

High involvement organisations give their lowest level employees a sense of involvement not just in how they do their jobs or how effectively their group performs, but in the total organisation's performance. Information on all aspects of business performance is shared horizontally across the organisation as well as up and down the structure.

Elements of empowerment: Elements of empowerment include control over work situation, self-sufficiency or competence, purposefulness, belief system and trust.

1. Control over Work Situation:

The employees of the organisations must have a sense of parental control over one's immediate work situation. This is very much essential to understand the situation in which an employee is expected to discharge his duties.

2. Self-Sufficiency or Competence:

The employee must be capable of successfully performing the assigned task. The employee must have confidence in his performance. He should not accept responsibility for making decisions until they are confident of their abilities.

3. Purposefulness:

The empowered employee must feel the significance and importance of the task assigned to him. He should not only know the value of the work for himself but also to the organisations . Every employee must know how his/her task fits into the larger scheme of things.

4. Belief System and Trust:

The employee must clearly understand the impact of the decision taken on the performance and effectiveness of the organisations . The impact is felt when employees perceive that their behavior has caused important outcomes.

Flexitime:

Flexitime or Flexitime is a non-traditional approach to work hour scheduling. This allows employees to select their working hours on their own. There is, however, a particular core time period for which all employees have to be present at work. The rest of the work hours can be adjusted as per the employee's convenience.

Example:

Let for company X:

Total work hour per week is: 40

Total work hour per day: 8

Traditional Timing: 9am-6pm / 8am-5pm; 5days a week

Flexitime: core hours: 12AM-4PM

An example of flexitime can be as given below:

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Time	11AM-7PM (8hrs)	12AM-8PM (8hrs)	8AM-10PM & 12AM-7PM (2hrs+7hrs)	11AM-4PM & 6PM- 8PM (5hrs+2hrs)	11AM-7PM (8hrs)

Advantages of Flextime:

Employers:

- Employee retention: Flexible timings result in increased employee satisfaction thereby lowering turnover.
- Higher productivity: Allowing employees to choose their work hours strengthens commitment towards the organization goal which in turn boosts productivity
- Larger window of client communication: With different team members coming in at different time it becomes easier to communicate with clients at different time zones
- Lesser work pressure: Dividing the time according to the employee's wish keeps their morale boosted, which helps in dealing with stress
- Decreasing presentism and absenteeism
- Increasing employee loyalty

Employees:

- Time management: Having a flexible work schedule means better division of professional and personal time.
- Lesser travel time: Avoiding the peak traffic hours results in saving time and keeps energy high.

Disadvantages of Flextime:

Employers:

- Communication among team members: When all members have different timings its tough to fit in meetings that suits all.
- Unsuitable for all industries: Flextime is a probable solution for the service industry, but is not at all feasible for employees of manufacturing industry. Example, workers if an assembly line have to be present at the same time as it is a chained process
- Employee specific: Every employee may not look at flex timing as a benefit provided. Thus strong supervision is necessary from management to make the effort successful.

Employees:

- Lack of team communication: As the whole team spends little time together, team dynamics are not very strong and may result in lack of communication

Mentoring:

Mentoring is a process of using specially selected and trained individuals to provide guidance, pragmatic advice, and continuing support that will help the people in their learning and development process. The best example of a mentor is Mr. N. R. Narayan Murthy of Infosys. Mentoring is a method of helping people acquire skills and knowledge from experienced managers who are wise in the way of the organization.

Mentors provide people with:

1. Advice in drawing up self-development programmes.
2. Guidance on how to acquire the necessary knowledge and skills to do a new job.
3. Information on corporate culture.
4. Help in the right direction.

Characteristics of Mentoring:

1. Mentoring requires a high degree of mutual trust between the mentor and the mentee.
2. Effective communication is the key to the mentoring programmes.
3. The success of mentoring depends on the availability of the mentor and predictability.

UNIT : 2

Q 1: Define HRP with its objectives , scope and functions. What are the qualitative and quantitative aspects of HRP?

A 1: According to E.W. Vetter, human resource planning is “the process by which a management determines how an organisation should make from its current manpower position to its desired manpower position.

In the words of Leon C. Megginson, human resource planning is “an integration approach to performing the planning aspects of the personnel function in order to have a sufficient supply of adequately developed and motivated people to perform the duties and tasks required to meet organisational objectives and satisfy the individual’s needs and goals of organisational members.

Features of Human Resource Planning:

1. Well Defined Objectives:

Enterprise’s objectives and goals in its strategic planning and operating planning may form the objectives of human resource planning. Human resource needs are planned on the basis of company’s goals. Besides, human resource planning has its own objectives like developing human resources, updating technical expertise, career planning of individual executives and people, ensuring better commitment of people and so on.

2. Determining Human Resource Needs:

Human resource plan must incorporate the human resource needs of the enterprise. The thinking will have to be done in advance so that the persons are available at a time when they are required. For this purpose, an enterprise will have to undertake recruiting, selecting and training process also.

3. Keeping Manpower Inventory:

It includes the inventory of present manpower in the organisation. The executive should know the persons who will be available to him for undertaking higher responsibilities in the near future.

4. Adjusting Demand and Supply:

Manpower needs have to be planned well in advance as suitable persons are available in future. If sufficient persons will not be available in future then efforts should be made to start recruitment process well in advance. The demand and supply of personnel should be planned in advance.

5. Creating Proper Work Environment:

Besides estimating and employing personnel, human resource planning also ensures that working conditions are created. Employees should like to work in the organisation and they should get proper job satisfaction.

1. Quantitative Considerations/Aspects:

These Include

(i) The Economic Considerations relating to determination of economic situation and in the light of that future sales and production estimates are made. These estimates affect manpower requirements.

(ii) Expansion programmes in future also affect future manpower requirements.

(iii) Availability of existing manpower resources of different kinds should be kept in mind. This is helpful in forecasting future manpower requirements.

(iv) Rate of labour turnover is an important instrument with the help of which estimates with regard to future manpower requirements can be made. It provides required information statistically i.e. how many employees have left and joined the organization during a specific period of time. Labour turnover rates are calculated by applying separation method, replacement approach and flux method. In the light of labour turnover rate future manpower requirements can be estimated,

(v) Resignations and retirements, promotion, demotion, separation, transfers, dismissals and lay off etc. are other important considerations to be borne in mind before initiating the process of human resources planning.

(vi) Changes in the management thinking, philosophy and plans etc. also affect manpower plans. Technological changes and diversifications etc. bring about changes in the skills and performance of workers.

2. Qualitative Considerations/Aspects:

(i) **Work-load analysis:** It is a technical aspect of manpower planning. It includes and studies auditing of human resources, study of work standards and demand analysis etc.

(ii) **Auditing of Employees:** Involves Preparation of Skill Inventory. Skill inventory covers data regarding skill and work priorities pertaining to work of different categories of workers. Big organizations prepare organizational charts and other employee information cards for this purpose.

(iii) **Study of work standards** is necessary for the quality of workers required. It is indispensable for preparing job analysis which includes job specifications and job descriptions.

Q 2:What is job and job analysis? Discuss the contents of job analysis in detail. Discuss the methods of job analysis in detail. What is job description? Discuss the contents of job description in detail. What is job specification? Discuss the contents of Job specification in detail.

A 2: Job:

In simple words, a job may be understood as a division of total work into packages/positions. According to Dale Yoder ‘, “A job is a collection or aggregation of tasks, duties and responsibilities which as a whole, is regarded as a regular assignment to individual employees and which is different from other assignments”.

Job Analysis:

Job analysis refers to the process of collecting information about a job. In other words, it refers to the anatomy of the job. Job analysis is performed upon ongoing jobs only. It contains job contents. For example, what are the duties of a supervisor, grade II, what minimal knowledge, skills and abilities are necessary to be able to adequately perform this job? How do the requirements for a supervisor, grade II, compare with those for a supervisor, grade I? These are the questions that job analysis answers

There are two major aspects of job analysis:

These are:

1. Job Description
2. Job Specification

Job Description:

Job description is prepared on the basis of data collected through job analysis. Job description is a functional description of the contents what the job entails. It is a narration of the contents of a job. It is a description of the activities and duties to be performed in a job, the relationship of the job with other jobs, the equipment and tools involved, the nature of supervision, working conditions and hazards of the job and so on.

Purposes of Job Description:

Job description is done for fulfilling the following purposes:

1. Grading and classification of jobs
2. Placement and Orientation of new employees
3. Promotions and transfers
4. Outlining for career path
5. Developing work standards
6. Counselling of employees
7. Delimitation of authority

Job Specification:

Job specification is a statement of the minimum levels of qualifications, skills, physical and other abilities, experience, judgment and attributes required for performing job effectively. In other words, it is a statement of the minimum acceptable qualifications that an incumbent must possess to perform a given job. It sets forth the knowledge, skills and abilities required to do the job effectively.

Usages of Job Specification:

1. Personnel planning
2. Performance appraisal
3. Hiring
4. Training and development
5. Job evaluation and compensation
6. Health and safety
7. Employee discipline
8. Work scheduling
9. Career planning

Table 5.1: Job Contents

Job Description	Job specification
<p>A statement containing items such as</p> <ul style="list-style-type: none"> ● Job title ● Location ● Job summary ● Duties ● Machines, tools, and equipment ● Materials and forms used ● Supervision given or received ● Working conditions ● Hazards 	<p>A statement of human qualifications necessary to do the job. Usually contains such items as</p> <ul style="list-style-type: none"> ● Education ● Experience ● Training ● Judgement ● Initiative ● Physical effort ● Physical skills ● Responsibilities ● Communication skills ● Emotional characteristics ● Unusual sensory demands such as sight, smell, hearing.

Process of job analysis:

1. Organisational Job Analysis:

Job analysis begins with obtaining pertinent information about a job'. This, according to Terry is required to know the makeup of a job, its relation to other jobs, and its contribution to performance of the organisation.

Such information can be had by dividing background information in various forms such as organisation charts i.e., how the particular job is related to other jobs; class specifications i.e., the general requirement of the job family; job description i.e., starting point to build the revised job description, and flow charts i.e., flow of activities involved in a particular job.

2. Selecting Representative Jobs for Analysis:

Analysing all jobs of an organisation is both costly and time consuming. Therefore, only a representative sample of jobs is selected for the purpose of detailed analysis.

3. Collection of Data for Job Analysis:

In this step, job data features of the job and required qualifications of the employee are collected. Data can be collected either through questionnaire, observation or interviews. However, due care should be taken to select and use the method of data collection that is the most reliable in the given situation of the job.

4. Preparing Job Description:

The job information collected in the above ways is now used to prepare a job description. Job description is a written statement that describes the tasks, duties and responsibilities that need to be discharged for effective job performance.

5. Preparing Job Specification:

The last step involved in job analysis is to prepare job specification on the basis of collected information. This is a written statement that specifies the personal qualities, traits, skills, qualification, aptitude etc. required to effectively perform a job

Q 3:What do you mean by the term recruitment? Discuss the process of recruitment in detail. Discuss the sources of recruitment in detail. What do mean by the term selection? What do you understand by Interview? Define Various types with the errors heppening during interview? What are the different types of Selection Tests?

A 3: According to Edward Flippo, “Recruitment is a process of searching prospective employees and stimulating them to apply for jobs.” According to Dale Yoder, “Recruitment is a process to discover the sources of manpower to meet the requirements of the staffing schedule and to employ effective measures for attracting that manpower in adequate numbers to facilitate effective selection of an efficient working force.”

The process of searching suitable candidates and attracting them to apply for the vacancies in the organization is termed as recruitment. It is the first step for selection and appointment of right employees for the organization. The organization publishes vacancies in the organization through newspaper advertisements, online job portals, consultancy services etc.

The various process involved are:

Process # 1. Application Form:

The application form is designed to contain detailed information about the candidates. It also helps in comparing the merits of the applicants.

The information required in the application form will include some or all of the following:

- (i) Post applied for.
- (ii) Personal data – name, address, telephone number, age, sex, marital status, children, nationality, next of kin.
- (iii) Education – school, college and university attended, degree/ diploma passed, year of passing, subjects offered, grade or division obtained.
- (iv) Professional qualification(s).
- (v) Languages known- ability to read, write and speak.

(vi) Employment history of all jobs since leaving college/ university, dates from and to, employer's name, address and nature of business, position and duties held, reasons for leaving.

(vii) Personal circumstances; when required, prepared to serve anywhere or not, etc.

(viii) Medical history; brief details of any serious illness, disability, major operation, etc.

(ix) Interest, hobbies, sports and other activities.

(x) Anything else which an applicant may like to add.

(xi) References

Space for the candidate's signature, date and place and for office use is given at the end. The printed forms generally contain too much printed matter leaving little space for the applicant to fill in his particulars. There should be at least four times as much space to write in the form as is covered by the print. Some companies have forms printed in different colours for different categories of posts. This facilitates the sorting out and handling of applications by the concerned officials.

Process # 2. Interview:

An interview is the first face to face interaction between the candidate and the company representatives. It is a sine qua non for applicants who qualify in the first screening as probable ones having all the basic requirements. The objectives of selection interviews are to elicit information about the candidate's motives and behaviour, to assess personality, to check the factual information already given by him and to inform him about the job and the company.

The interview may be held either in two stages – preliminary and final – or in one stage only. A preliminary interview could help in recruiting the most probable candidates who could be called for the final interview. It must be conducted by skilled interviewers; otherwise some potential candidates may be lost.

Types of Interview: Type # 1. Formal Interview and Informal Interview:

Formal interview:

It is a planned and well-arranged interview. It is conducted in a formal atmosphere in a fixed venue, time and through a panel of interviewers. All the formalities and procedures are followed in this type of interview. Even questions to be asked are decided well in advance.

Informal Interview:

It is an un-planned and un-scheduled interview and may take place anywhere. Venue and time is not fixed. Questions are not prepared well in advance. Whenever staff is required, this

kind of interview is conducted by asking simple questions like name, age, qualification birth place etc., if candidates approach employer.

Type # 2. Structured or Patterned Interview and Un-Structured or Non-Directed Interview:

It is a fully planned interview and questions to be asked are already structured well in advance on the basis of an analysis of job specification. The time to be allowed to each candidate and the information to be collected is also predefined. The interviewer is carefully selected and he has no or little scope for deviation. Thus, a standardized pattern is adopted to conduct the interview.

Un-Structured or Non-Directed Interview:

It is an un-planned and unstructured interview where questions to be asked, time to be allowed and response to be collected are not thought in advance. Broad general questions are asked to the candidate and candidate is allowed to speak his mind freely without any restrictions. Therefore, better assessment of candidate becomes possible.

Type # 3. Stress Interview:

It is a deliberate attempt to create tension and pressure to observe how an applicant responds under stress and strain. Interviewer puts the candidate by putting him under stress and strain by interrupting the applicant from answering, criticizing his opinion, asking questions in rapid succession and keeping silent for unduly long period of time etc. This kind of interview is conducted just to find out how a candidate behaves in stressful situation.

Type # 4. Group Interview:

In this type of interview, group of individuals are interviewed. For this purpose, a problem is given to a group of candidates for discussion. The candidates are carefully observed as to who will lead the group, who is active and who is in-active, who will dominate and who will keep silence. Actions and reactions of the members in the group are also observed and potential candidate is selected.

Type # 5. Depth Interview:

Depth interview is conducted to test the candidates in depth knowledge in a special area of interest and to get true picture of the candidate in such area or subject. Experts in the concerned area of subject ask the question to test the candidate's capacity in the concerned subject. Thus, candidate is examined thoroughly before he is selected for a particular post.

Type # 6. Panel or Board Interview:

It is an interview conducted by a panel or group of interviewers. Panels of experts interview each candidate, judge each candidates performance and prepare the list of candidate in order

of merit. Here group judgment is involved in the selection of candidates as it seeks to pool the collective judgment of several interviewers.

Type # 7. Exit Interview:

Exit interview is conducted for those who leave or quit the organization. The main purpose of conducting this interview is to know the feelings of the outgoing employees towards organization, fellow workers, policy and rules of the organization and also to know the reason for quitting the job so that any defect associated with the organization can be rectified.

Type # 8. Walk-in-Interview:

Recently many companies have started to hold walk-in-interview. Here candidates are to appear for interview directly without sending their application in advance. At the time of interview candidates are asked to submit application and testimonials in support of their qualification. Questions are asked in the area of candidate's specialization in accordance with job requirement.

Errors by interviewers are:

- i. The halo error-** giving high rating to the candidates whose liking and disliking seem similar to his own
- ii. The logical error-** judging on a wrong yardstick
- iii. The errors of leniency-** helping to come out for something which the candidate cannot cope with
- iv. The contrast error-** penalizing the candidate for having opposite ideas or preferences.

Process # 3. Employment Tests/Selection Test:

As a method of selection, the employment tests are an exception rather than the rule. They may be used to supplement the information already collected through the application forms and interviews. The future performance of the candidate in a particular field may be predicted to some extent by the tests specially designed for the purpose. The disappointment which arises from failures and dropouts in training and later on the job can be avoided by the use of the tests of ability and potential of applicants.

The five main groups of psychological tests are:

I. Intelligence tests:

Intelligence tests are particularly useful in selecting candidates for jobs which call for problem solving abilities or which involve extensive training. Different forms of intelligence tests are used for candidates of different age groups.

II. Attainment tests:

Attainment tests measure the degree to which a person has acquired knowledge or skill. Tests of knowledge have been developed for spelling, vocabulary, arithmetic, mechanical information and a range of more specialised subjects.

III. Aptitude tests:

Aptitude tests identify an individual's innate suitability for particular types of work and can indicate whether a man would be more suited to one type of work rather than another. Tests of 'sales aptitude', 'managerial aptitude', 'mechanical aptitude', etc. are used to identify the candidate's potentialities in a chosen area. The General Aptitude Test Battery identifies a candidate's abilities in such areas as verbal comprehension, numerical ability, motor coordination, manual dexterity, general intelligence, etc.

IV. Interest tests:

Interest tests help in predicting the areas in which the candidates are most likely to settle down and be satisfied. The candidate's preference for indoor or outdoor jobs, routine or creative work and individual or group responsibilities may be ascertained by administering interest tests.

V. Personality tests:

Personality tests are designed to measure the degree to which an individual possesses such qualities as drive/ persuasiveness, self-confidence, stability, etc. The most promising kind of test to throw light on the personality area is the situational test, e.g. the leaderless group discussion.

The psychological tests have some limitations. The predictions based upon these tests cannot be hundred percent correct. Further, the candidates brought up in poor families, and in the rural and backward regions may be put to a disadvantage as compared to those coming from affluent urban families when these tests are used as a primary measure for judging their abilities, levels of maturity, etc. The tests should be properly designed and administered by the experts. They should be used to supplement other methods.

Process # 4. References:

References should be sought, after the selection is finalised. These may be either in a written form or checked over the telephone. If references are sought before the interview, they may bias the thinking of the members of the selection board. The opinions of the previous employers and other persons referred to by the candidate are only as reliable as the judgement of the person giving them. References may help in checking certain facts given by the candidate in the application form.

Process # 5. Medical Test:

The selected candidates are medically examined by the company's doctor or approved medical practitioners. Medical tests may vary from the comprehensive to the nominal, depending upon the nature of the job. The manual jobs may require comprehensive medical tests to prevent infection, detect ailments and complicated diseases.

Process # 6. Appointment Order:

The selected candidates are issued letters of appointment after the recommendations of the selection board are approved by competent authority in the company. Appointments at senior positions such as the chief executives, general managers, financial advisors, etc. need the approval of the board of directors. The chief executive may be the approving authority in the case of other posts.

An appointment order states the post offered, salary and perquisites, service conditions, duration of the post (permanent, temporary, contractual), reporting authority, time limit for communicating acceptance and joining the post, etc. It is duly signed by the employing authority and becomes the first basis of contractual relationship between the company and the candidate.

Process # 7. Personnel Research:

The objective of recruitment these days is not only to select a good person but also to retain a motivated work force as this tends to keep the conflicts low. For this purpose a personnel manager has to fall back on reliable data maintained in his own organisation, researches carried out by other bodies/research institutions or appoint consultants to study a specific area and offer advice.

Q 4: Explain E - Recruitment in detail? Define the terms: Poaching and Outsourcing.?

A 4: E-Recruitment definition: Using electronic resources, typically the internet but also HR software, to guide or assist the hiring process in order to reduce the administrative and financial burden of recruitment and gain access to a wider pool of talent.

In recruitment is the “E-recruitment”. Also known as “On line -recruitment”, it is the use of technology or the web based tools to assist the recruitment process.

Advantages of E-Recruitment are:

- a. Lower costs to the organization. Also, posting jobs online is cheaper than advertising in the newspapers.
- b. No intermediaries.
- c. Online recruitment helps the organisations to weed out the unqualified candidates in an automated way.
- d. Recruitment websites also provide valuable data and information regarding the compensation offered by the competitors etc. which helps the HR managers to take various HR decisions like promotions, salary trends in industry etc.

Disadvantages:

- a. Screening and checking the skill mapping and authenticity of millions of resumes is a problem and time consuming exercise for organizations.
- b. There is low Internet penetration, no access and lack of awareness of internet in many locations across India.
- c. Organizations cannot depend solely on the online recruitment methods.
- d. In India, the employers and the employees still prefer a face-to-face interaction rather than sending e-mails.

Outsourcing:

Outsourcing is simply obtaining work previously done by employees inside the company from sources outside the company. If someone has specialized in an activity which is not strategically critical to our business – and is able to do that cost effectively, it is better to get it from outside.

Need :

- i. Enabling businesses to focus on core operations
- ii. Delivering cost savings – whether direct or indirect

- iii. Helping to create a stable, cost-effective operating platform
- iv. Transferring focus from internal processes to achievement of business goals
- v. Realizing investment in HR transformation and IT systems
- vi. Ensuring compliance with legal, regulatory and best practice requirements, and
- vii. Transferring risk and liability for people issues.

outsourcing can be broadly divided into three types:

1. Application Service Provider (ASP)
2. Business Process Outsourcing (BPO)
3. Total HR Outsourcing

Type # 1. Application Service Provider:

A host of companies specialise in providing hardware and software applications to support large organisations, including application vendors like PeopleSoft, Oracle, etc. which have developed application packages (PeopleSoft HRMS, Oracle HRMS), for supporting human resource activities in an organisation.

They install, customise and provide support for running these applications. The major disadvantage with ASP is the costs associated with application software. Secondly, the successful implementation of the application software is doubtful.

Type # 2. Business Process Outsourcing:

The major difference between BPO and ASP is that in BPO, the client is in direct contact with the employees through call centres or support centres. MNCs generally opt for BPO as they operate in many countries and employ a large number of people. While certain firms wish to retain the power to control human resources, others hand over the power to the service providers.

Type # 3. Total HR Outsourcing:

In this type of outsourcing, the entire HR function is run by the service provider. There is no specific HR department in the organisation. The client organisation only has senior HR professionals who are also HR- strategists. A host of non-strategic functions and employee contact is done by the service provider.

Employee poaching:

(also known as job poaching, talent poaching, or employee raiding) is when a company hires an employee from a competing company. Employee poaching often happens in growing industries that require employees with high-demand skills. For example, poaching is common in the IT industry because employers need workers with high-demand technical skills.

While some companies once made no-poaching agreements with each other, many of these companies no longer do so. However, there are many other ways that employers still try to prevent job poaching.

In recruiting terms, “**poaching**” is a dramatic way to say hiring current or former employees from a competitor or similar company. Employee poaching (talent poaching) or job poaching is the recruiting of employees who work at competing companies. The term "poaching" is associated with illegal hunting, but job poaching isn't, for the most part, unethical or illegal and can help to ensure a competitive job marketplace.

Employee poaching is legal

In 2015, the U.S. District Court in San Jose approved a \$415 million settlement with Apple, Google, Intel and Adobe to end an anti-poaching case. A civil case alleged the firms had agreements "to abstain from actively soliciting each other's employees," according to court documents. This hurt the ability of affected employees to negotiate a pay increase or move to another employer, the lawsuit alleged.

In a subsequent memo, the U.S. Dept. of Justice made it clear that job poaching was legal. The memo, titled "Antitrust Guidance for HR Professionals," said "it is unlawful for competitors to expressly or implicitly agree not to compete with one another, even if they are motivated by a desire to reduce costs. Therefore, HR professionals should take steps to ensure that interactions with other employers competing with them for employees do not result in an unlawful agreement not to compete on terms of employment."

Q 5: Define Internal Mobility in terms of Promotion , Demotion, Transfer and Separation.

A 5: Internal mobility is the process of movement of employees which takes place between the jobs in sections, departments or divisions of the organization. Internal Mobility is necessary to match the employee's skill and requirements with the requirements of the job and those of the organization continuously.

The objectives of internal mobility are:

- to improve organizational effectiveness
- to eliminate structural defects and unwanted positions
- to improve employee effectiveness by putting his knowledge, skills and abilities to better use
- to adjust to changing business operations
- to ensure discipline
- to correct wrong placements and job assignments
- Internal mobility can take any or more of the form of promotion, demotion, transfer

Promotion: Promotion is an upward movement of employee in the organization to another job, higher in organisation's hierarchy. In the new job, the employee finds a change in salary, status, responsibility and grade of job or designation. As a whole, the organization perceives the staffing of vacancy worth more than the employee's present position. In contrast to promotion when the salary of an employee is increased without a corresponding change in the job-grade, it is known as 'upgrading'. But when promotion does not result in change in pay, it is called 'dry promotion'. Promotion is a method of internal mobility.

Demotion: Demotion is the reverse of promotion. It is the downward movement of an employee in hierarchy with lower status, salary and decreased responsibilities. It is generally used as a punitive measure for incompetence or a preliminary step to dismissal. It is a downgrading process where the employees suffer considerable emotional and financial loss.

Causes for demotion: The employee may be unable to meet the challenges posed by a new job.

- Due to low administrative skills.
- Due to poor business conditions and continuous losses, a firm may decide to layoff some and
- to downgrade others, It is sometimes used as a disciplinary tool against offending employees.

Transfer: A transfer implies a lateral movement of an employee in the hierarchy of positions with the same pay and status. Transfers may be either company initiated or employee initiated. In fact, a transfer is a change in job assignment. It may involve a promotion, demotion or no change at all in status and responsibility.

Transfers from one job to another may be either temporary or permanent. Temporary transfers may be due to temporary absenteeism, shifts in the workload, vacations.

Different types of transfer in the jobs are listed below.

- **Production transfer:** Transfers from jobs in which labour requirements are declining to jobs in which they are increasing (through resignation or otherwise) are called production transfer. This type of transfer is made to avoid lay-off of efficient employees by providing them with alternative positions in the same organization
- **Replacement transfer:** These are transfers in which a long- service employee is transferred to a similar job where he replaces or “bumps” an employee with shorter service. This type of transfer is made when all operations are declining but management wants to retain the long-service employee as long as possible.
- **Versatility transfer:** The versatility transfer (better called ‘rotation’) is for the purpose of providing management with a more versatile group of employees. This type of transfer will increase the versatility of the employee by shifting him from one job to another. The employee gets an opportunity for varied job experience. This helps the employee through job enlargement.

- **Remedial transfer:** These transfers are made to remedy the situation. Remedial transfers provide management with a procedure whereby an unsatisfactory placement can be corrected. Initial placement might be faulty or the type of job might not suit his health. In such cases the worker would benefit by transfer to a different kind of work.
- **Benefits of transfers :**
 - a. Remedy faulty placement decisions
 - b. Prepare the employee for challenging future
 - c. Improve employee satisfaction
 - d. Improve employee-employer relations.
 - e. Problems with transfers Inconvenient to employees.
 - f. Employees may or may not fit in the new location
 - g. Shifting of experienced hands may affect productivity
 - h. Discriminatory transfer may affect employee satisfaction.

Employee separation: Employee separation occurs when employees cease to be a member of an organization. Agreement between employer & employee comes to an end. Employees decide to leave the organization or organization ask employee to leave. Reasons for employee separations are voluntary or involuntary. In the former initiation for separation is taken by employee himself or herself. Where the employer initiates to separate an employee it becomes involuntary separation.

Voluntary Separations Quits An employee decides to quit when his or her level of dissatisfaction with the present job is high or a more alternative job is awaiting the individual. Organisations often encourage quits through cash incentives. Popularly known as voluntary retirement scheme (VRS) these schemes are offered by the organizations when they are experiencing losses. They resort to cost saving and believe that the best way of cost saving is to cut the wages of the employees. As VRS are induced by the management it comes under involuntary separations.

Involuntary Separations :Employers resort to terminate employment contract with employees for at least three reasons:

- Organization is passing through lean period and is unable to maintain the existing labour
- Initial faulty hiring resulting in mismatch between job and employee.
- Employee exhibits unusual behavior making the environment ineffective.
- Discharges, layoffs, retrenchment and VRS are the common methods of employer sponsored separations.

Discharge or Dismissal :A discharge takes place when the employer discovers that it is no more desirable to keep an employee any longer. Discharge, also called termination, should be avoided as far as possible. Termination is expensive as the firm must seek replacement, hire and train the new hiree. A discharged individual is likely to badmouth about the company. The following reasons lead to the dismissal of an employee:

- Excessive absenteeism
- Serious misconduct False statement of qualification at the time of employment
- Theft of company property

Layoff :A layoff is a temporary separation of the employee at the instance of the employer. Section 2(kkk) of The Industrial Disputes Act, 1947, defines layoff as “the failure, refusal or inability of an employer to give employment to a worker whose name is present on the rolls but who has not been retrenched”. A layoff may be for a definite period on the expiry of which the employee will be recalled by the employer for the duty. As the employees are laid off by the employer they have to be paid compensation for the period they are laid off. Section 25 of The Industrial Disputes Act, 1947 makes it compulsory for the employer to pay compensation for all the days of layoff. The compensation must be equal to half of the normal wages the employee would have earned if he or she would not have been laid off.

A layoff may be for one of the following reason:

- Shortage of coal, power or raw materials
- Accumulation of stocks
- Breakdown of machinery etc.

Retrenchment: It refers to the termination of the employee because of the replacement of labour by machines or the closure of a department due to continuing lack of demand of the products manufactured in that particular department of the organisation. If the plant is itself closed then the management and the employees have to leave for good. Like layoff retrenchment also entitles the employees to compensation which in terms of section 25(f) of the industrial disputes act, 1947 is equivalent to 15 days average pay for every completed year of continuous service. Retrenchment however differs from layoff in the sense that in layoff the employee continues to be in the employment of the organization and is sure to be recalled after the end of the period of layoff whereas, in retrenchment, the employee's relation with the company are detached immediately. Retrenchment also differs from dismissal. An employee is dismissed due to his or her own fault and dismissal is usually done of one or two employees whereas retrenchment is forced both on the employer and the employee and it involves the termination of several employees.

Voluntary retirement scheme Beginning in the early 1980's, companies both public and private sector have been sending home surplus labour for good reasons not by retrenchment but by a novel scheme called Voluntary retirement scheme VRS also called the "golden hand shake plan".

UNIT 3

Q1: What do you understand by training? What are the objectives of training? Discuss the need for training in modern industry. Explain the benefits of training from view point of organization and employees. Discuss the method and types of training in detail.?

A1: Dale S. Beach defines training as 'the organized procedure by which people learn knowledge and/or skill for a definite purpose'. Training refers to the teaching and learning

activities carried on for the primary purpose of helping members of an organization acquire and apply the knowledge, skills, abilities, and attitudes needed by a particular job and organization.

According to Edwin Flippo, ‘training is the act of increasing the skills of an employee for doing a particular job’.

Need for Training:

1. Environmental changes: Mechanization, computerization, and automation have resulted in many changes that require trained staff possessing enough skills. The organization should train the employees to enrich them with the latest technology and knowledge.

2. Organizational complexity:

With modern inventions, technological upgradation, and diversification most of the organizations have become very complex. This has aggravated the problems of coordination. So, in order to cope up with the complexities, training has become mandatory.

3. Human relations:

Every management has to maintain very good human relations, and this has made training as one of the basic conditions to deal with human problems.

4. To match employee specifications with the job requirements and organizational needs:

An employee’s specification may not exactly suit to the requirements of the job and the organization, irrespective of past experience and skills. There is always a gap between an employee’s present specifications and the organization’s requirements. For filling this gap training is required.

5. Change in the job assignment:

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TYPES OF TRAINING:

1. Induction training:

Also known as orientation training given for the new recruits in order to make them familiarize with the internal environment of an organization. It helps the employees to understand the procedures, code of conduct, policies existing in that organization.

2. Job instruction training:

This training provides an overview about the job and experienced trainers demonstrates the entire job. Addition training is offered to employees after evaluating their performance if necessary.

3. Vestibule training:

It is the training on actual work to be done by an employee but conducted away from the work place.

4. Refresher training:

This type of training is offered in order to incorporate the latest development in a particular field. This training is imparted to upgrade the skills of employees. This training can also be used for promoting an employee.

5. Apprenticeship training:

Apprentice is a worker who spends a prescribed period of time under a supervisor.

METHODS OF TRAINING:

On the Job Training: As the name suggests, the training is on the job itself. A new employee is put on a machine or a specific job under the guidance of a supervisor or

instructor. This method of training is common for all new employees. An experienced worker works along with the new entrant and he explains to him the nature of work, the use and handling of machines and tools and how they are to be operated. The worker is expected to learn the whole process himself. This training method is not expensive and does not involve any separate or elaborate arrangement for the training of new employees.

On the job training method: have their own limitations, and in order to have the overall development of employee's off-the-job training can also be imparted. The methods of training which are adopted for the development of employees away from the field of the job are known as off-the-job methods.

Q2: What do you mean by development? Discuss the method and types of Executive development in detail.

A2: "Executive or management development is a planned process of learning and growth designed to bring behavioural change among the executives."

It is continuous process of learning. It implies that there will be a change in knowledge and behavior of the individuals undergoing development programme. The employee will be able to perform his present job better and will increase his potential for future work.

Management development is a process in which managers working at different levels learn and improve their ability, capability, knowledge and skills for improving the performance of individual as well as organisation. The effectiveness of managers at work contributes a lot to the success of every organisation.

characteristics of management development are as follows:

1. It is an organised process of learning rather than a haphazard or trial and error approach.
2. It is a long term process as managerial skills cannot be developed overnight.
3. It is an ongoing exercise rather than a "one-shot" affair. It continues throughout an executive's entire professional career because there is no end to learning.
4. Management development aims at preparing managers for better performance and helping them to realise their full potential.
5. Executive development is guided self-development. An executive can provide opportunities for development of its present and potential managers.

Purpose or Objective of Management Development Programmes:

1. To sustain better performance of managers throughout their careers.
2. To improve the existing performance of managers at all levels.
3. To encourage existing managers to increase their capacity to assume and handle greater responsibility.
4. To enable the organisation to have the availability of required number of managers with the required skills to meet the present and anticipated (future) needs of the organisation.
5. To replace elderly executives who have risen from the ranks by highly competent and academically qualified professionals.
6. To provide opportunities to the executives to fulfil their career aspirations.

The following are some of the important on-the-job and off-the-job techniques of management development.

1. On-the-Job Techniques:

These are the most widely used techniques. No other technique may interest the trainee so much as these do since the location of the learner is not an artificial one as the classroom. The success of these techniques depends on the immediate supervisor and how good a teacher he is. On-the-job techniques are especially useful for certain groups like scientific and technical personnel.

Though the costs of training initially appear to be low they may turn out to be high when wastages of all kinds are considered under this type of training.

This method of learning in isolation may prove to be inadequate but in combination with the other techniques will be excellent.

The important on-the-job training techniques are:

- I. Coaching,
- II. Job Rotation,
- III. Under Study,
- IV. Multiple Management.

I. Coaching:

In coaching the trainee is placed under a particular supervisor who acts as an instructor and teaches job knowledge and skills to the trainee. He tells him what he wants him to do, how it can be done and follows up while it is being done and corrects errors.

“Coaching should be distinguished from counseling.... Counseling... involves a discussion between the boss and his subordinates of areas concerned with the man’s hopes, fears,

emotions, and aspirations. It reaches into very personal and delicate matters. To be done correctly, counseling demands considerable background and ability on the part of the counselor. If carried out poorly, it may do considerable damage.”

The act of coaching can be done in several ways. The executive apart from asking them to do the routine work may ask them to tackle some complex problem by giving them chance to participate in decision-making.

One of the important limitations of this technique is that the individual cannot develop much beyond the limits of his own boss’s abilities.

II. Job Rotation:

The transferring of executives from job to job and from department to department in a systematic manner is called Job Rotation. When a manager is posted to a new job as part of such a programme, it is not merely an orientation assignment. He has to assume the full responsibility and perform all kinds of duties.

The idea behind this is to give him the required diversified skills and a broader outlook, which are very important at the senior management levels. It is upto the management to provide a variety of job experiences for those who have the potential for higher ranks before they are promoted.

Job rotation increases the interdepartmental cooperation and reduces the monotony of work. It makes the executives in general management and does not allow them to confine themselves to their specialised field only.

III. Understudy:

“An understudy is a person who is in training to assume at a future time, the full responsibility of the position currently held by his superior.” This method supplies the organisation a person with as much competence as the superior to fill his post which may fall vacant because of promotion, retirement or transfer.

An understudy may be chosen by the department or its head. He will then teach what all his job involves and gives him a feel of what his job is. This under study also learns decision-making as his superior involves him in the discussion of daily operating problems as well as long-term problems. The leadership skills can also be taught by assigning him the task of supervising two or three people of the department.

IV. Multiple Management:

Multiple Management is a system in which permanent advisory committees of managers study problems of the company and make recommendations to higher management. It is also called Junior-board of executives system. These committees discuss the actual problems and different alternative solutions after which the decisions are taken.

The technique of multiple management has certain advantages over the other techniques.

They are:

- (i) Members have the opportunity to acquire the knowledge of various aspects of business.
- (ii) It helps to identify the members who have the skills and capabilities of an effective manager.
- (iii) Members have the opportunity to participate in the group interaction and thereby gain the practical experience of group decision-making.
- (iv) It is relatively an inexpensive method; and
- (v) Considerable number of executives can be developed in a short span of time.

On-the-Job Experience:

Managers learn and acquire various skills and knowledge by doing the job assigned. This technique can be used along with other techniques of management development.

2. Off-The-Job Techniques:

Because of the fact that on-the-job techniques have their own limitations, these off-the-job techniques are considered important to fill those gaps.

The following are some of the important off-the-job techniques:

- (I) The case study
- (II) Incident method
- (III) Role playing
- (IV) In basket method
- (V) Business game
- (VI) Sensitivity training
- (VII) Simulation
- (VIII) Grid training
- (IX) Conferences
- (X) Lectures
- (XI) Behaviour modelling
- (XII) Transactional Analysis
- (XIII) Structured Insight
- (XIV) Special Courses

- (XV) Special Meetings
- (XVI) Special Readings, and
- (XVII) Specific Projects.

(I) The Case Study:

Case is a description of management problem/situation as viewed or presented to a decision-maker. Cases are prepared on the basis of actual business situations that happened in various organisations. The trainees are given cases for discussing and deciding upon the case. Then they are asked to identify the apparent and hidden problems for which they have to suggest solutions.

The situation is generally described in a comprehensive manner and the trainee has to distinguish the significant facts from the insignificant, analyse the facts, identify the different alternative solutions, select and suggest the best. This whole exercise improves the participant's decision-making skills by sharpening their analytical and judging abilities.

Why Case Study?

- i. Enhances analytic, problem solving and critical thinking skills.
- ii. Participants can master complex knowledge, skills and attitude areas.
- iii. Active participation.
- iv. Encourage learning process- Questioning, interpreting.
- v. Enhances team problem skills and interaction skills.

(II) Incident Method:

This method was developed by Paul Pigours. It aims to develop the trainee in the areas of intellectual ability, practical judgment and social awareness.

Incidents are prepared on the basis of actual situations which happened in different organisations. Each employee in the training group is asked to study the incident and to make short-term decisions in the role of a person who has to cope with the incident in the actual situation.

Later, the group studies and discusses the incident and takes decisions relating to incident, based on the group interaction and decisions taken by each member. Thus, this method is similar to a combination of case method and in-basket method.

(III) Role Playing:

A problem situation is simulated by asking the participants to assume the role of particular person in the situation. The participant interacts with other participants assuming different roles. Mental set of the role is described but no dialogue is provided.

The whole play may be tape-recorded and the trainee may thus be given the opportunity to examine his or her own performance.

Role playing gives the participants vicarious experiences which are of much use to understand people better. This method teaches human relations skills through actual practice. The exemplary role playing situations are: a grievance discussion, employment interview, a sales presentation, etc.

(IV) In-Basket Method:

The trainees are first given background information about a simulated company, its products, key personnel, various memoranda, requests and all data pertaining to the firm. The trainee has to understand all this, make notes, delegate tasks and prepare memos within a specified amount of time.

Abilities that this kind of exercise develops are:

- i. Situational judgment in being able to recall details, establishes priorities, interrelate items and determine need for more information.
- ii. Social sensitivity in exhibiting courtesy in written notes, scheduling meetings with personnel involved and explaining reasons for actions taken.
- iii. Willingness to make decision and take action.

(V) Business Games:

Under this method, the trainees are divided into groups or different teams. Each team has to discuss and arrive at decisions concerning such subjects as production, pricing, research expenditure, advertising, etc., assuming it to be the management of a simulated firm.

The other teams assume themselves as competitors and react to the decision. This immediate feedback helps to know the relative performance of each team. The team's co-operative decision promotes greater interaction among participants and gives them the experience in co-operative group processes.

All this develops organisational ability, quickness of thinking, leadership qualities and the ability to adopt under stress.

Advantages and Disadvantages of Business Games:

Advantages:

- i. Provides efficient learning situation
- ii. Highest level of involvement of participants
- iii. Enhance Decision-Making ability
- iv. Analyse situations logically
- v. Can be used for cross-functional areas also.

Disadvantages:

- i. Improper handling may cause confusion
- ii. Some games lack validation
- iii. May be far from reality
- iv. Too costly
- v. Time consuming.

(VI) Sensitivity Training:

The main objective of sensitivity training is the “Development of awareness of and sensitivity of behavioural patterns of oneself and others.” This development results in the (i) increased openness with others, (ii) greater concern for others, (iii) increased tolerance for individual differences, (iv) less ethnic prejudice, (v) understanding of group processes, (vi) enhanced listening skills, (vii) increased trust and support.

The role played by the trainee here is not a structured one as in role play. It is a laboratory situation where one gets a chance to know more about himself and the impact of his behaviour on others. It develops the managerial sensitivity, trust, and respect for others. One of the limitations of sensitivity training is that it exacts a huge emotional cost from the manager

(VII) Simulation:

Under this technique the situation is duplicated in such a way that it carries a closer resemblance to the actual job situation. The trainee experiences a feeling that he is actually encountering all those conditions. Then he is asked to assume a particular role in the circumstances and solve the problems by making a decision. He is immediately given a feedback of his performance.

One of the limitations of this method is that it is very difficult to duplicate the situation to the extent of making the trainee feel the pressures and realities of actual decision-making on the job. The very fact that the trainee knows that it is an artificial situation prevents him from experiencing all that he experiences in real job situation.

(VIII) Managerial Grid:

It is a six phase programme lasting from three to five years. It starts with upgrading managerial skills, continues to group improvement; improves inter group relations, goes into corporate planning, develops implementation method and ends with an evaluation phase. The grid represents several possible leadership styles. Each style represents a different combination of two basic orientations – concern for people and concern for production.

(IX) Conferences:

A conference is a meeting of several people to discuss the subject of common interest. But contribution from members can be expected as each one builds upon ideas of other participants. This method is best suited when a problem has to be analysed and examined from different viewpoints.

It helps the members develop their ability to modify their attitudes. Participants enjoy their method of learning as they get an opportunity to express their views.

The success of the conference depends on the conference leader. In order to make the conference a success, the conference leader must be able to see that the discussion is thorough and concentrate on the central problem by encouraging all the participants to develop alternatives and present their viewpoints and by preventing domination by a few participants.

(X) Lectures:

It is the simplest of all techniques. This is the best technique to present and explain series of facts, concepts, and principles. The lecturer organises the material and gives it to a group of trainees in the form of talk.

The main uses of lectures in executive development are:

- (i) It is direct and can be used for a larger group of trainees.
- (ii) It presents the overview and scope of the subject clearly.
- (iii) It presents the principles, concepts, policies and experiences in the shortest time. Thus, it is a time saving technique.

The lectures do not give scope for student participation and may sometimes be boring which in turn hinders learning. Skills can be learnt only by doing and therefore lectures are of no use for technical skills.

(XI) Behaviour Modelling:

Behaviour modelling is an approach that demonstrates desired behaviour and provides trainees the chance to practice and role play/imitate those behaviours and receive feedback. This technique combines several training methods. This technique involves four basic components viz.,

- a. Learning points – Learning points, which are normally a sequence of behaviours, are to be identified and taught.
- b. Model – Participants view films/videotapes in which a model manager's action is portrayed.

(XII) Transactional Analysis:

This is developed and popularized by Eric Berne through his book on “Games People Play” and Thomas Harris through his book on “I’m OK, You’re OK” respectively. Transactional analysis is the analysis of transactions between two or more persons. The major areas of transactional analysis can be explained through ego states, transactions and stroking.

Ego is a hypothetical construct and is used to help explain the complex dynamics of the human personality. Transactional Analysis uses three ego states viz., Child (C) Ego; Adult (A) Ego and Parent (P) ego. A number of transactions take place between two or more individuals. They are classified as complementary, crossed and ulterior transactions. Crossed and ulterior transactions result in conflict whereas complementary transactions are desirable to improve inter-personal relations.

(XIII) Structured Insight:

Under structured insight, trainers collect data with regard to attitudes and values of trainees, and compare the data with the chosen model of behaviours. Then the trainers provide deviations between the chosen models and the trainee’s behaviour and enable the trainee to develop some insight into makeup and implications of their chosen modes of behaviours. This process develops the trainee to modify his/her behaviours in the lines of chosen model behaviours.

(XIV) Special Courses:

Various business schools, management institutes and consultancy organisations conduct special courses in management development. These organisations conduct generic and company-based customized special courses. Various companies depute their managers to these courses. Trainees learn and acquire special skills and knowledge in these special courses.

(XV) Special Meetings:

Companies, business schools and consultancy organisations organise special meetings in order to train managers and enable them to acquire specific skills and knowledge.

(XVI) Special Readings:

Managers are provided with special papers, books, reports and the like with a specific note. Managers read these specific notes from the books and papers and enrich their specific managerial knowledge.

(XVII) Specific Projects:

Companies depute managers on a specific assignment in various projects. Managers while working in these projects learn multiple skills and knowledge under flexible and comprehensive environments.

MANAGEMENT DEVELOPMENT PROGRAMME:

The process of management development begins with top management's recognition of the need for MDP, Development of suitable policy guidelines and assignment of special responsibility for executing the policy create a favourable climate of on-the-job growth, personal improvement and development of managers.

A special committee of senior executives will look after planning and guiding management development. The personnel manager and special training staff will administer the routine of MDP.

Components or Ingredients of Management Development Programme:

The essential components or steps of a comprehensive management development programme are discussed below under the following heads:

- (i) Looking at organisation's objectives;
- (ii) Ascertaining development needs;
- (iii) Appraisal of present management talents;
- (iv) Preparation of Manpower Inventory;
- (v) Planning of individual development programmes;
- (vi) Establishment of training and development programmes;
- (vii) Programme evaluation.

(i) Looking at Organisations' Objectives: this is the first step in executive development programme. The objects tell "where we are going" and will develop a framework from which the executive need can be determined.

(ii) Ascertaining Development Needs calls for organisational planning and forecast of its needs for present and future growth. This is generally based upon a comprehensive job description, job specification and job analysis with particular reference to the kind of management work performed, the kind of executives needed, and the kind of education, experience, training, special knowledge, skills, personal traits, etc., required for such work. Most companies train their own executives, except when they experience a critical shortage of specialised high-level talent. In the latter case, executives are hired from outside.

(iii) An Appraisal of Present Management Talent: is made with a view to determining qualitatively the type of personnel that is available within an organisation itself. The performance of a management individual is compared with the standard expected of him. His personal traits are also analysed so that a value judgment may be made of his potential for advancement.

(iv) A management Manpower Inventory :is prepared for the purpose of getting complete information about each management individual's bio-data and educational qualifications, the results of tests and performance appraisal. It may also be maintained on replacement tables or charts. From these, it can be known that several capable executives are available for training for higher positions.

An analysis of the information will bring to the attention of the management the potential obsolescence of some of the present executives, the inexperience or shortage of managers in certain functions, and skill deficiencies relative to the future needs of the organisation.

(v) The Planning of Individual Development Programmes: is undertaken to meet the needs of different individuals, keeping in view the differences in their attitudes and behaviour, and in their physical, intellectual and emotional qualities.

The weak and strong points of an individual are known from his performance appraisal reports; and, on the basis of these, tailor-made programmes are framed and launched. Such programmes give due attention to the interests and goals of the subordinates as well as the training and development opportunities which exist within an organisation.

(vi) Establishment of Training and Development Programmes: this job is done by the personnel department. A comprehensive and well-conceived programme is generally prepared, containing concentrated brief courses (often called crash programmes).

Such courses may be in the field of human relations, time and motion study, creative thinking, memory training, decision-making, leadership courses, and courses in professional or academic institutions, depending on organisational needs and the time and the cost involved.

(vii) Evaluating Development Programmes evaluation: is the systematic collection and assessment of information for deciding how best to utilise available training resources in order to achieve organisational objectives.

Q3: What do you understand by career planning? What do you understand by Succession planning?

A 3:Career planning is the process by which one selects career goals and the path to these goals. The major focus of career planning is on assisting the employees achieve a better match between personal goals and the opportunities that are realistically available in the organization. Career programmers should not concentrate only on career growth

opportunities. Practically speaking, there may not be enough high level positions to make upward mobility a reality for a large number of employees. Hence, career-planning efforts need to pin-point and highlight those areas that offer psychological success instead of vertical growth.

Objectives:

Career planning seeks to meet the following objectives:

- i. Attract and retain talent by offering careers, not jobs.
- ii. Use human resources effectively and achieve greater productivity.
- iii. Reduce employee turnover.
- iv. Improve employee morale and motivation.
- v. Meet the immediate and future human resource needs of the organization on a timely basis

The Career Planning Process :involves the following steps:

i. Identifying individual needs and aspirations:

Most individuals do not have a clear cut idea about their career aspirations, anchors and goals. The human resource professionals must, therefore, help an employee by providing as much information as possible showing what kind of work would suit the employee most, taking his skills, experience, and aptitude into account. Such assistance is extended through workshops/seminars while the employees are subjected to psychological testing, simulation exercises, etc. The basic purpose of such an exercise is to help an employee form a clear view about what he should do to build his career within the company. Workshops and seminars increase employee interest by showing the value of career planning. They help employees set career goals, identify career paths and uncover specific career development activities (discussed later). These individual efforts may be supplemented by printed or taped information. To assist employees in a better way, organizations construct a data bank consisting of information on the career histories, skill evaluations and career preferences of its employees (known as skill or talent inventory).

ii. Analyzing career opportunities:

Once career needs and aspirations of employees are known, the organization has to provide career paths for each position. Career paths show career progression possibilities clearly. They indicate the various positions that one could hold over a period of time, if one is able to perform well. Career paths change over time, of course, in tune with employee's needs and organizational requirements. While outlining career paths, the claims of experienced persons lacking professional degrees and that of young recruits with excellent degrees but without experience need to be balanced properly.

iii. Aligning needs and opportunities:

After employees have identified their needs and have realized the existence of career opportunities the remaining problem is one of alignment. This process consists of two steps: first, identify the potential of employees and then undertake career development

programmers (discussed later on elaborately) with a view to align employee needs and organizational opportunities. Through performance appraisal, the potential of employees can be assessed to some extent. Such an appraisal would help reveal employees who need further training, employees who can take up added responsibilities, etc. After identifying the potential of employees certain developmental techniques such as special assignments, planned position rotation, supervisory coaching, job enrichment, understudy programs can be undertaken to update employee knowledge and skills.

iv. Action plans and periodic review:

The matching process would uncover gaps. These need to be bridged through individual career development efforts and organization supported efforts from time to time. After initiating these steps, it is necessary to review the whole thing every now and then. This will help the employee know in which direction he is moving, what changes are likely to take place, what kind of skills are needed to face new and emerging organizational challenges. From an organizational standpoint also, it is necessary to find out how employees are doing, what are their goals and aspirations, whether the career paths are in tune with individual needs and serve the overall corporate objectives, etc.

Succession Planning:

Succession planning is a process by which individuals are scanned to pass on the leadership role within a company. The process ensures that business continues to operate efficiently without the presence of people who were holding key positions as they must have retired, resigned, etc.

Description: Succession Planning, specifically termed as Management Succession Planning, involves coaching and development of prospective successors or people within a firm or from outside to take up key positions in an organisation through an organized process of assessment and training.

Q 4: What is job evaluation ?Discuss the objectives of job evaluation? Discuss the process of Job evaluation.?

A 4: In simple words, job evaluation is the rating of jobs in an organisation. This is the process of establishing the value or worth of jobs in a job hierarchy. It attempts to compare the relative intrinsic value or worth of jobs within an organisation. Thus, job evaluation is a comparative process.

Objectives:

1. Provide a standard procedure for determining the relative worth of each job in a plant.
2. Determine equitable wage differentials between different jobs in the organisation.
3. Eliminate wage inequalities.
- 4.Ensure that like wages are paid to all qualified employees for like work.
5. Form a basis for fixing incentives and different bonus plans.
6. Serve as a useful reference for setting individual grievances regarding wage rates

PROCESS OF JOB EVALUATION:

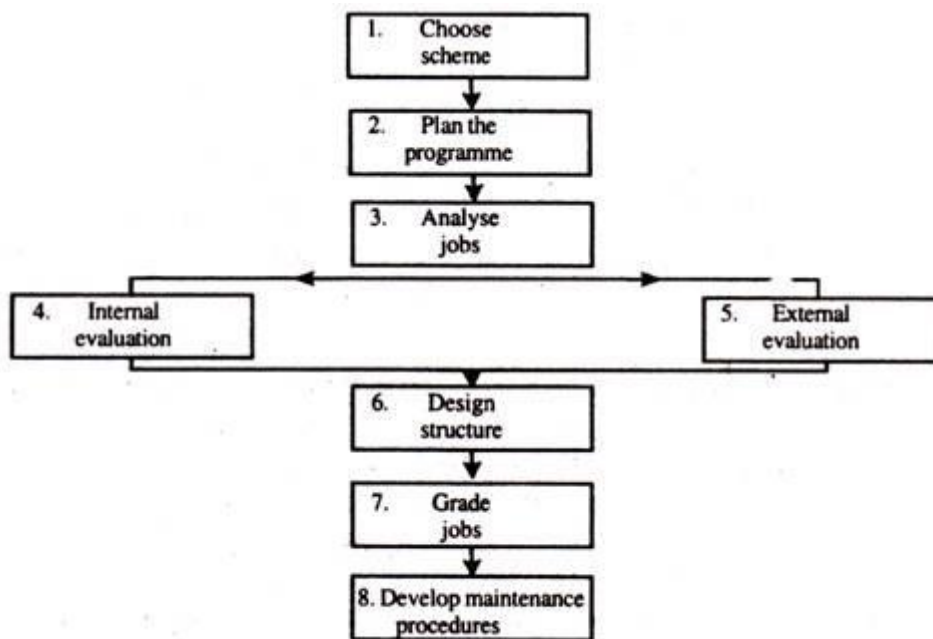


Fig. 14.1: Job Evaluation Programme

Advantages of job evaluation:

According to an ILO publication job evaluation offers the following advantages:

1. Job evaluation being a logical process and objective technique helps in developing an equitable and consistent wage and salary structure based on the relative worth of jobs in an organisation.
2. By eliminating wage differentials within the organisation, job evaluation helps in minimizing conflict between labour unions and management and, in turn, helps in promoting harmonious relations between them.
3. Job evaluation simplifies wage administration by establishing uniformity in wage rates.
4. It provides a logical basis for wage negotiations and collective bargaining.
5. In the case of new jobs, job evaluation facilitates spotting them into the existing wage and salary structure.

Q 5: Define Compensation? What do you mean by incentive compensation? Discuss its types.

A 5: Compensation is the monetary benefit which is given to an employee or worker giving their services to an organization. Compensation includes components like salary, wages, bonuses etc. The compensation provided helps in motivating the employees, build their career and ensure that their are committed in achieving the company goals.

Components of compensation

Compensation can be divided into the following components:

- 1. Completely fixed** (per month or year)
- 2. Some fixed component**, along with a variable component (which is decided based on the rating of the employee and his meeting of the targets)
- 3. Total variable component**, where the total salary depends on the rating received during evaluation
- 4. Bonus** is a component given monthly or yearly based on company's performance

The compensation system followed by a company should be regularly evaluated and updated as per its evolving strategies and also based on the moves of its competitors. Mostly compensation is paid at regular intervals like a monthly payment. However, in certain cases the payment of wages and salaries is delayed, which is known as **deferred compensation**.

Sometimes instead of giving money, companies do payments on behalf of employees, which is also referred as **indirect compensation**.

Types of compensation

Based on the seniority, responsibility and position of an employee, there are various types of compensation plans:

- 1. Executive compensation** for CEOs, managing directors, chairman etc. Mostly salaries and perks are decided by the **compensation committee**.
- 2. Workers compensation** is the salary and wages provided to employees and workers.

Importance of compensation

Compensation is important for an organization to consider its mission and vision and its strategies and then devise the compensation system such that all these components are inter-linked and aligned with each other. Compensation comes under the parlance of human resource (HR) department of an organization. It is the tool that organizations use to manage and reward their employees, so that they perform efficiently. The compensation system that company follows should be an attracting one, and it should motivate its employees to work and justify the amenities provided to them by the company. The compensation system should also ensure that the turnover rate remains low and the employees remain motivated. Along with other non-monetary perks & incentives, the company offers **compensation and benefits** to its employees. Companies have to devise a **compensation plan** based on the position, responsibility and qualification of an employee.

Compensation and benefits components

There can be several ways where benefits can be given to employees. Mostly it is given in terms of a CTC or **gross salary**. Some of the various components of compensation and benefits are mentioned below:

- 1. Fixed pay:** This is the basic salary paid to the employee irrespective of any other factor. This is stated clearly in the employment contract. This is the compensation or **salary** or wage which an employee or a worker will definitely get as long as he or she is an employee of the company.
- 2. Variable Pay:** This is the additional compensation paid to employee based on employee's performance, company performance etc. Since variable pay is based on the performance of an individual, it motivates the employees to perform even better.
- 3. Equity Pay:** Employees are awarded shares of the company, often at a discounted price. Employees are expected to make money out of them by the appreciation of the stock price and the growth of the company. This is mostly given to the senior management who have served the company for a long time.
- 4. Other benefits:** Benefits such as medical facilities, insurance policies, company owned car of flat etc all play an important role in motivating employees. These benefits are given by the company as a part of recognizing the services of an employee.

UNIT 4:

Q1: What is Performance Appraisal, Define with methods?

A1: Performance Appraisal is the systematic evaluation of the performance of employees and to understand the abilities of a person for further growth and development. Performance appraisal is generally done in systematic ways which are as follows:

1. The supervisors measure the pay of employees and compare it with targets and plans.
2. The supervisor analyses the factors behind work performances of employees.
3. The employers are in position to guide the employees for a better performance.

Objectives of Performance Appraisal

Performance Appraisal can be done with following objectives in mind:

1. To maintain records in order to determine compensation packages, wage structure, salaries raises, etc.
2. To identify the strengths and weaknesses of employees to place right men on right job.
3. To maintain and assess the potential present in a person for further growth and development.
4. To provide a feedback to employees regarding their performance and related status.
5. To provide a feedback to employees regarding their performance and related status.
6. It serves as a basis for influencing working habits of the employees.
7. To review and retain the promotional and other training programmes.

Advantages of Performance Appraisal

It is said that performance appraisal is an investment for the company which can be justified by following advantages:

1. **Promotion:** Performance Appraisal helps the supervisors to chalk out the promotion programmes for efficient employees. In this regards, inefficient workers can be dismissed or demoted in case.
2. **Compensation:** Performance Appraisal helps in chalking out compensation packages for employees. Merit rating is possible through performance appraisal. Performance

Appraisal tries to give worth to a performance. Compensation packages which includes bonus, high salary rates, extra benefits, allowances and pre-requisites are dependent on performance appraisal. The criteria should be merit rather than seniority.

3. **Employees Development:** The systematic procedure of performance appraisal helps the supervisors to frame training policies and programmes. It helps to analyse strengths and weaknesses of employees so that new jobs can be designed for efficient employees. It also helps in framing future development programmes.
4. **Selection Validation:** Performance Appraisal helps the supervisors to understand the validity and importance of the selection procedure. The supervisors come to know the validity and thereby the strengths and weaknesses of selection procedure. Future changes in selection methods can be made in this regard.
5. **Communication:** For an organization, effective communication between employees and employers is very important. Through performance appraisal, communication can be sought for in the following ways:
 - a. Through performance appraisal, the employers can understand and accept skills of subordinates.
 - b. The subordinates can also understand and create a trust and confidence in superiors.
 - c. It also helps in maintaining cordial and congenial labour management relationship.
 - d. It develops the spirit of work and boosts the morale of employees.

Performance Appraisal Tools and Techniques:

Following are the tools used by the organizations for Performance Appraisals of their employees.

1. Ranking
2. Paired Comparison
3. Forced Distribution
4. Confidential Report
5. Essay Evaluation
6. Critical Incident
7. Checklists

8. Graphic Rating Scale
9. BARS
10. Forced Choice Method
11. MBO
12. Field Review Technique
13. Performance Test

1. Ranking Method

The ranking system requires the rater to rank his subordinates on overall performance. This consists in simply putting a man in a rank order. Under this method, the ranking of an employee in a work group is done against that of another employee. The relative position of each employee is tested in terms of his numerical rank. It may also be done by ranking a person on his job performance against another member of the competitive group.

Advantages of Ranking Method

- Employees are ranked according to their performance levels.
- It is easier to rank the best and the worst employee.

Limitations of Ranking Method

- The “whole man” is compared with another “whole man” in this method. In practice, it is very difficult to compare individuals possessing various individual traits.
- This method speaks only of the position where an employee stands in his group. It does not test anything about how much better or how much worse an employee is when compared to another employee.
- When a large number of employees are working, ranking of individuals become a difficult issue.
- There is no systematic procedure for ranking individuals in the organization. The ranking system does not eliminate the possibility of snap judgements.

2. Forced Distribution method

This is a ranking technique where raters are required to allocate a certain percentage of rates to certain categories (eg: superior, above average, average) or percentiles (eg: top 10 percent, bottom 20 percent etc). Both the number of categories and percentage of employees to be allotted to each category are a function of performance appraisal design and format. The workers of outstanding merit may be placed at top 10 percent of the scale, the rest may be placed as 20 % good, 40 % outstanding, 20 % fair and 10 % fair.

Advantages of Forced Distribution

- This method tends to eliminate raters bias
- By forcing the distribution according to pre-determined percentages, the problem of making use of different raters with different scales is avoided.

Limitations of Forced Distribution

- The limitation of using this method in salary administration, however, is that it may lead low morale, low productivity and high absenteeism.
- Employees who feel that they are productive, but find themselves in lower grade(than expected) feel frustrated and exhibit over a period of time reluctance to work.

3. Critical Incident techniques

Under this method, the manager prepares lists of statements of very effective and ineffective behaviour of an employee. These critical incidents or events represent the outstanding or poor behaviour of employees or the job. The manager maintains logs of each employee, whereby he periodically records critical incidents of the workers behaviour. At the end of the rating period, these recorded critical incidents are used in the evaluation of the worker's performance. Example of a good critical incident of a Customer Relations Officer is : March 12 - The Officer patiently attended to a customers complaint. He was very polite and prompt in attending the customers problem.

Advantages of Critical Incident techniques

- This method provides an objective basis for conducting a thorough discussion of an employee's performance.
- This method avoids recency bias (most recent incidents are too much emphasized)

Limitations of Critical Incident techniques

- Negative incidents may be more noticeable than positive incidents.
- The supervisors have a tendency to unload a series of complaints about the incidents during an annual performance review session.
- It results in very close supervision which may not be liked by an employee.
- The recording of incidents may be a chore for the manager concerned, who may be too busy or may forget to do it.

4. Checklists and Weighted Checklists

In this system, a large number of statements that describe a specific job are given. Each statement has a weight or scale value attached to it. While rating an employee the supervisor checks all those statements that most closely describe the behaviour of the individual under assessment. The rating sheet is then scored by averaging the weights of all the statements checked by the rater. A checklist is constructed for each job by having persons who are quite familiar with the jobs. These statements are then categorized by the judges and weights are assigned to the statements in accordance with the value attached by the judges.

Advantages of Checklists and Weighted Checklists

- Most frequently used method in evaluation of the employee's performance.

Limitations of Checklists and Weighted Checklists

- This method is very expensive and time consuming
- Rater may be biased in distinguishing the positive and negative questions.

- It becomes difficult for the manager to assemble, analyze and weigh a number of statements about the employees characteristics, contributions and behaviours.

Six modern performance appraisal methods:

1. Management by Objectives (MBO) :

Management by objectives (MBO) is the appraisal method where managers and employees together identify, plan, organize, and communicate goals. After setting clear goals, managers and subordinates periodically discuss the progress made to control and debate on the feasibility.

This process usually lays more stress on tangible work or career-oriented goals. So, intangible aspects like interpersonal skills, job commitment, etc. are often brushed under the rug. This method is slightly expensive and time-intensive.

2. 360-Degree Feedback :

Once-in-a-year performance appraisals are lackadaisical and don't work. Workers need ongoing communication with team leaders and managers. A continuous process, like 360-degree feedback, can help employees stay motivated. This is one of the most widely used appraisal methods.

In 360-degree feedback, every employee in an organization appraises his/her managers, peers, customers, suppliers, and also does a self-evaluation. This method ensures effective performance analysis and Total Employee Involved (TEI). If not handled properly, this method can also suffer from the subjectivity of the appraiser.

3. Assessment Centre Method :

The assessment centre method tests employees in a social-related situation. This concept was introduced way back in **1930 by the German Army** but it has been polished and tailored to fit today's environment. Employees are asked to take part in situation exercises like in-basket exercises, work groups, simulations, and role-playing exercises that ensure success in a role.

While it gives an insight of the employee's personality (ethics, tolerance, problem-solving skill, introversion/extroversion, adaptability, etc.), it can also breed unhealthy competition among the workers and bears adverse effects on low performers.

4. Behaviorally Anchored Rating Scale (BARS) :

Behaviorally anchored rating scales (BARS) bring out both the qualitative and quantitative benefits in a performance appraisal process. BARS compares employee performance with specific behavioral examples that are anchored to numerical ratings.

This performance appraisal method is said to be better than the traditional methods. BARS provides clear standards, improved feedback, accurate performance analysis, and consistent evaluation. However, when done manually it suffers from the usual distortions that are inherent in most review methodologies.

5. Psychological Appraisals :

Psychological appraisals come in handy to determine the hidden potential of employees. This method focuses on analyzing an employee's future performance rather than their past work.

Qualified psychologists conduct a variety of tests (in-depth interviews, psychological tests, discussions, and more) to identify an employee's emotional, intellectual, and other related traits. However, it is a rather slow and complex process and the quality of results is highly dependent on the psychologist who administers the procedure.

6. Human-Resource (Cost) Accounting Method :

Human resource (cost) accounting method analyses an employee's performance through the monetary benefits he/she yields to the company. It is obtained by comparing the cost of retaining an employee (cost to company) and the monetary benefits (contributions) an organization has ascertained from that specific employee.

When an employee's performance is evaluated based on cost accounting methods, factors like unit-wise average service value, quality, overhead cost, interpersonal relationships, and more are taken into account. Its high-dependency on the cost and benefit analysis and the memory power of the reviewer is the drawback of human resources accounting method.

Performance Appraisal Biases:

1. **First Impression (primacy effect):** Raters form an overall impression about the ratee on the basis of some particular characteristics of the ratee identified by them. The identified qualities and features may not provide adequate base for appraisal.
2. **Halo Effect:** The individual's performance is completely appraised on the basis of a perceived positive quality, feature or trait. In other words this is the tendency to rate a man uniformly high or low in other traits if he is extra-ordinarily high or low in one particular trait. If a worker has few absences, his supervisor might give him a high rating in all other areas of work.
3. **Horn Effect:** The individual's performance is completely appraised on the basis of a negative quality or feature perceived. This results in an overall lower rating than may be warranted. "He is not formally dressed up in the office. He may be casual at work too!".
4. **Excessive Stiffness or Lenience:** Depending upon the raters own standards, values and physical and mental makeup at the time of appraisal, ratees may be rated very strictly or leniently. Some of the managers are likely to take the line of least resistance and rate people high, whereas others, by nature, believe in the tyranny of exact assessment, considering more particularly the drawbacks of the individual and thus making the assessment excessively severe. The leniency error can render a system ineffective. If everyone is to be rated high, the system has not done anything to differentiate among the employees.
5. **Central Tendency:** Appraisers rate all employees as average performers. That is, it is an attitude to rate people as neither high nor low and follow the middle path. For example, a professor, with a view to play it safe, might give a class grade near the equal to B, regardless of the differences in individual performances.
6. **Personal Biases:** The way a supervisor feels about each of the individuals working under him - whether he likes or dislikes them - as a tremendous effect on the rating of their performances. Personal Bias can stem from various sources as a result of information obtained from colleagues, considerations of faith and thinking, social and family background and so on.

7. **Spillover Effect:** The present performance is evaluated much on the basis of past performance. “The person who was a good performer in distant past is assured to be okay at present also”.
8. **Recency Effect:** Rating is influenced by the most recent behaviour ignoring the commonly demonstrated behaviours during the entire appraisal period.

Q 2: Define Employee Grievance and Grievance Handling Procedure?

A 2: Employee grievance refers to the dissatisfaction of an **employee** with what he expects from the company and its management. A company or employer is expected to provide an **employee** with a safe working environment, realistic job preview, adequate compensation, respect etc.

A **grievance** is anything that an **employee** thinks or feels is wrong and is generally accompanied by an actively disturbing feeling.

Grievance procedure is a Step by step **process** an **employee** must follow to get his or her complaint addressed satisfactorily. In this **process**, the formal (written) complaint moves from one level of authority (of the firm and the union) to the next higher level.

Objectives of a Grievance Handling Procedure:

Jackson (2000) lays down the objectives of a grievance handling procedure as follows:

1. To enable the employee to air his/her grievance.
2. To clarify the nature of the grievance.
3. To investigate the reasons for dissatisfaction.
4. To obtain, where possible, a speedy resolution to the problem.
5. To take appropriate actions and ensure that promises are kept.
6. To inform the employee of his or her right to take the grievance to the next stage of the procedure, in the event of an unsuccessful resolution.

Benefits of a Grievance Handling Procedure:

According to Jackson (2000), further benefits that will accrue to both the employer and employees are as follows:

1. It encourages employees to raise concerns without fear of reprisal.
2. It provides a fair and speedy means of dealing with complaints.
3. It prevents minor disagreements developing into more serious disputes.
4. It saves employers time and money as solutions are found for workplace problems. It helps to build an organizational climate based on openness and trust.

In grievance redressed, responsibility lies largely with the management. And, grievances should be settled promptly at the first stage itself. The following steps will provide a measure of guidance to the manager dealing with grievances.

i. Acknowledge Dissatisfaction:

Managerial/supervisory attitude to grievances is important. They should focus attention on grievances, not turn away from them. Ignorance is not bliss, it is the bane of industrial conflict. Condescending attitude on the part of supervisors and managers would aggravate the problem.

ii. Define the Problem:

Instead of trying to deal with a vague feeling of discontent, the problem should be defined properly. Sometime the wrong complaint is given. By effective listening, one can make sure that a true complaint is voiced.

iii. Get the Facts:

Facts should be separated from fiction. Though grievances result in hurt feelings, the effort should be to get the facts behind the feelings. There is need for a proper record of each grievance.

iv. Analyse and Decide:

Decisions on each of the grievances will have a precedent effect. While no time should be lost in dealing with them, it is no excuse to be slipshod about it. Grievance settlements

provide opportunities for managements to correct themselves, and thereby come closer to the employees.

Horse-trading in grievance redressed due to union pressures may temporarily bring union leadership closer to the management, but it will surely alienate the workforce away from the management.

v. Follow up:

Decisions taken must be followed up earnestly. They should be promptly communicated to the employee concerned. If a decision is favourable to the employee, his immediate boss should have the privilege of communicating the same.

Some of the common pitfalls that managements commit in grievance handling relate to:

- (a) Stopping the search for facts too soon;
- (b) Expressing a management opinion before gathering full facts;
- (c) Failing to maintain proper records;
- (d) Arbitrary exercise of executive discretion
- (e) Settling wrong grievances.

Q 3:What is the need for a Grievance Handling Procedure:

A 3 :

Grievance procedure is necessary for any organisation due to the following reasons:

1. Most grievances seriously disturb the employees. This may affect their morale, productivity and their willingness to cooperate with the organisation. If an explosive situation develops, this can be promptly attended to if a grievance handling procedure is already in existence.
2. It is not possible that all the complaints of the employees would be settled by first-time supervisors, for these supervisors may not have had a proper training for the purpose, and they may lack authority. Moreover, there may be personality conflicts and other causes as well.

3. It serves as a check on the arbitrary actions of the management because supervisors know that employees are likely to see to it that their protest does reach the higher management.
4. It serves as an outlet for employee gripes, discontent and frustrations. It acts like a pressure valve on a steam boiler. The employees are entitled to legislative, executive and judicial protection and they get this protection from the grievance redressal procedure, which also acts as a means of upward communication.

Q 4:What are the Pre-requisites and basic elements of a Grievance Handling Procedure?

A 4: The grievance procedure, to be sound and effective should possess certain pre-requisites:

(a) Conformity with Statutory Provisions:

Due consideration must be given to the prevailing legislation while designing the grievance handling procedure.

(b) Unambiguity:

Every aspect of the grievance handling procedure should be clear and unambiguous. All employees should know whom to approach first when they have a grievance, whether the complaint should be written or oral, the maximum time in which the redressal is assured, etc. The redressing official should also know the limits within which he can take the required action.

(c) Simplicity:

The grievance handling procedure should be simple and short. If the procedure is complicated it may discourage employees and they may fail to make use of it in a proper manner.

(d) Promptness:

The grievance of the employee should be promptly handled and necessary action must be taken immediately. This is good for both the employee and management, because if the wrong doer is punished late, it may affect the morale of other employees as well.

(e) Training:

The supervisors and the union representatives should be properly trained in all aspects of grievance handling before hand or else it will complicate the problem.

(f) Follow up:

The Personnel Department should keep track of the effectiveness and the functioning of grievance handling procedure and make necessary changes to improve it from time to time.

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4. Basic Elements of a Grievance Handling Procedure:

The basic elements of a grievance redressal procedure are:

(i) The existence of a sound channel through which a grievance may pass for redressal if the previous stage or channel has been found to be inadequate, unsatisfactory or unacceptable.

This stage may comprise three, four or five sub-stages.

(ii) The procedure should be simple, definite and prompt, for any complexity or vagueness or delay may lead to an aggravation of the dissatisfaction of the aggrieved employee.

(iii) The steps in handling a grievance should be clearly defined.

These should comprise:

(a) Receiving and defining the nature of the grievance:

(b) Getting at the relevant facts, about the grievance;

(c) Analysing the facts, after taking into consideration the economic, social, psychological and legal issues involved in them;

(d) Taking an appropriate decision after a careful consideration of all the facts; and

(e) Communicating the decisions, to the aggrieved employee.

(iv) Whatever the decision, it should be followed up in order that the reaction to the decision may be known and in order to determine whether the issue has been closed or not.

Q 5: How you can define errors in grievance handling?also define misconduct and disciplinary procedure?

A 5: Errors in the Grievance Handling Procedure:

I. Stopping too soon, the search for facts:

II. Expressing the opinion of the management before all the pertinent facts have been uncovered and evaluated;

III. Failing to maintain proper records;

IV. Resorting to an executive fiat instead of dispassionately discussing the facts of the grievance of the employee;

V. Communicating the decision to the grievance in an improper way; and

VI. Taking a wrong or hasty decision, which the facts or circumstances of the case do not justify.

Measures to Avoid the Errors:

Managements should try to avoid the errors in the grievance procedure by following the measures indicated hereunder:

- a. Helpful attitude and support of the management.
- b. Belief on the part of all concerned in the practice of the procedure.
- c. Introduction of the procedure with the concurrence of employees and trade unions.
- d. Following the simple, fair and easily comprehensible procedures.
- e. Formulating the clear policies and procedures of the company.
- f. Delegation of appropriate authority to the parties concerned.
- g. Functioning of the personnel department in the advisory capacity.
- h. A fact-oriented and issue-oriented rather than employee-oriented procedure.
- i. Respect the decisions taken at all levels.

- j. Adequate publicity to the procedure.
- k. Periodic evaluation and review of the procedure.

Misconduct:

Black's **Law** dictionary defines '**Misconduct**' as “A transgression of some established and definite rule of action, a forbidden **act**, a dereliction from duty, unlawful behaviour, wilful in character, improper or wrong behaviour

Disciplinary Procedure in Industrial Relations

The disciplinary procedure involves the following steps:

a. **Preliminary Investigation:**

First of all, a preliminary inquiry should be held to find out whether a prima facie case of misconduct exists.

b. **Issue of a Charge-sheet:**

Once the prima facie case of misconduct is established, charge sheet is issued to the employee. Charge sheet is merely a notice of the charge and provides the employee an opportunity to explain his conduct. Therefore, charge sheet is generally known as a show cause notice.

In the charge sheet, each charge should be clearly specified. There should be a separate charge for each allegation and charge should not relate to any matter which has already been decided upon. The charges so framed should be communicated to the individual along with the statement of allegations on which the charges are based.

c. **Suspension Pending Enquiry:**

Depending on the gravity of charges, an employee may be suspended along with serving him the charge sheet. The various circumstances which may warrant suspension of an individual are:

- i. When disciplinary proceeding is pending or contemplated.
- ii. When engaged in the activities prejudicial to the interest or security of the state.
- iii. Where a case in respect of any criminal offence is under investigation, inquiry or trial.

- iv. Where continuance in office will prejudice investigation/ inquiry/trial.
- v. When the presence of the employee in office is likely to affect discipline.
- vi. When his continuous presence in office is against the wider public interest.
- vii. Where a prima face case has been established as a result of criminal or departmental proceedings leading to the conviction, revival, dismissal, etc.
- viii. **In case of the following acts of misconduct:**

- Moral Turpitude
- Corruption, embezzlement
- Serious negligence in duty resulting in loss
- Desertion of duty
- Refusal or failure to carry out written orders

According to the Industrial Employment (Standing Orders) Act, 1946, the suspended worker is to be paid subsistence allowance equal to one-half of his wages for the first ninety days of suspension and three-fourths of the wages for the remaining period of suspensions, if the delay in the completion of disciplinary proceedings is not due to the worker's own conduct.

d. **Notice of Enquiry:**

In case the worker admits the charge, in his reply to the charge sheet, without any qualification, the employer can go ahead in awarding punishment without further inquiry. But if the worker does not admit the charge and the charge merits major penalty, the employer must hold an enquiry to investigate into the charges. Proper and sufficient advance notice should be given to the employee indicating the date, time and venue of the enquiry so that the worker may prepare his case.

e. **Conduct of Enquiry:**

The enquiry should be conducted by an impartial and responsible officer. He should proceed in a proper manner and examine witnesses. Fair opportunity should be given to the worker to cross-examine the management witnesses.

f. **Recording the Findings:**

On the conclusion of the enquiry, the enquiry officer must record his findings and the reasons thereof. As far as possible, he should refrain from recommending punishment and leave it to the decision of the appropriate authority.

g. **Awarding Punishment:**

The management should decide the punishment purely on the basis of findings of the enquiry, past record of the worker and gravity of the misconduct.

h. Communicating Punishment:

The punishment awarded to the worker should be communicated to him in written and the earliest available opportunity. The letter of communication should contain reference to the charge sheet, the enquiry and the findings. The date from which the punishment is to be effective should also be mentioned.



SUBJECT: FINANCIAL MANAGEMENT

Code: BBA 204

Q1:” Wealth maximisation is superior criterion than profit maximisation”. Do you agree? Give Reasons.

Ans. **Profit maximization** is the ability of the firm in maximum output with limited input, or it uses the minimum input for the said output. It is called the company's most important purpose.

Traditionally it has been recommended that the obvious objective of any business organization is to profit, it is essential for the company's success, survival, and development. The benefit is a long-term objective, but it has a short-term perspective, i.e. a financial year.

The profit can be calculated by cutting total cost from total revenue. Through **profit maximization**, a firm may be able to detect input-output levels, which gives the highest amount of profit.

Therefore, the finance officer of an organization should make a decision in order to maximize profit, although this is not the sole purpose of the company.

The goal of Wealth maximization A company has the ability to increase the market value of its general stock over time. The market value of the firm is based on many factors like their services, sales, goodwill, quality of products, etc.

This is a versatile **goal of wealth maximization** of the company and recommended criterion for evaluating the performance of a business organization. This will help the firm to increase its stake in the market, gain leadership, maintain consumer satisfaction and also have many other benefits.

It has been universally acknowledged that the basic aim of the business venture is to increase the property of its shareholders because they are the owners of the venture, and they buy shares of the company with this hope that it will give some returns.

It states that the firm's financial decisions should be taken in such a way that the net present value of the company's profit increases.

Profit maximization vs wealth maximization is given in the points given below:

1. Through which process the company is able to increase the earning potential, it is known as **profit maximization**. On the other hand, the company's ability to increase the value of its stock in the market is known as the maximum amount of money.
2. **Profit maximization** ignores risk and uncertainty. Unlike Wealth Maximization, which considers both.
3. **Profit maximization** is a short term objective of the firm whereas the long-term objective is money maximization.
4. **Profit maximization** avoids the time value of money, but Wealth Maximization recognizes it.
5. **Advantage maximization** is essential for the survival and development of the enterprise. On the contrary, **Goal Of Wealth Maximization** accelerates the growth rate of the enterprise and its objective is to achieve the maximum market share of the economy.
6. **Risk management** – Under profit maximization, management minimizes expenditure, so it is less likely to pay for hedges which can reduce the risk profile of the organization. A wealth-focused company works on risk mitigation, so the risk of its loss is reduced.
7. **Pricing strategy** – When the management wants to maximize profits, then the maximum price is given to the products to increase the margin. To make a market share, in the long run, a wealth-oriented company can reverse, to reduce prices.
8. **capacity planning** – A profit-oriented business will spend enough on its productive capacity to handle current sales levels and perhaps short-term sales forecasts. A wealth-oriented business will spend more heavily on the capacity to meet its long-term sales estimates.

Q2: "A rupee of today is not equal to rupee of tomorrow". Explain.

Ans. The concept of time value is that the value of money received today is more than the value of the same amount received after a certain period of time. In simple terms, money received in the future is not as valuable as money received today. If you are given the choice of receiving Rs. 1,000 today or after one year, you will definitely opt to receive it today than after one year. This is because the value of current receipt of money is higher than the future receipt of the same money. This concept is referred to as time preference of money.

The reasons are as follows:

1. Present Needs are Considered as More Important:

People consider present needs as more important than their future needs. Purchase of clothes, television, car and luxurious articles for their present use feels more urgent than saving for tomorrow. Therefore, people consider the value of money today as more than its value as of tomorrow.

2. Investment Opportunities Available:

If you pay Rs10,000 to a person today, and if he invests it at 12% per annum, he would receive Rs11,200 (Rs10,000 plus $\text{Rs10,000} \times 12/100$) at the end of the year. Whereas if he is to receive the same amount after one year, he would receive only Rs10,000. Sometimes, by investing in shares, one can even double the money in a short period. So, a person prefers to receive a certain sum of money today rather than receiving it after a certain period of time.

3. Uncertainty and Loss:

Future is uncertain. If you expect to receive a certain amount in future, there is always an uncertainty with regard to its receipt in future. The future is subject to risks. A person may incur loss due to not getting the expected amount in future. So, a person prefers to receive the money today.

There are two techniques for adjusting the time value of money:

A. Compounding technique or Future value technique, and

B. Discounting technique or Present value technique.

A. Compounding Technique or Future Value Technique:

The time preference of money encourages a person to receive the money at present instead of waiting for the future. But he may like to wait if he is duly compensated for the waiting time by way of ensuring more money in future. For example, a person being offered Rs1,000 today may wait for a year if he is ensured of Rs1,100 at the end of one year taking his time preference for money is 10% per annum.

B. Discounting Technique or Present Value Technique:

Present value of the money is today's value of money to be received in future. It is the future of money discounted at a given rate of interest. In other words, present value shows what the value is today of some future sum of money.

Q3:Mr Shukla wants to invest in a co that has just given a current dividend of Rs 5 per share.Dividends are expected to grow at 10% for 5 yrs,at 8% for next 3 yrs and at 5% thereafter perpetually.Find out the intrinsic value of equity share if required rate is 10%.What is the value of share at end of 8th year?If actual market price is Rs 100,should Mr shukla buy this share?

Ans.Do=5

$D_1 = D_0(1+g)$

$$=5(1+0.10)=5.5$$

Yr	Dividend	PVF@10%	PV of dividend
1	5.5	0.909	5
2	6.05(5.5*1.10)	0.826	5
3	6.65(6.05*1.10)	0.751	5
4	7.32	0.683	5
5	8.05	0.621	5
6	8.70(8.05*1.08)	0.564	4.9
7	9.39	0.513	4.8
8	10.14	0.467	4.74
	Total		39.45

$$D_9 = D_8(1+0.05)$$

$$=10.14(1.05)=10.65$$

$$P_8 = D_9 / K_e - g$$

$$=10.65 / 0.10 - 0.05$$

212.94

Present value of P8= $P8 \times PVF(10\%, 8\text{yrs})$

$$=212.94 \times 0.467$$

$$=99.44$$

Value of share= $39.45+99.44$

$$=138.89$$

Therefore, **Value of share at the end of 8 years is 212.94.**

Mr shukla should **buy** this bond as its value(138.89) is higher than market price of 100.

Q4:Mr. Rawat bought a 12% bond with 10 years maturity having face value of 1000 at its issue price of Rs 1000 6 years ago.The bond is redeemable at par.Its market price now is Rs 1100.Should Mr Rawat sell this bond?Why?Assume Required rate is 13%.

Ans.Value of bond= $\text{Div} \times PVAF(r\%, n) + RV \times PVF(r\%, n)$

$$=120 \times PVAF(13\%, 4) + 1000(PVF(13\%, 4))$$

$$=120 \times 2.974 + 1000 \times 0.613$$

$$=969.88$$

Mr Rawat should sell this bond because its value is less than the market price.

Q5:Mr X wants to purchase a house for Rs 50 Lakhs.He is planning to pay a down payment of 10Lakhs.Remaining he will borrow from a housing co at 10% pa interest.The loan is to be repaid in 15 equal instalments beginning 3 years from now.Find out the amount of annual instalment to repay this loan.

Ans.Loan amount= $50\text{Lakhs}-10\text{Lakhs}=40\text{ Lakhs @ }10\%$

$$FV = PV \times PVF(r\%, n)$$

$$=10,00,000 \times PVF(10\%, 2)$$

$$10,00,000 \times 1.21$$

$$=48,40,000$$

Now this 48,40,000 has to be paid in 15 equal installments.

$$PV = \text{Annuity} * PVAF(r\%, n)$$

$$48,40,000 = A * PVAF(10\%, 15)$$

$$4840000 = A * 7.606$$

$$4840000 / 7.606 = \text{Annuity}$$

$$6,36,340 = \text{Annuity}$$

Q6: A choice is to be made between 2 proposals which require equal investment of 50,000 each and are expected to generate cash inflows as:

Year	Project A	Project B
1	25000	10000
2	15000	12000
3	10000	18000
4	Nil	25000
5	12000	8000
6	6000	4000

Which project be chosen under:

a) Payback b) ARR

Ans. A) Payback

Year	Cash Flows of A	Cumulative of A	Cash Flows of B	Cumulative of B
1	25000	25000	10000	10000
2	15000	40000	12000	22000
3	10000	50000	18000	40000
4	Nil	50000	25000	65000
5	12000	62000	8000	73000
6	6000	68000	4000	77000

Payback period = N Year + Rem. Inflows/Cashflows in N+1 Year

Project A= 3 Years

Project B = $3 + 10000/25000$

=3.40 Years

B)ARR

Depreciation= $50000/6=8333$

Year	Cashflows of A(PAT+Dep)	Dep	PAT of A	Cashflows of B	PAT of B
1	25000	8333	16667	10000	1667
2	15000	8333	6667	12000	3667
3	10000	8333	1667	18000	9667
4	Nil	8333	(8333)	25000	16667
5	12000	8333	3667	8000	(333)
6	6000	8333	(2333)	4000	(4333)
		Total	18002	Total	27002

$ARR = \text{Avg PAT} / \text{Avg Investment} * 100$

Project A:

Avg PAT= $18002/6=3000$

Avg Investment= $50000/2=25000$

$ARR=3000/25000 * 100 = 12\%$

Project B:

Avg PAT= $27002/6=4500$

Avg Investment= $50000/2=25000$

$ARR=4500/25000 * 100 = 18\%$

ARR of Project B is higher , So B is preferred.

Q7: The co has 2 options. Project A requires outlay of 12 lakhs and Project B 18 Lakhs. Both are estimated to generate inflows for 5 years: Project A 4 lakhs Per year & Project B 580000 per year. Req. rate is 10%. Which project should be selected on basis of

i) NPV ii) PI

Ans. i) NPV = PV of cash Inflows - PV of cash Outflow

Project A: $4,00,000 \times \text{PVAF}(10\%, 5) - 12,00,000$

$= 4,00,000 \times 3.791 - 12,00,000$

$= 3,16,400$

Project B: $5,80,000 \times \text{PVAF}(10\%, 5) - 18,00,000$

$= 5,80,000 \times 3.791 - 18,00,000$

$= 3,98,780$

ii) $\text{PI} = \text{PV of cash Inflows} / \text{PV of cash Outflow}$

Project A $= 15,16,000 / 12,00,00$

$= 1.26$

Project B $= 21,98,780 / 18,00,000$

$= 1.22$

On basis of NPV, B should be selected. On basis of PI, A should be selected. In case of conflict in ranks, results given by NPV is used because it is superior and more in line with wealth maximisation criteria. Hence, Project B should be selected.

Q8: A co is considering the possibility of manufacturing a component which at present is being bought from outside. The manufacturing requires investment of 7,50,000 besides an additional investment of 50,000 in working capital. Life of machine is 10 years with salvage value of 50,000. The estimated savings (before tax) would be 1,80,000 per annum. Tax is 50%. Required rate is 10%. Depreciation is on straight line method. Suggest whether this investment be made or not.

Ans. Initial Cas Outflow:

Cost=7,50,000

+Working capital=50,000

Total Cash outflow=8,00,000

Annual Cash Inflows:

PBDT	1,80,000
Less:Dep(750000-50000/10)	70,000
PBT	1,10,000
Less:Tax(50%)	55,000
PAT	55,000
Add:Dep	70,000
Cash flows	1,25,000

Terminal Flows:

Salvage Value=50,000

Recovery of working capital=50,000

Total terminal flows at end of 10th year=1,00,000+1,25,000

=2,25,000

NPV=PV of cash inflows- PV of cash Outflows

PV of cash Inflows=1,25,000*PVAF(10%,10)+1,00,000*PVF(10%,10)

1,25,000*6.145+1,00,000*0.386

=8,06,725

NPV=806725-800000

=6725

Since NPV is positive, investment should be made.

Q 9: XYZ Ltd has 2 mutually exclusive projects. The After tax cashflows are:

Year	Project A	Project B
0	100000	100000
1	32000	0
2	32000	0
3	32000	0
4	32000	0
5	32000	200000

Required rate is 11%.

- What is project's NPV?
- What is project's IRR?
- What has caused the ranking conflict?
- Which project should be accepted? Why?

Ans. a) NPV

Year	Cashflows of A	Cashflows of B	PVF @11%	PV of cashflows A	PV of cashflows B
1	32000	0	0.901	28832	0
2	32000	0	0.812	25984	0
3	32000	0	0.731	23392	0
4	32000	0	0.659	21088	0
5	32000	200000	0.593	18976	118600
			Total PV	118272	118600
			Less: Outflow	100000	100000
			NPV	18272	18600

b) IRR

Project A:

NPV @ 11% = 18272

We need a negative NPV. So increase the rate.

NPV @ 19% = PV of inflows – PV of outflow

PV of inflows = $32000 \times \text{PVAF}(19\%, 5)$

32000×3.058

= 97856

NPV = 97856 - 100000

= -2144

So, IRR lies between 11% and 19%.

IRR = Lower rate + $\frac{\text{Npv @ lower rate}}{\text{Npv @ lower rate} - \text{Npv @ higher rate}} \times (\text{I Higher} - \text{I Lower})$

= $11\% + \frac{18272}{18272 - (-2144)} \times (19 - 11\%)$

= $11\% + 18272/20416 \times 8\%$

= $11\% + 0.89 \times 8\%$

= $11\% + 7.16\%$

= 18.16%

Project B:

NPV @ 11% = 18600

We need a negative NPV. So increase the rate.

NPV @ 15% = PV of inflows – PV of outflow

PV of inflows = $200000 \times \text{PVF}(15\%, 5)$

200000×0.497

= 99400

NPV = 99400 - 100000

$$= -600$$

So,IRR lies between 11% and 15 %.

IRR= Lower rate + Npv @ lower rate/Npv @ lower rate-Npv @higher rate *(I Higher – I Lower)

$$= 11\% + 18600/18600-(-600)*(15-11\%)$$

$$=11\% + 18600/19200*4\%$$

$$=11\% + 0.968*4\%$$

$$= 11\% + 3.875\%$$

$$=14.875\%$$

c)There is a conflict in ranking on the basis of NPV and IRR.As per NPV,B should be selected.As per IRR,A should be selected.This conflict is due to the different patterns of cash inflows. A has uniform cash inflows but B has inflows only in last year.

d)Project B should be selected because NPV method is more in line with the objective of wealth maximisation.

Q10: Why there is conflict between NPV and IRR ranking?

Ans. Both NPV and IRR methods of capital budgeting will give identical results while evaluating independent projects having conventional cash flows. Also in most of the other cases, these methods may provide similar results. However, there could be situations where NPV and IRR methods may give contradictory results While evaluating the same set of proposals. This can happen in case of mutually exclusive investment projects. In mutually exclusive projects a choice is to be made to select one project from two or more proposals under consideration. NPV and IRR methods may give contradictory results while evaluating mutually exclusive projects in the following situations:

1. When alternative proposals have different size or scale of investment.

2. When timings or pattern of benefits (cash flows) differ among alternative proposals.

3. When projects have unequal lives.

I. When alternative proposals have different size or scale of investment: When initial cash Outflow (scale or cost of investment) of two mutually exclusive projects differ then NPV and IRR methods may give conflicting ranking. This is because of the reason that NPV method measures the net benefits of a project in absolute term. Large size investment proposal involving higher cash outflows will definitely offer larger returns (cash inflows). This will increase the NPV of proposal involving higher cash outlays in absolute term. This may results in project with larger Initial cash outflow getting relatively higher ranking by NPV method. On the other hand, the IRR method measures the net benefits of a project in relative term i.e., in percentage and hence ignores the scale of investment.

2. When timings or pattern of benefits (cash inflows) differ among alternative proposals: NPV and IRR methods may provide different ranking of mutually exclusive projects even when they involve the same initial investment. The conflict in ranking may also be due to the different timings or pattern of benefits (cash inflows) of alternative proposals. It may be possible that one proposal may provide larger cash inflows during earlier period of its life while larger cash inflows from other alternative proposal may occur during later period of its life.

3. When Projects have Unequal Lives: A conflict in ranking of mutually exclusive proposals under Npv and IRR methods may also arise because of the proposals having unequal lives.

Conclusion: IRR method is concerned with the rate of return on investment rather than total yield on investment. Hence it decides the quality of investment and not the quantum of contribution made by the project towards the value of firm. On the other hand NPV method measures the benefits in absolute term. The NPV of a project shows its net contribution to the value of A project with higher NPV will contribute more towards the value of firm. NPV meth takes into account both quality and quantum of benefits made by a project. It is more in with the wealth maximization principle as compared to IRR method. Hence NPV method preferred over IRR whenever a conflict in ranking arises.

Q 11:SR Ltd has following balance sheetas on Mar31,2018.

Equity & Liabilities	Amt	Assets	Amt
Equity Capital(10 each)	40,00,000	Fixed assets	1,28,00,000
Reserves	8,00,000	Current Assets	32,00,000
15% Debt	80,00,000		
Current Liabilities	32,00,000		
	1,60,00,000		1,60,00,000

Fixed Cost per annum(excluding interest)=32,00,000

Variable cost ratio=70%

Total asset turnover ratio=2.5

Tax=30%

Cal:a)Operating Leverage b)Financial Leverage c)Combined Leverage d)EPS

Ans.Total asset turnover ratio=Sales/Total assets

2.5=Sales/1,60,00,000

Sales=4,00,00,000

Statement of PAT

Sales=4,00,00,000

Less:VC=2,80,00,000

Contribution=1,20,00,000

Less:FC=32,00,000

EBIT=88,00,000

Less:Interest(15%of 80Lakh)=12,00,000

EBT=76,00,000

Less:Tax(30%)=22,80,000

EAT=53,20,000

a)OL=Contribution/EBIT

=1,20,00,000/88,00,000

=1.36

b)FL=EBIT/EBT

=88,00,000/76,00,000

=1.16

c)CL=OL*FL

1.36*1.16

=1.58

d)EPS=EAT/No of equity shares

=53,20,000/4,00,000

=13.30

Q12: In considering the most desirable capital structure for a co,the following estimates of cost of debt capital (after tax)have been made at various levels of debt-equity mix:

Debt as %of total capital	Cost of Debt %	Cost of equity %
0	7	15
10	7	15
20	7	15.5

30	7.5	16
40	8	17
50	8.5	19
60	9.5	20

Find out WACC for different proportions of debt and tell the optimum capital structure.

Ans:

Debt %	Equity%	Kd%	Ke%	Ko%
0	100(1)	7	15	$0*7 + 1*15=15\%$
10(0.10)	90(0.9)	7	15	$0.1*7 + 0.9*15=14.2\%$
20(0.2)	80(0.8)	7	15.5	13.8%
30(0.3)	70(0.7)	7.5	16	13.45%
40(0.4)	60(0.6)	8	17	13.4%
50(0.5)	50(0.50)	8.5	19	13.75%
60(0.6)	40(0.4)	9.5	20	13.7%

Optimum capital structure is 40% debt and 60% equity in the capital structure.

Q 13: ABC has following capital structure:

Equity share (4lakh shares of 10 each)=40,00,000

12% Preference Share =4,00,000

10% Debt=6,00,000

The Equity shares are quoted at 110 and expected dividend is Rs 15 per share. Growth rate=8%.tax=50%

i)Calculate WACC

ii) The co wants to raise additional term loan of 5 lakh at 10%. Calculate revised WACC assuming mkt price gone down to Rs105.

Ans. i) Since it is not mentioned about Book value or market value. We'll use book value.

Source	Book value	Wt	Cost	Wt*cost
Equity	40L	0.80	21.6%(WN1)	17.28%
Pref. Share	4L	0.08	12%(WN2)	0.96%
Debt	6L	0.12	5%(WN3)	0.60%
	50L	1.0	Ko=	18.84%

WN1: $K_e = D_1/P_o + g$

$$15/110 + 0.08$$

$$0.136 + 0.08 = 0.216 \text{ or } 21.6\%$$

WN 2: $K_p = PD/NP$

$$12\% \text{ of face value } 100 = 12/100$$

$$0.12 \text{ or } 12\%$$

WN3: $K_d = I(1-t)/NP$

$$10(1-0.5)/100$$

$$0.05 \text{ or } 5\%$$

ii)

Source	Book value	Wt	Cost	Wt*cost
Equity	40L	0.73	22.28%(WN1)	16.26%
Pref. Share	4L	0.07	12%	0.84%
Debt	6L	0.11	5%	0.55%
10% Loan	5L	0.09	5%(WN2)	0.45%
	55L	1.0	Ko=	18.10%

$$WN1: K_e = D_1/P_0 + g$$

$$15/105 + 0.08$$

$$0.142 + 0.08 = 0.2228 \text{ or } 22.8\%$$

$$WN2: 10(1-0.5)/100$$

$$0.05 \text{ or } 5\%$$

Q 14:

Source	Amount	Specific Cost
Equity Share Capital(4,00,000 eq shares of 10 each)	40,00,000	11%
Pref. Share capital(1,00,000 shares of 10 each)	10,00,000	8%
10% Debt of 1000 each	30,00,000	5%
Retained Earnings	20,00,000	11%

Presently, debenture are being traded at 92%. Preference shares at par and equity shares at Rs 14 per share. Find out WACC based on book value weights and market value.

Ans. WACC based on book value weights

Source	Book Value	Wt	Cost	Wt*cost
Eq Share	40L	0.4	11%	4.4%
Pref Share	10L	0.1	8%	0.8%
Debt	30L	0.3	5%	1.5%
Retained earnings	20L	0.2	11%	2.2%
	1 Cr	1.0	Ko=	8.9%

WACC Based on Market value weights

Source	Mkt Value	Wt	Cost	Wt*cost
Debt	27,60,000	0.2949	5%	1.47%
Pref Shares	10,00,000	0.1068	8%	0.85%
Equity	37,33,333	0.3989	11%	4.387%
Retained Earnings	18,66,667	0.1994	11%	2.193%
	93,60,000		Ko=	8.9%

WN=Equity capital =4Lakh shares*14= 56,00,000. Divide 56lakh in 2:1 ratio (their book value wt)

Here, the Ko is same in both cases.however,it may differ also.

Q15: Explain the NI and NOI approach of capital structure?

Ans. Net income approach and net operating income approach were proposed by David Durand.

According to NI approach, there exists positive relationship between capital structure and valuation of firm and change in the pattern of capitalisation brings about corresponding change in the overall cost of capital and total value of the firm.

Thus, with an increase in the ratio of debt to equity overall cost of capital will decline and market price of equity stock as well as value of the firm will rise. The converse will hold true if ratio of debt to equity tends to decline.

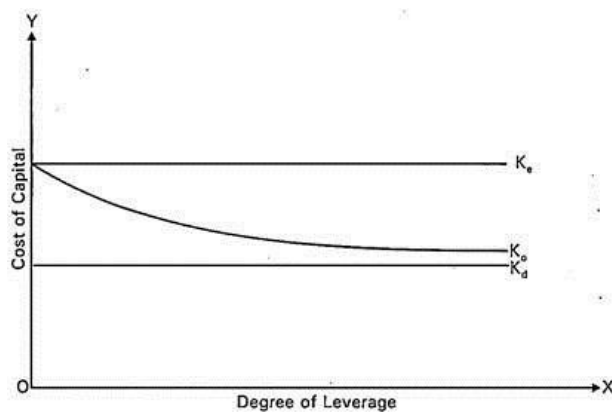


Fig. The effect of leverage on the cost of capital under NI Approach.

This approach is based on three following assumptions:

- (1) There are no taxes;
- (2) Cost of debt is less than cost of equity;
- (3) The use of debt does not change the risk perception of investors. This implies that there will be no change in cost of debt and cost of equity even if degree of financial leverages changes.

On the basis of the above assumptions, it has been held in the NI approach that increased use of debt will magnify the shareholders' earnings (because cost of debt and cost of equity will remain constant) and thereby result in rise in share values of equity and so also value of the firm.

Thus, a firm can achieve optimal capital structure by making judicious use of debt and equity and attempt to maximise the market price of its stock.

According to Net Operating Income Approach which is just opposite to NI approach, the overall cost of capital and value of firm are independent of capital structure decision and change in degree of financial leverage does not bring about any change in value of firm and cost of capital. The market value of the firm is determined by the following formula:

$$V = \frac{\text{EBIT} - \text{Interest}}{K_o}$$

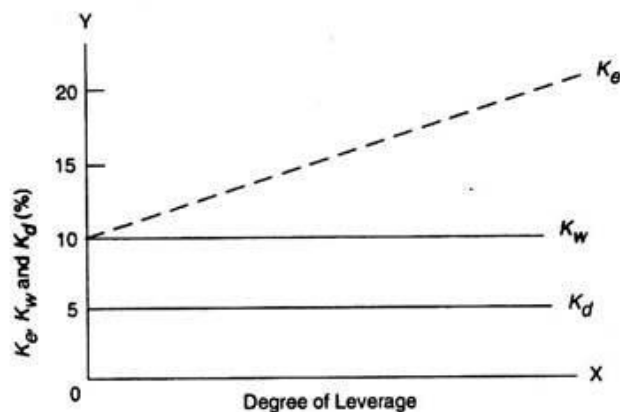


Fig. 2.2 : Behaviours of K_e , K_w and K_d under Net Operating Income Approach

The crucial assumptions of the NOI approach are:

- (1) The firm is evaluated as a whole by the market. Accordingly, overall capitalisation rate is used to calculate the value of the firm. The split of capitalisation between debt and equity is not significant.
- (2) Overall capitalisation rate remains constant regardless of any change in degree of financial leverage.
- (3) Use of debt as cheaper source of funds would increase the financial risk to shareholders who demand higher cost on their funds to compensate for the additional risk. Thus, the benefits of lower cost of debt are offset by the higher cost of equity.
- (4) The cost of debt would stay constant.
- (5) The firm does not pay income taxes.

Thus, under the NOI approach the total value of the firm as stated above is determined by dividing the net operating income (EBIT) by the overall capitalisation rate and market value of equity (V_e) can be found out by subtracting the market value of debt (V_d) from the overall value of the firm (V). In other words, $V_e = V - V_d$

Q 16: Explain the factors affecting working capital.

Ans. Main factors affecting the working capital are as follows:

(1) Nature of Business:

The requirement of working capital depends on the nature of business. The nature of business is usually of two types: Manufacturing Business and Trading Business. In the case of manufacturing business it takes a lot of time in converting raw material into finished goods. Therefore, capital remains invested for a long time in raw material, semi-finished goods and the stocking of the finished goods.

Consequently, more working capital is required. On the contrary, in case of trading business the goods are sold immediately after purchasing or sometimes the sale is affected even before the purchase itself. Therefore, very little working capital is required. Moreover, in case of service businesses, the working capital is almost nil since there is nothing in stock.

(2) Scale of Operations:

There is a direct link between the working capital and the scale of operations. In other words, more working capital is required in case of big organisations while less working capital is needed in case of small organisations.

(3) Business Cycle:

The need for the working capital is affected by various stages of the business cycle. During the boom period, the demand of a product increases and sales also increase. Therefore, more working capital is needed. On the contrary, during the period of depression, the demand declines and it affects both the production and sales of goods. Therefore, in such a situation less working capital is required.

(4) Seasonal Factors:

Some goods are demanded throughout the year while others have seasonal demand. Goods which have uniform demand the whole year their production and sale are continuous. Consequently, such enterprises need little working capital.

On the other hand, some goods have seasonal demand but the same are produced almost the whole year so that their supply is available readily when demanded.

Such enterprises have to maintain large stocks of raw material and finished products and so they need large amount of working capital for this purpose. Woolen mills are a good example of it.

(5) Production Cycle:

Production cycle means the time involved in converting raw material into finished product. The longer this period, the more will be the time for which the capital remains blocked in raw material and semi-manufactured products.

Thus, more working capital will be needed. On the contrary, where period of production cycle is little, less working capital will be needed.

(6) Credit Allowed:

Those enterprises which sell goods on cash payment basis need little working capital but those who provide credit facilities to the customers need more working capital.

(7) Credit Availed:

If raw material and other inputs are easily available on credit, less working capital is needed. On the contrary, if these things are not available on credit then to make cash payment quickly large amount of working capital will be needed.

(8) Operating Efficiency:

Operating efficiency means efficiently completing the various business operations. Operating efficiency of every organisation happens to be different.

Some such examples are: (i) converting raw material into finished goods at the earliest, (ii) selling the finished goods quickly, and (iii) quickly getting payments from the debtors. A company which has a better operating efficiency has to invest less in stock and the debtors.

Therefore, it requires less working capital, while the case is different in respect of companies with less operating efficiency.

(9) Availability of Raw Material:

Availability of raw material also influences the amount of working capital. If the enterprise makes use of such raw material which is available easily throughout the year, then less working capital will be required, because there will be no need to stock it in large quantity.

On the contrary, if the enterprise makes use of such raw material which is available only in some particular months of the year whereas for continuous production it is needed all the year round, then large quantity of it will be stocked. Under the circumstances, more working capital will be required.

(10) Growth Prospects:

Growth means the development of the scale of business operations (production, sales, etc.). The organisations which have sufficient possibilities of growth require more working capital, while the case is different in respect of companies with less growth prospects.

(11) Level of Competition:

High level of competition increases the need for more working capital. In order to face competition, more stock is required for quick delivery and credit facility for a long period has to be made available.

(12) Inflation:

Inflation means rise in prices. In such a situation more capital is required than before in order to maintain the previous scale of production and sales. Therefore, with the increasing rate of inflation, there is a corresponding increase in the working capital.

Q 17: What are the motives of holding inventory. What are the benefits and costs of holding inventory?

Ans. Major motives for holding inventories are:

1. The transaction motive propels a business to maintain inventories so that there are no bottlenecks in production and on sales. It is natural for a business to plan inventory investment commensurate with the level of transactions in the business. The business seeks to ensure that on the shop floor, production does not get stalled for want of materials etc., and sales do not suffer on account of non-availability of finished goods.

2.The precautionary motive is also at work. Inventories are held so that there is a cushion against unpredictable events.For instance, there may be a sudden and unforeseen spirit in demand for finished goods or there may occur a sudden and unforeseen slump or delay in supply of raw materials or other components needed for production. An enterprise would surely like to have some cushion to tide over such situations.

3.Speculative Motive:Inventories may also be held so that advantage can be taken of price fluctuations. For instance, if the price of a particular raw material is expected to go up rather steeply, an enterprise may decide to hold a larger than necessary stock of this item (acquire prior to escalation).

Benefits of Holding Inventory in a firm

Following are the benefits of holding inventory in the firm:

1. Holding Inventory avoids loss of sales

In case a firm maintains adequate inventory, it can execute the customers' orders without any delay and thus avoid any possibility of losing the patronage of customers and hence sales.

2. Holding Inventory gains quantity discount

If the firm places a large order of certain materials, the suppliers of the materials will give generous quantity discounts by reducing the price. This quantity discount will reduce the cost of goods of the firm and increase profits earned on sale.

3. Holding Inventory reduces order cost

By ordering in large numbers, a firm can reduce the cost it incurs. Some of the cost involved when making an order is forms that must be completed, approvals needed to be obtained and the goods arrived must be accepted, inspected and counted. Then an invoice must be issued and payment must be made.

The cost of receiving materials may vary according to the number of orders made. By making bulk orders, the number of orders will reduce and minimize the cost involved.

4. Achieve efficient production runs by holding inventory

Start up cost is incurred when a firm sets up its labour/man power and machines to produce goods. The cost will then be absorbed when production begins. The cost will come down when the process of production runs longer.

When the firm frequently sets up its production line, it will increase its startup cost. Holding an inventory to make sure the production line will never run out of raw materials will ensure longer run in production line, hence lower the startup cost.

5. Holding Inventory reduces risk of production shortages

An inventory is needed to store large amount of raw materials and unprocessed components. If one single component run out of stock, the-entire production line could be halted.

To avoid the risk of shortage of essential components during a big production process, the firm should maintain inventory management. This will prevent the shortage of vital raw materials and components needed to produce goods. The system will manage and notify any shortage before it is materialized.

The inventory management systems are suitable to maintaining large quantities of stocks and always keep firm's inventory on check.

Cost of holding inventory in a firm

The various costs of maintaining higher levels of inventory have been highlighted as follows:

1. Purchase cost

A firm has to pay high price for managing inventory. Inventory management has to take into account of the price paid to the suppliers and the expense of transport for bringing the material to stores, insurance and transportation cost.

2. Ordering cost

Cost of ordering is one another factor that a firm has to consider in Inventory management. Ordering costs includes cost of requisitioning, preparation of purchase order, transportation of inventory, receiving the supplies at the warehouse etc.

3. Carrying cost

Carrying cost includes the cost of storing the inventory in warehouse, handling expenses, insurance and rent paid for managing the inventory, opportunity cost locked up in stocks etc. Opportunity cost here refers to the alternative use of funds that the firm would have used to invest in stocks.

4. Stock out (shortage) cost

Stocks results in higher costs when they fall short of demand. Shortage of stocks also results in higher cost, dissatisfaction among customers, decrease in sales and increase of loss to firm.

Measurement of shortage cost is relatively difficult because of its intangible nature. In practice, the lost contribution resulting from failure to meet demand provides a reasonable approximation. In cases where stock out does not result in loss in business, additional cost for crash procurement etc. may be considered as shortage cost.

Q 18: The following are the details relating to a manufacturer:

Elements of cost	Amount per unit(Rs)
Raw Materials	8
Direct Labour	3
Overheads	6
Total Cost	17
Selling Price	20

Level of activity (52 weeks)=104,000 units of output

Raw materials in stock: =On an average 4 Weeks

Processing time: =On an average 2 Weeks

Finished goods in store: =On an average 4 Weeks

Credit period:

(a) Customers: =On an average 8 Weeks

(ii) Suppliers: =On an average 4 Weeks

Lag in payment:

(a) Wages = On an average 1 Weeks

(b) Overheads expenses = On an average 2 Weeks

75% of the output is sold on credit. Cash in hand and at bank is expected to be 5,000. You are required to prepare a statement of working capital requirements, assuming that all material is introduced in the starting of the process, wages and overheads accrue evenly and are completely introduced for half the processing time, i.e. one week.

Ans. **Statement of Determination of Working Capital requirement**

A) Current Assets:

i) Cash in hand = 5000

ii) Raw Material = 64000

$(104000 \times 8 \times 4/52)$

iii) WIP = 50000

$(104000 \times 8 \times 2/52) + (104000 \times 9 \times 2 \times 50\%/52)$

iv) Finished Goods = 136000

$(104000 \times 17 \times 4/52)$

v) Debtors = 204000

$(104000 \times 17 \times 8 \times 75\%/52)$

Investments in current assets (A) = 459000

B) Current Liabilities

i) Creditors = 64000

$(104000 \times 8 \times 4/52)$

ii) Wages = 6000

$(104000 \times 3 \times 1/52)$

iii) Overheads = 24000

$(104000 \times 6 \times 2/52)$

Total Current Liabilities(B)=94000

C) Net working Capital(A-B)=365000

Q 19: Z Ltd. has 10 lakh equity shares outstanding at the beginning of the year 2018. The current market price of the share is 150 each. The company recommended 8 per share as dividend. The capitalization rate is 12%.

(i) Based on MM approach, calculate the market price of the share of the company when the recommended dividend is (a) declared and (b) not declared.

(ii) How many new shares are to be issued by the company at the end of the accounting year on the assumption that the net income for the year is 2 crores and the investment budget is 4 crore when dividends are distributed? What will be the market value of shares at the end of accounting year.

Ans: i) Calculation of market price of the share when dividend is declared (MM Model):

Market price of the share (P₀) = $\frac{D_1 + P_1}{1 + k_e}$

$150 = \frac{8 + P_1}{1 + 0.12}$

P₁ = 160

Calculation of market price of the share when dividend is not declared (MM Model):

Market price of the share (P₀) = $\frac{D_1 + P_1}{1 + k_e}$

$150 = \frac{0 + P_1}{1 + 0.12}$

P₁ = 168

ii) **Amount Required for New Financing when div is declared :I-(E-nD1)**

$$=4,00,00,000-(2,00,00,000-80,00,000)$$

$$=4,00,00,000-1,20,00,000$$

$$=2,80,00,000$$

$$\text{No of new shares to be issued}=2,80,00,000/160$$

$$=1,75,000 \text{ shares}$$

Market value of the shares at the end of the accounting year when div is declared :

$$\text{Number of total shares (old + new)}=, 10,00,000 + 1,75,000 = 11,75,000$$

$$\text{Value of the firm (V)} = 11,75,000 \times 16$$

$$= \text{Rs. } 18,80,00,000$$

Q 20: Following are the details of 3 Companies:

X ltd	Y ltd	Z ltd
r=20%	r=15%	r=10%
Ke=15%	Ke=15%	Ke=15%
E=8	E=8	E=8

Calculate value of equity share as per Walter's Model when D/P ratio is a)40% b) 70% c)90%

Ans. Value of equity share as per Walter's Model= $D/Ke + (r/Ke)*(E-D)/Ke$

	X ltd(Growth Firm) $r > Ke$	Y ltd(Normal Firm) $r = Ke$	Z ltd(Declining Firm) $r < Ke$
--	-----------------------------	-----------------------------	--------------------------------

	r=20%	r=15%	r=10%
	Ke=15%	Ke=15%	Ke=15%
	E=8	E=8	E=8
D/P ratio	Market Price of share	Market Price of share	Market Price of share
40% D=3.2	$P=3.2+(0.2/0.15)*(8-3.2)/0.15$ P=Rs. 64	$P=3.2+(0.15/0.15)*(8-3.2)/0.15$ P=Rs. 53.33	$P=3.2+(0.10/0.15)*(8-3.2)/0.15$ P=Rs. 42.67
70% D=5.6	$P=5.6+(0.2/0.15)*(8-5.6)/0.15$ P=Rs.58.67	$P=5.6+(0.15/0.15)*(8-5.6)/0.15$ P=Rs.53.33	$P=5.6+(0.10/0.15)*(8-5.6)/0.15$ P=Rs.48
90% D=7.2	$P=7.2+(0.2/0.15)*(8-7.2)/0.15$ P=Rs.55.11	$P=7.2+(0.15/0.15)*(8-7.2)/0.15$ P=Rs.53.33	$P=7.2+(0.10/0.15)*(8-7.2)/0.15$ P=Rs.51.55

X Ltd. is a "growth company", Where $r > k_e$. Therefore, to maximise the market price, the comp, needs to retain all its earnings, otherwise its price will decline.

Y Ltd. is a normal firm, where $r = k$. In this case D/P ratio does not have any impact on the value of firm and it's share price.

Z Ltd. is a "declining company". The rate of return is less than the cost of capital i.e., $r < k_e$. Therefore, to maximise the market price of the share, the company should distribute all its earnings as dividend. The value of the share is increasing when we increase the payout ratio from 40% to 90%.

RESEARCH METHODOLOGY –

Paper Code :206

UNIT-1

Q1. What is Research and Write down the significance and Scope of research in business?

Ans: Research is a systematic and objective investigation of a subject or problem in order to discover relevant information or principles. It can be considered to be either primarily fundamental or applied in nature. Business research is a process of obtaining a detailed study of all the business areas including the market and the customers and using that information to maximize the sales & profit of the business.

SIGNIFICANCE OF RESEARCH:

1. Business Research helps you communicate with current and potential customers in a better way.
2. It helps you identify opportunities and threats in the marketplace.
3. It helps you minimize risks.
4. Business research is used to plan investments and financial outcomes effectively.
5. It helps you build a better market position.
6. It can keep you updated with current trends and innovations in the market.

SCOPE OF THE RESEARCH

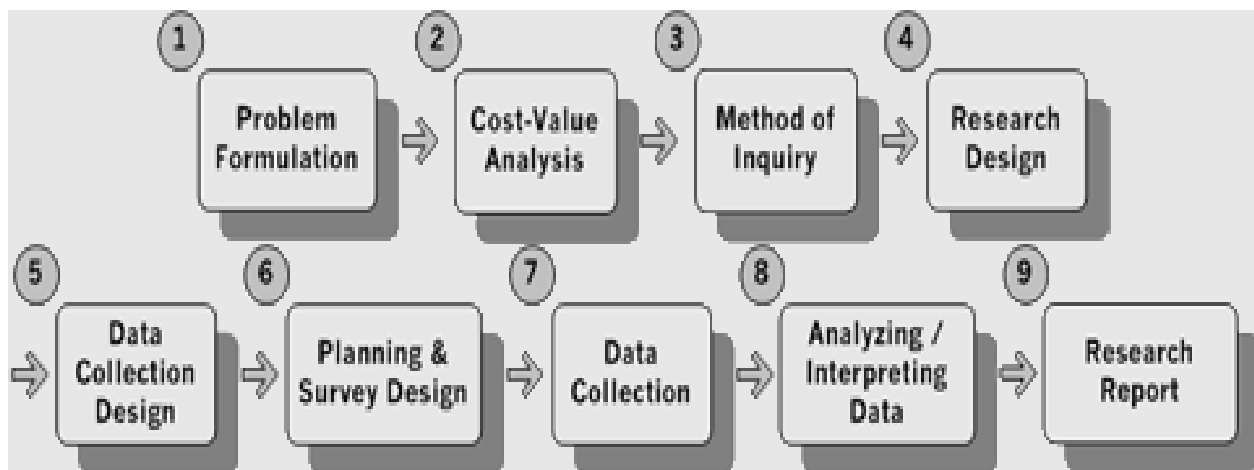
1. To study the needs, wants and expectations of consumers.
2. To find out reactions of consumers to the products of the company.
3. To evaluate company's sales promotion measures for suitable adjustment and improvement.
4. To study current marketing problems and opportunities for suitable follow-up actions.
5. To suggest the introduction of new products, modifications of existing products and to discover new uses of existing products.

6. To design and test appropriate packages of company's products and make packaging as attractive as possible
7. To study existing pricing, channels of distribution and market competition for suitable changes, if necessary.
8. To find out methods for making the products of the company popular and raising its goodwill and market reputation.
9. To assess competitive strength and policies.
10. To estimate potential buying-power in various areas
11. To know the company's expected share of the market.
12. To determine the dimensions of the marketing problems, facilitate evaluation of the alternative solutions of different problems and help in the selection of a right course of action.
13. To define the probable market for a specialized product and to report on general market conditions and tendencies, buying habits, etc.

Q2. What is research process?

Ans: RESEARCH PROCESS

Research process is a systematic way or procedure to conduct a research or study. What are the general steps in completing a research project? These questions are answered in the steps of the research process. While the steps are shown as a linear process, some of the steps may be performed simultaneously, such as selecting data collection techniques and sample design. There are other times when "later" decisions influence decisions that are made early in the research planning process. For example, desired analysis techniques often influence the selection of data collection techniques (e.g., measurement) and sample design.



STAGE 1: PROBLEM FORMULATION

In a very real sense, problem formulation is the heart of the research process. As such, it represents the single most important step to be performed. From the researcher's point of view, problem formulation means translating the management problem into a research problem.

An accurate problem formulation specifies the types of information needed to help solve the management problem. In short, quality thinking about a problem prior to data collection largely determines the quality of data collection, analysis and problem solving.

How to Formulate the Research Problem

Problem formulation is much easier when specific components of the research problem are defined:

1. Specify the Research Objectives

Each study should have a very limited and manageable set of objectives that focus on the problem being solved. Two or three well targeted objectives is preferable to many that are ill conceived. Fewer the objectives make it easier to keep track of progress toward the objectives, to ensure that each is properly addressed, and to determine the best methodology. If there are too many objectives separate studies may be appropriate.

2. The Environment or Context of the Problem

The researcher's efforts should be oriented toward helping the manager decide whether any investigation is justified based on the potential value of the research findings versus their cost. The researcher must be aware of, and assist in, the identification of objectives, courses of action, and environmental variables, insofar as they affect the design of the research investigation.

3. The Nature of the Problem

Every research problem may be evaluated on a scale that ranges from very simple to very complex. The degree of complexity depends on the number of variables that influence the problem. Understanding the nature of the problem helps a researcher ensure that the right problem is being investigated and that a marketing plan can be developed to solve the problem.

4. Alternative Courses of Action

It is usually desirable to generate as many alternatives as possible during the problem formulation stage and state them in the form of research hypotheses to be examined. A hypothesis often implies a possible course of action with a prediction of the outcome if that course of action is followed.

5. The Consequences of Alternative Courses of Action

A set of consequences always relate to courses of action and even to the occurrence of events not under the control of the manager. One of the manager's primary jobs is to anticipate and communicate the possible outcomes of various courses of action that may result from following the research.

STAGE 2: METHOD OF INQUIRY

Market researchers look to the scientific method as the source of their investigative methods. Even though this method is not the only one used, it is the standard against which other investigative methods are measured.

The scientific method has evolved objective and rigid procedures for verifying hypotheses or evaluating evidence. It is analytical in its processes and is investigator independent. Thus, the scientific method is for the most part logical and objective, and frequently makes extensive use of mathematical reasoning and complicated experiments.

STAGE 3: RESEARCH METHOD

In addition to selecting a method of inquiry, the research planner must also select a research method. Two broad methodologies can be used to answer any research question—experimental research and non-experimental research. The major advantage of experimental research lies in the ability to control extraneous variables and manipulate one or more variables by the intervention of the investigator. In non-experimental research, there is no intervention beyond that needed for purposes of measurement.

STAGE 4: RESEARCH DESIGN

Research design is defined as the specific methods and procedures for acquiring the information needed. It is a plan or organizational framework for doing the study and collecting the data. Research designs are unique to a methodology.

STAGE 5: DATA COLLECTION TECHNIQUES

A number of techniques available for collecting data can be used. Some techniques are unique to a method of inquiry. For example, many of the qualitative research techniques, such as projective techniques, are used only in subjectivist-type research. In general, data collection uses either communication or observation. Communication involves asking questions and receiving responses.

STAGE 6: SAMPLE DESIGN

In business research project involve examining the entire population that is relevant to the problem. For the most part, practical considerations (e.g., absolute resources available, cost vs. value, etc.) dictate that one use a sample, or subset of the relevant population. In other instances the use of a sample is derived from consideration of the relevant systematic and variable errors that might arise in a project.

STAGE 7: DATA COLLECTION

Data collection begins after the previous six stages of the research process are complete. Data collection, whether by communication or observation, requires the use of data collection personnel which then raises questions regarding managing these people. Because data collection can be costly, firms often utilize outside limited-service research suppliers,

particularly when the extent of in-house research activity does not warrant the cost of having permanent data collection personnel. Also, project design may require specialized data collection, which might best be obtained from an outside supplier.

STAGE 8: ANALYSIS AND INTERPRETATION

Data that are obtained and presented in the same form as originally collected are seldom useful to anyone. Data must be analyzed. The data must be edited, coded, and tabulated before performing formal analyses such as statistical tests. The types of analyses that can be properly performed depend upon the sampling procedures, measurement instruments, and data collection techniques used.

STAGE 9: THE RESEARCH REPORT

The culmination of the research process is the research report. It includes a clear, accurate, and honest description of everything that has been done and the results, conclusions, and—whenever possible—recommendations for courses of action. Two critical attributes of the report are that it provides all the information readers need using language they understand (Completeness) and that it contains selective information chosen by the researcher.

Q3. What is Research Design and explain Exploratory, Descriptive and Explanatory Research with example?

Ans: A research design might be described as a series of advance decisions that, taken together, form a master plan or model for conducting a research investigation. Research designs vary depending on the type of study. Generally designs are associated with three types of studies, those that focus on providing exploratory research, descriptive research and causal research. Each will be described in turn.

1. Exploratory Studies

The major purposes of exploratory studies are for the identification of problems, the precise formulation of problems (including the identification of relevant variables), and the formulation of new alternative courses of action. An exploratory study is often the first in a series of projects. That is, an exploratory study is often used as an introductory phase of a larger study, and its results are used to bring focus to the larger study and to develop specific techniques that will be used. Thus flexibility is a key to designing and conducting exploratory

studies. We can distinguish three separate tasks that are usually included in exploratory studies and that are typically conducted in the sequence listed:

1. A search of secondary information sources
2. Interviews with persons knowledgeable about the subject area
3. The examination of analogous situations

2. Descriptive Studies

Much research is concerned with describing market characteristics or functions. For example, a market potential study may describe the number, distribution, and socioeconomic characteristics of potential customers of a product. A market-share study finds the share of the market received by both the company and its major competitors. A sales analysis study describes sales by territory, type of account, size or model of product, and the like. In marketing, descriptive studies are also made in the following areas:

1. Product research: identification and comparison of functional features and specifications of Competitive products
2. Research: description of the demographic characteristics of the audience being reached by the current advertising program
3. Distribution research: determining the number and location of retailers handling the company's products that are supplied by wholesalers versus those supplied by the company's distribution centers
4. Pricing research: identifying competitors' prices by geographic area

3. Causal Studies

Although descriptive information is often useful for predictive purposes, where possible we would like to know the causes of what we are predicting—the “reasons why.” Further, we would like to know the relationships of these causal factors to the effects that we are predicting. If we understand the causes of the effects we want to predict, we invariably improve our ability both to predict and to control these effects. For example If manager would like to find out impact of training on the performance of employees.

	Exploratory	Descriptive	Causal
Objective:	Discover ideas and insights	Describe mkt. characteristics or functions	Determine cause and effect relationships
Characteristics:	<ul style="list-style-type: none"> • Flexible • Versatile • Often the front end of total research design 	<ul style="list-style-type: none"> • Marked by prior formulation of specific hypotheses • Preplanned and structured design 	<ul style="list-style-type: none"> • Manipulation of one or more independent variables • Control of other mediating variables
Methods:	<ul style="list-style-type: none"> • Expert surveys • Pilot surveys • Secondary Data (analyzed qualitatively) • Qualitative research 	<ul style="list-style-type: none"> • Secondary Data (analyzed quantitatively) • Surveys • Panels • Observational and other data. 	<ul style="list-style-type: none"> • Experiments

Q4. What is unit of analysis Explain with example?

Ans: One of the most important ideas in a research project is the unit of analysis. The unit of analysis is the major entity that you are analyzing in your study. For instance, any of the following could be a unit of analysis in a study:

1. Individuals
2. Groups
3. Artifacts (books, photos, newspapers)
4. Geographical units (town, census tract, state)
5. Social interactions (dyadic relations, divorces, arrests)

Why is it called the 'unit of analysis' and not something else (like, the unit of sampling)? Because it is the analysis you do in your study that determines what the unit is. For instance, if you are comparing the children in two classrooms on achievement test scores, the unit is the **INDIVIDUAL** child because you have a score for each child. On the other hand, if you are comparing the two classes on classroom climate, your unit of analysis is the **GROUP**, in this case the classroom, because you only have a classroom climate score for the class as a whole and not for each individual student. For different analyses in the same study you may have different units of analysis. If you decide to base an analysis on student scores, the individual is the unit. But you might decide to compare average classroom performance. In

this case, since the data that goes into the analysis is the average itself (and not the individuals' scores) the unit of analysis is actually the group.

Research question	Unit of analysis	Data collection	Unit of observation	Statement of findings
Which students are most likely to be addicted to their electronic gadgets?	Individuals	Survey of students on campus	Individuals	New Media majors, men, and students with high socioeconomic status are all more likely than other students to become addicted to their electronic gadgets.
Do certain types of social clubs have more gadget-addicted members than other sorts of clubs?	Groups	Survey of students on campus	Individuals	Clubs with a scholarly focus, such as social work club and the math club, have more gadget-addicted members than clubs with a social focus, such as the 100-bottles-of-beer-on-the-wall club and the knitting club.
How do different colleges address the problem of electronic gadget addiction?	Organizations	Content analysis of policies	Documents	Campuses without strong computer science programs are more likely than those with such programs to expel students who have been found to have addictions to their electronic gadgets.

Q5. Describe the concept, Variable and Attribute with example

1. CONCEPT:

Constructs or concept are broad or topics for a study. Constructs can be conceptually defined in that they have meaning in theoretical terms. They can be abstract and do not necessarily need to be directly observable. Examples of constructs include intelligence, shopping behavior or life satisfaction

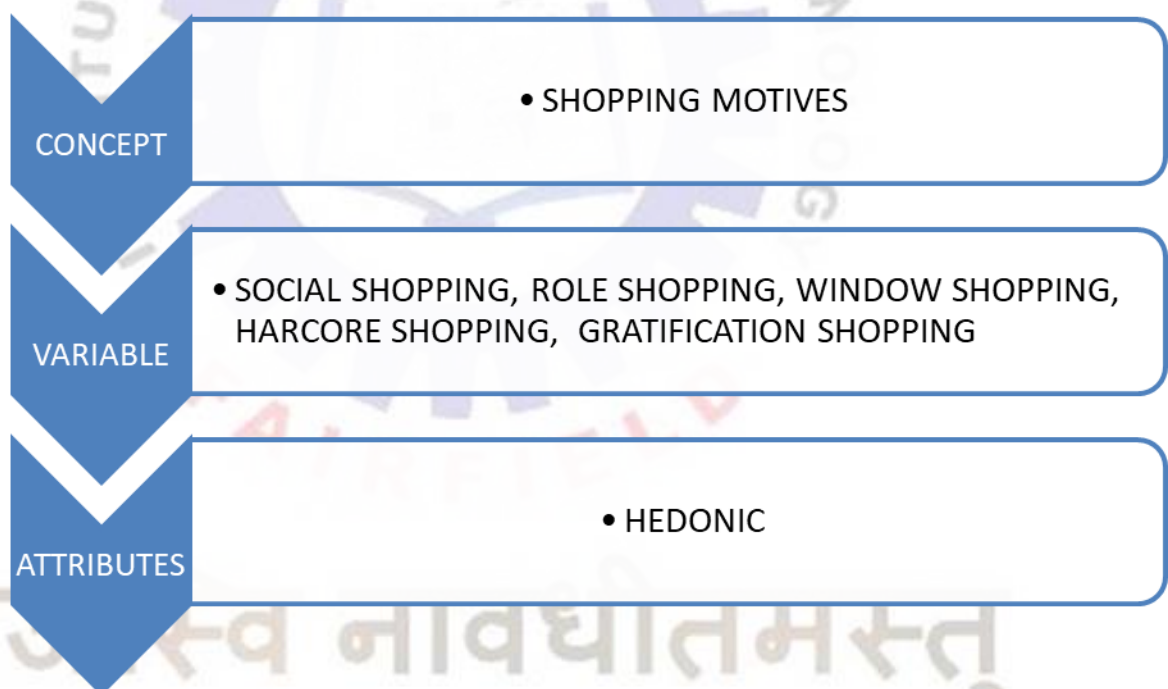
A **construct** is an indicator variable that measures a characteristics, or trait. For **example**, college admission scores are **constructs** that measure how well a student is likely to do in their first year. **Construct** validity measures how well the observed **construct** predicts the outcome expected.

2. VARIABLE:

The things that are changing in an experiment are called **variables**. A **variable** is any factor, trait, or condition that can exist in differing amounts or **types**. An experiment usually has **three** kinds of **variables**: independent, dependent, and controlled.

A **variable** is defined as anything that has a quantity or quality that varies. The dependent **variable** is the **variable** a researcher is interested in. An independent **variable** is a **variable** believed to affect the dependent **variable**. Confounding **variables** are defined as interference caused by another **variable**.

3. ATTRIBUTES: The categories of a variable .Example: The attributes of the variable, religion, include Catholic, Jew, Protestant, Muslim, etc.



UNIT-2

Q6. What is Problem Identification in research process?

Ans: PROBLEM FORMULATION

In a very real sense, problem formulation is the heart of the research process. As such, it represents the single most important step to be performed. From the researcher's point of view, problem formulation means translating the management problem into a research problem.

An accurate problem formulation specifies the types of information needed to help solve the management problem. In short, quality thinking about a problem prior to data collection largely determines the quality of data collection, analysis and problem solving.

How to Formulate the Research Problem

Problem formulation is much easier when specific components of the research problem are defined:

1. Specify the Research Objectives

Each study should have a very limited and manageable set of objectives that focus on the problem being solved. Two or three well targeted objectives is preferable to many that are ill conceived. Fewer the objectives make it easier to keep track of progress toward the objectives, to ensure that each is properly addressed, and to determine the best methodology. If there are too many objectives separate studies may be appropriate.

2. The Environment or Context of the Problem

The researcher's efforts should be oriented toward helping the manager decide whether any investigation is justified based on the potential value of the research findings versus their

cost. The researcher must be aware of, and assist in, the identification of objectives, courses of action, and environmental variables, insofar as they affect the design of the research investigation.

3. The Nature of the Problem

Every research problem may be evaluated on a scale that ranges from very simple to very complex. The degree of complexity depends on the number of variables that influence the problem. Understanding the nature of the problem helps a researcher ensure that the right problem is being investigated and that a marketing plan can be developed to solve the problem.

4. Alternative Courses of Action

It is usually desirable to generate as many alternatives as possible during the problem formulation stage and state them in the form of research hypotheses to be examined. A hypothesis often implies a possible course of action with a prediction of the outcome if that course of action is followed.

5. The Consequences of Alternative Courses of Action

A set of consequences always relate to courses of action and even to the occurrence of events not under the control of the manager. One of the manager's primary jobs is to anticipate and communicate the possible outcomes of various courses of action that may result from following the research.

Q7. What is Observation Method for data collection and write down the types of observation in research?

Ans: Observational data is a valuable form of research that can give researchers information that goes beyond numbers and statistics. In general, observation is a systematic way to collect data by observing people in natural situations or settings. In the strict sense, observation implies more use of the eyes and the ears than the mouth. Through this process, observation serves the purpose of (i) studying collective behavior and complex social situations; (ii) following up of individual units composing the situations; (iii) understanding the whole and the parts in their interrelation; (iv) getting the out of the way details of the situation. .

Types of Observation Method of Data Collection in Research

There are different types of observation method of data collection in research. The important types are listed below:

1. Casual and Scientific Observation

An observation may be either casual or scientific. Casual observation occurs without any previous preparation. It is a matter of chance that the right thing is observed at the right time and in the right place. Scientific observation, on the other hand, is carried out with due preparations and is done with the help of right tools of measurement experienced enumerators and under able guidance. Scientific observations yield thorough and accurate data.

2. Simple and Systematic Observation

An observation may be either Simple or Systematic. Simple Observation is found in almost all research studies, at least in the initial stages of exploration. Its practice is not very standardized. It befits the heuristic nature of exploratory research. Participant studies are also usually classified as simple observation because participant roles do not permit systematic observation. Systematic observation, on the other hand, employs standardized procedures, training of observers, schedules for recording and other devices to control the observer sometimes even the subject. Clearly some systematization is valuable in research observation, but the situation often limits what can be done. A systematic observation is a scientific observation too.

3. Factual and Inferential Observation

Observation may be either factual or inferential in factual observation things or phenomena observed with naked eyes are reported. In inferential observation behavior or psychological aspects are observed.

4. Direct and Indirect Observation

Observation may be either Direct or Indirect. In the case of direct Observation the observer is physically present and personally monitors what takes place. This approach is very flexible of

events and behavior as they occur. He is also free to shift places, change the focus of the observation, on concentrate unexpected events if they should occur. In indirect observation recording is done by mechanical, photographic or electronic means. For example a special motion picture camera which takes one frame every second is mounted in a department of a large store to study customer and employee movement.

5. Participant and Non Participant observation

Participant observation is when a researcher is involved in the activity they are observing. For example, the researcher is a participant in an Alcoholics Anonymous group, and they are observing something about that group. In non-participant observation, the researcher is separate from the activity (for example, an adult in the back of the classroom observing students' test-taking skills).

6. Covert and Open Observation

Covert vs. overt observation has arguably the most noticeable difference in the role the researcher plays in the process. Covert observation takes places when a researcher is observing the activity in secret (perhaps through a hidden video camera). In overt observation, as the name describes, the people being observed know a researcher is observing them.

Q 8 What is secondary data study and what are the sources of secondary data?

Secondary data collection methods in Research

Secondary data means data that are already available i.e., they refer to the data which have already been collected and analysed by someone else. When the researcher utilises secondary data, then he has to look into various sources from where he can obtain them. In this case he is certainly not confronted with the problems that are usually associated with the collection of original data.

Researcher must be very careful in using secondary data. He must make a minute scrutiny because it is just possible that the secondary data may be unsuitable or may be inadequate in the context of the problem which the researcher wants to study.

Researcher, before using secondary data, must see that they possess following characteristics:

1. **Reliability of data:** The reliability can be tested by finding out such things about the said data: (a) Who collected the data? (b) What were the sources of data? (c) Were they

collected by using proper methods (d) At what time were they collected? (e) Was there any bias of the compiler? (t) What level of accuracy was desired? Was it achieved?

2. **Suitability of data:** The data that are suitable for one enquiry may not necessarily be found suitable in another enquiry. Hence, if the available data are found to be unsuitable, they should not be used by the researcher. In this context, the researcher must very carefully scrutinise the definition of various terms and units of collection used at the time of collecting the data from the primary source originally. Similarly, the object, scope and nature of the original enquiry must also be studied. If the researcher finds differences in these, the data will remain unsuitable for the present enquiry and should not be used.
3. **Adequacy of data:** If the level of accuracy achieved in data is found inadequate for the purpose of the present enquiry, they will be considered as inadequate and should not be used by the researcher. The data will also be considered inadequate, if they are related to an area which may be either narrower or wider than the area of the present enquiry.

Sources of Secondary Data:

The secondary data are readily available from the other sources and as such, there are no specific collection methods. The researcher can obtain data from the sources both internal and external to the organization. The internal sources of secondary data are:

- Sales Report
- Financial Statements
- Customer details, like name, age, contact details, etc.
- Company information
- Reports and feedback from a dealer, retailer, and distributor
- Management information system

There are several external sources from where the secondary data can be collected. These are:

- Government censuses, like the population census, agriculture census, etc.
- Information from other government departments, like social security, tax records, etc.
- Business journals

- Social Books
- Business magazines
- Libraries
- Internet, where wide knowledge about different areas is easily available.

The secondary data can be both qualitative and quantitative. The qualitative data can be obtained through newspapers, diaries, interviews, transcripts, etc., while the quantitative data can be obtained through a survey, financial statements and statistics.

Q9. Field research is primary method to conduct business research. Explain what is field research and their types?

Ans: 1. Field Study: Field research is defined as a [qualitative method](#) of [data collection](#) that aims to observe, interact and understand people while they are in a natural environment. For example, nature conservationists observe behavior of animals in their natural surroundings and the way they react to certain scenarios. In the same way, social scientists conducting field research may conduct interviews or observe people from a distance to understand how they behave in a social environment and how they react to situations around them.

Field [research](#) typically begins in a specific setting although the end objective of the study is to observe and analyze the specific behavior of a subject in that setting. The cause and effect of a certain behavior, though, is tough to analyze due to presence of multiple variables in a natural environment. Most of the [data collection](#) is based not entirely on cause and effect but mostly on correlation. While field research looks for correlation, the small [sample size](#) makes it difficult to establish a [causal relationship](#) between two or more variables.

Methods of Field Research



1. Direct Observation

In this method, the data is collected via an [observational method](#) or subjects in a natural environment. In this method, the behavior or outcome of situation is not interfered in any way by the researcher. The advantage of direct observation is that it offers contextual data on people, situations, interactions and the surroundings. This method of field research is widely used in a public setting or environment but not in a private environment as it raises an ethical dilemma.

2. Participant Observation

In this method of field research, the researcher is deeply involved in the research process, not just purely as an observer, but also as a participant. This method too is conducted in a natural environment but the only difference is the researcher gets involved in the discussions and can mould the direction of the discussions. In this method, researchers live in a comfortable environment with the participants of the research, to make them comfortable and open up to in-depth discussions.

3. Ethnography

Ethnography is an expanded observation of [social research](#) and social perspective and the cultural values of an entire social setting. In ethnography, entire communities are observed objectively. For example, if a researcher would like to understand how an Amazon tribe lives their life and operates, he/she may chose to observe them or live amongst them and silently observe their day-to-day behavior.

4. Qualitative Interviews

[Qualitative interviews](#) are [close-ended questions](#) that are asked directly to the research subjects. The qualitative interviews could be informal and conversational, semi-structured, standardized and open-ended or a mix of all the above three. This provides a wealth of data to the researcher that they can sort through. This also helps collect relational data. This method of field research can use a mix of one-on-one interviews, [focus groups](#) and [text analysis](#).

5. Case Study

A case study research is an in-depth analysis of a person, situation or event. This method may look difficult to operate; however, it is one of the simplest ways of conducting research as it involves a deep dive and thorough understanding the data collection methods and inferring the data.

Steps in Conducting Field Research

Due to the nature of field research, the magnitude of timelines and costs involved, field research can be very tough to plan, implement and measure. Some basic steps in the management of field research are:

1. Build the Right Team: To be able to conduct field research, having the right team is important. The role of the researcher and any ancillary team members is very important and defining the tasks they have to carry out with defined relevant milestones is important. It is important that the upper management too is vested in the field research for its success.

2. Recruiting People for the Study: The success of the field research depends on the right people should be selected for the study is being conducted on. Using [sampling methods](#), it is important to derive the people that will be a part of the study.

3. Data Collection Methodology: As spoken in length about above, data collection methods for field research are varied. They could be a mix of surveys, interviews, case studies and observation. All these methods have to be chalked out and the milestones for each method too have to be chalked out at the outset. For example, in the case of a survey, the [survey design](#) is important that it is created and tested even before the research begins.

4. Site Visit: A site visit is important to the success of the field research and it is always conducted outside of traditional locations and in the actual natural environment of the respondent/s. Hence, planning a site visit along with the methods of data collection is important.

5. Data Analysis: [Analysis of the data](#) that is collected is important to validate the premise of the field research and decide the outcome of the field research.

6. Communicating Results: Once the data is analyzed, it is important to communicate the results to the stakeholders of the research so that it could be auctioned upon.

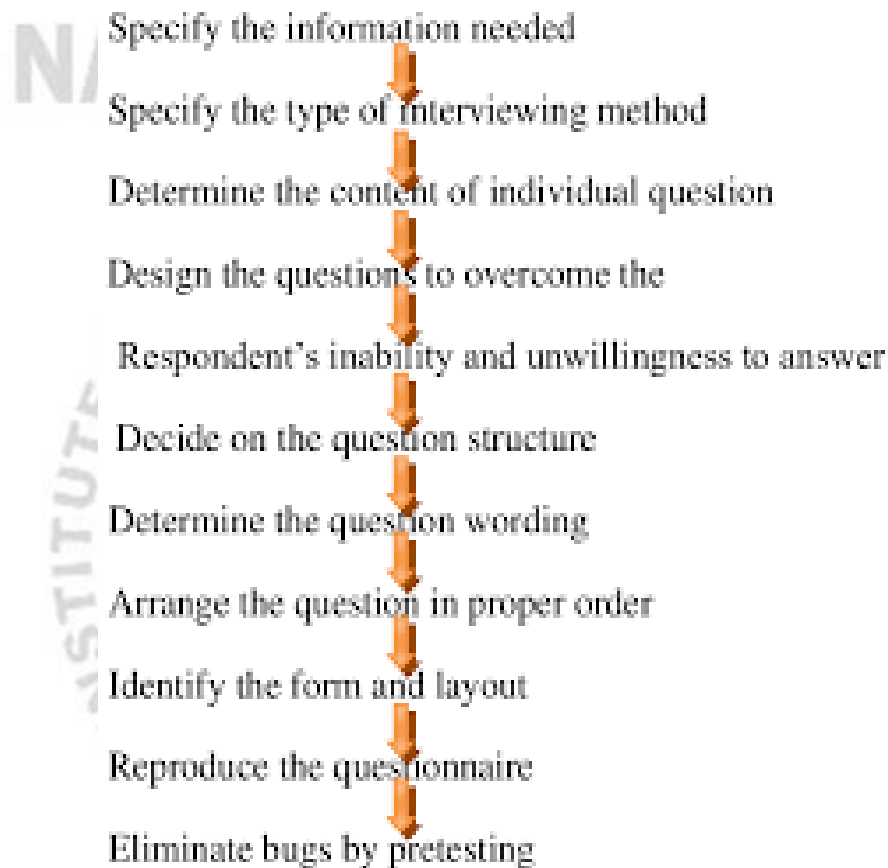
Q10. What is questionnaire design and process of questionnaire design?

Ans: Questionnaire is a systematic, data collection technique consists of a series of questions required to be answered by the respondents to identify their attitude, experience, and behavior towards the subject of research. One of the most critical parts of the survey is the creation of questions that must be framed in such a way that it results in obtaining the desired information from the respondents. There are no scientific principles that assure an ideal

questionnaire and in fact, the questionnaire design is the skill which is learned through experience.

Questionnaire Design Process

The following steps are involved in the questionnaire design process:



1. Specify the Information Needed: The first and the foremost step in designing the questionnaire is to specify the information needed from the respondents such that the objective of the survey is fulfilled. The researcher must completely review the components of the problem, particularly the hypothesis, research questions, and the information needed.

2. Define the Target Respondent: At the very outset, the researcher must identify the target respondent from whom the information is to be collected. The questions must be designed keeping in mind the type of respondents under study. Such as, the questions that are appropriate for serviceman might not be appropriate for a businessman. The less diversified respondent group shall be selected because the more diversified the group is, the more difficult it will be to design a single questionnaire that is appropriate for the entire group.

3. Specify the type of Interviewing Method: The next step is to identify the way in which the respondents are reached. In personal interviews, the respondent is presented with a questionnaire and interacts face-to-face with the interviewer. Thus, lengthy, complex and varied questions can be asked using the personal interview method. In telephone interviews, the respondent is required to give answers to the questions over the telephone. Here the respondent cannot see the questionnaire and hence this method restricts the use of small, simple and precise questions.

The questionnaire can be sent through mail or post. It should be self-explanatory and contain all the important information such that the respondent is able to understand every question and gives a complete response. The electronic questionnaires are sent directly to the mail ids of the respondents and are required to give answers online.

4. Determine the Content of Individual Questions: Once the information needed is specified and the interviewing methods are determined, the next step is to decide the content of the question. The researcher must decide on what should be included in the question such that it contributes to the information needed or serve some specific purpose.

In some situations, the indirect questions which are not directly related to the information needed may be asked. It is useful to ask neutral questions at the beginning of a questionnaire with intent to establish respondent's involvement and rapport. This is mainly done when the subject of a questionnaire is sensitive or controversial. The researcher must try to avoid the use of double-barreled questions. A question that talks about two issues simultaneously, such as Is the Real juice tasty and a refreshing health drink?

5. Overcome Respondent's Inability and Unwillingness to Answer: The researcher should not presume that the respondent can provide accurate responses to all the questions. He must attempt to overcome the respondent's inability to answer. The questions must be designed in a simple and easy language such that it is easily understood by each respondent. In situations, where the respondent is not at all informed about the topic of interest, then the researcher may ask the filter questions, an initial question asked in the questionnaire to identify the prospective respondents to ensure that they fulfill the requirements of the sample.

Despite being able to answer the question, the respondent is unwilling to devote time in providing information. The researcher must attempt to understand the reason behind such

unwillingness and design the questionnaire in such a way that it helps in retaining the respondent's attention.

6. Decide on the Question Structure: The researcher must decide on the structure of questions to be included in the questionnaire. The question can be structured or unstructured. The unstructured questions are the open-ended questions which are answered by the respondents in their own words. These questions are also called as a free-response or free-answer questions.

These questions could be a multiple choice question, dichotomous (yes or no) or a scale.

7. Determine the Question Wording: The desired question content and structure must be translated into words which are easily understood by the respondents. At this step, the researcher must translate the questions in easy words such that the information received from the respondents is similar to what was intended.

In case the question is written poorly, then the respondent might refuse to answer it or might give a wrong answer. In case, the respondent is reluctant to give answers, then “nonresponsive” arises which increases the complexity of data analysis. On the other hand, if the wrong information is given, then “response error” arises due to which the result is biased.

8. Determine the Order of Questions: At this step, the researcher must decide the sequence in which the questions are to be asked. The opening questions are crucial in establishing respondent's involvement and rapport, and therefore, these questions must be interesting, non-threatening and easy. Usually, the open-ended questions which ask respondents for their opinions are considered as good opening questions, because people like to express their opinions.

9. Identify the Form and Layout: The format, positioning and spacing of questions has a significant effect on the results. The layout of a questionnaire is specifically important for the self-administered questionnaires. The questionnaires must be divided into several parts, and each part shall be numbered accurately to clearly define the branches of a question.

10. Reproduction of Questionnaire: Here, we talk about the appearance of the questionnaire, i.e. the quality of paper on which the questionnaire is either written or printed. In case, the questionnaire is reproduced on a poor-quality paper; then the respondent might feel the research is unimportant due to which the quality of response gets adversely affected.

Thus, it is recommended to reproduce the questionnaire on a good-quality paper having a professional appearance. In case, the questionnaire has several pages, then it should be presented in the form of a booklet rather than the sheets clipped or stapled together.

11. Pretesting: Pretesting means testing the questionnaires on a few selected respondents or a small sample of actual respondents with a purpose of improving the questionnaire by identifying and eliminating the potential problems. All the aspects of the questionnaire must be tested such as question content, structure, wording, sequence, form and layout, instructions, and question difficulty. The researcher must ensure that the respondents in the pretest should be similar to those who are to be finally surveyed.

UNIT-3

Q11.What is Probability sampling and why is it important?

Ans: Sampling takes on two forms in statistics: probability sampling and non-probability sampling:

Probability sampling uses random sampling techniques to create a [sample](#).

[Non-probability sampling](#) techniques use non-random processes like researcher judgment or [convenience sampling](#).

Probability sampling is based on the fact that every member of a [population](#) has a known and equal chance of being selected. For example, if you had a population of 100 people, each person would have odds of 1 out of 100 of being chosen. With non-probability sampling, those odds are not equal. For example, a person might have a better chance of being chosen if they live close to the researcher or have access to a computer. Probability sampling gives you the best chance to create a sample that is truly representative of the population.

Using probability sampling for [finding sample sizes](#) means that you can employ statistical techniques like [confidence intervals](#) and [margins of error](#) to validate your results.

Types of Probability Sampling

1. [Simple random sampling](#) is a completely random method of selecting subjects. These can include assigning numbers to all subjects and then using a random number generator to choose random numbers. Classic [ball and urn experiments](#) are another example of this

process (assuming the balls are sufficiently mixed). The members whose numbers are chosen are included in the sample.

2. **Stratified Random Sampling** involves splitting subjects into mutually exclusive groups and then using simple random sampling to choose members from groups.

3. **Systematic Sampling** means that you choose every “nth” participant from a complete list. For example, you could choose every 10th person listed.

4. **Cluster Random Sampling** is a way to randomly select participants from a list that is too large for simple random sampling. For example, if you wanted to choose 1000 participants from the entire population of the U.S., it is likely impossible to get a complete list of everyone. Instead, the researcher randomly selects areas (i.e. cities or counties) and randomly selects from within those boundaries.

5. **Multi-Stage Random sampling** uses a combination of techniques.

Advantages and Disadvantages

Each probability sampling method has its own unique advantages and disadvantages.

Advantages

Cluster sampling: convenience and ease of use.

Simple random sampling: creates samples that are highly representative of the population.

Stratified random sampling: creates strata or layers that are highly representative of strata or layers in the population.

Systematic sampling: creates samples that are highly representative of the population, without the need for a [random number generator](#).

Disadvantages

1. Cluster sampling: might not work well if unit members are not homogeneous (i.e. if they are different from each other).

2. Simple random sampling: tedious and time consuming, especially when creating larger samples.

3. Stratified random sampling: tedious and time consuming, especially when creating larger samples.

4. Systematic sampling: not as random as simple random sampling

Q12. What are Sampling Error and non Sampling Error in sampling? How a researcher can avoid these errors?

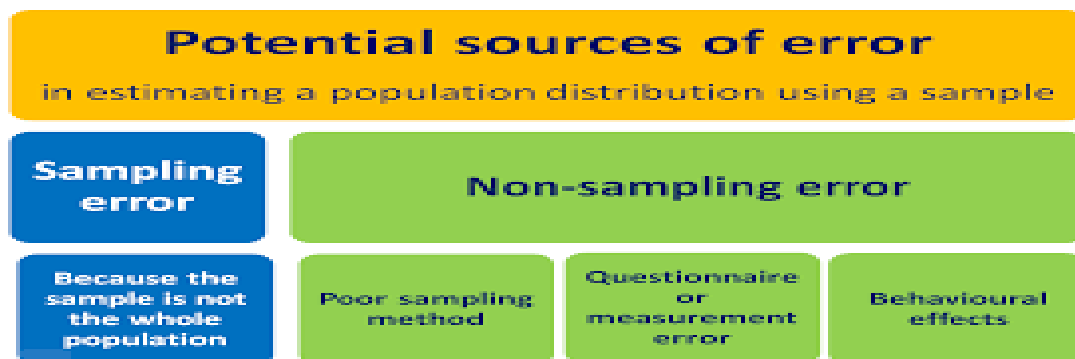
Ans: There are two major types of errors in marketing research: sampling error and non-sampling error. Sampling error occurs when the sample used in the study is not representative of the whole population. Non-sampling error encompasses all types of errors, mostly caused by human error, such as questionnaire wording, data entry errors, and biased decisions. Differences between the sample values and the population values are known as sampling error.

Sampling Error

1. The [proportions](#) of different characteristics within the sample are not similar to the proportions of the characteristics for the whole population (i.e. if we are taking a sample of men and women and we know that 51% of the total population are women and 49% are men, then we should aim to have similar proportions in our sample);
2. The sample is too small to accurately represent the population; and
3. The sampling method is not random.

Non Sampling Error:

Non-sampling error is the error that arises in a data collection process as a result of factors other than taking a sample. Non-sampling errors have the potential to cause bias in polls, surveys or samples.



Non-sampling error can occur at any stage of a census or sample study, and are not easily identified.

1. **Coverage error:** this occurs when a [unit](#) in the sample is incorrectly excluded or included, or is duplicated in the sample (e.g. a field interviewer fails to interview a selected household or some people in a household).
2. **Non-response error:** this refers to the failure to obtain a response from some unit because of absence, non-contact, refusal, or some other reason. Non-response can be complete non-response (i.e. no data has been obtained at all from a selected unit) or partial non-response (i.e. the answers to some questions have not been provided by a selected unit).
3. **Response error:** this refers to a type of error caused by [respondents](#) intentionally or accidentally providing inaccurate responses. This occurs when concepts, questions or instructions are not clearly understood by the respondent; when there are high levels of respondent burden and memory recall required; and because some questions can result in a tendency to answer in a socially desirable way (giving a response which they feel is more acceptable rather than being an accurate response).
4. **Interviewer error:** this occurs when interviewers incorrectly record information; are not neutral or objective; influence the respondent to answer in a particular way; or assume responses based on appearance or other characteristics.
5. **Processing error:** this refers to errors that occur in the process of data collection, data entry, coding, editing and output.

Minimizing Sampling Error

Of the two types of errors, sampling error is easier to identify. The biggest techniques for **reducing sampling error** are:

1. Increase the sample size.

A larger sample size leads to a more precise result because the study gets closer to the actual population size.

2. Divide the population into groups.

Instead of a random sample, test groups according to their size in the population. For example, if people of a certain demographic make up 35% of the population, make sure 35% of the study is made up of this variable.

3. Know your population.

The error of population specification is when a research team selects an inappropriate population to obtain data. Know who buys your product, uses it, works with you, and so forth. With basic socio-economic information, it is possible to reach a consistent sample of the population. In cases like marketing research, studies often relate to one specific population like Facebook users, Baby Boomers, or even homeowners.

Minimizing Non-Sampling Error

Non-sampling error is broad because the types of marketing studies conducted are various. The following are general techniques used to minimize non-sampling error, but remember, an in-person study has different factors than a survey or questionnaire.

1. Randomize selection to eliminate bias: Select participants based on a random factor, like choosing every fourth person on a list.

2. Train your team: If the study is conducted by a researcher, either use the same researcher or be sure to train your team on the procedure. Training and experience is essential.

3. Perform an external record check: Human error occurs in entering data. Have an external source check your records and confirm their consistency with written results. Entering the number 20 as the number 200 is an easy mistake that could throw off your research dramatically.

Q13. What is the Scale of measurement in research methods Explain each briefly?

Ans: Measurement scales in Research Methodology are used to categorize and/or quantify variables. From what has been stated above, we can write that scales of measurement can be

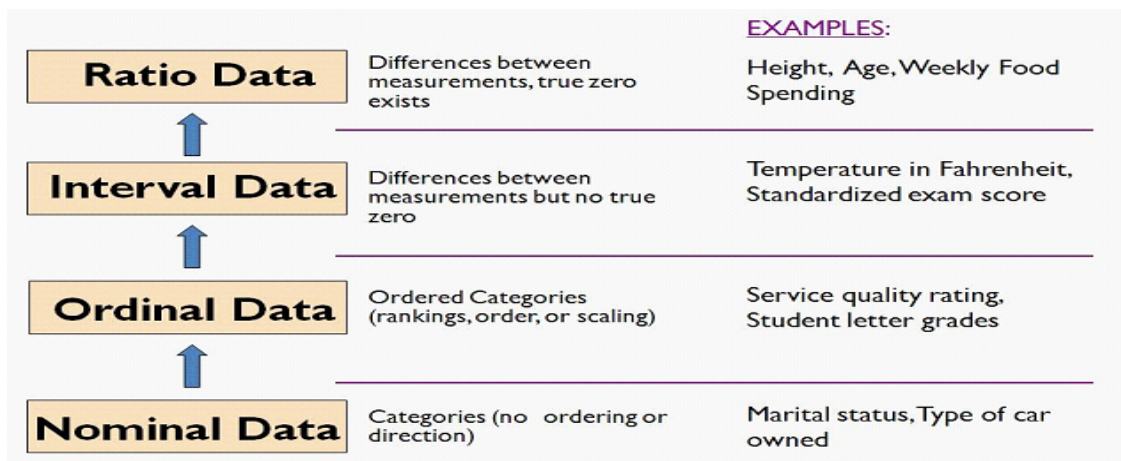
considered in terms of their mathematical properties. The most widely used classification of measurement scales are:

- Nominal scale
- Ordinal scale
- Interval scale and
- Ratio scale.

1. Nominal scale is simply a system of assigning number symbols to events in order to label them. The usual example of this is the assignment of numbers of basketball players in order to identify them. Such numbers cannot be considered to be associated with an ordered scale for their order is of no consequence; the numbers are just convenient labels for the particular class of events and as such have no quantitative value. Nominal scales provide convenient ways of keeping track of people, objects and events.

Nominal scale is the least powerful level of measurement. It indicates no order or distance relationship and has no arithmetic origin. A nominal scale simply describes differences between things by assigning them to categories. Nominal data are, thus, counted data.

2. Ordinal scale: The lowest level of the ordered scale that is commonly used is the ordinal scale. The ordinal scale places events in order, but there is no attempt to make the intervals of the scale equal in terms of some rule. Rank orders represent ordinal scales and are frequently used in research relating to qualitative phenomena. A student's rank in his graduation class involves the use of an ordinal scale. One has to be very careful in making statement about scores based on ordinal scales. For instance, if Ram's position in his class is 10 and Mohan's position is 40, it cannot be said that Ram's position is four times as good as that of Mohan.



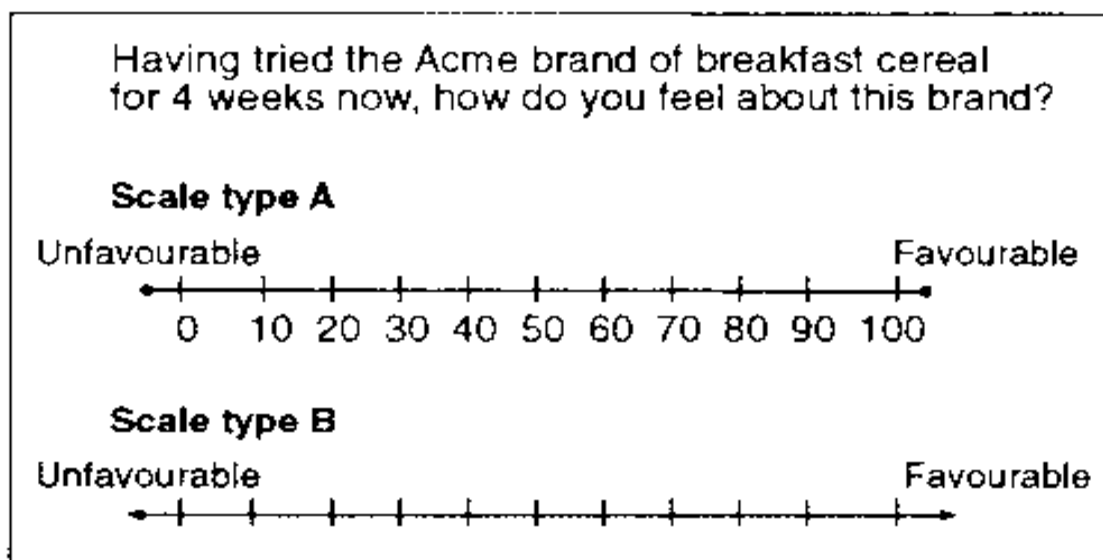
3. Interval Scale: In the case of interval scale, the intervals are adjusted in terms of some rule that has been established as a basis for making the units equal. The units are equal only in so far as one accepts the assumptions on which the rule is based. Interval scales can have an arbitrary zero, but it is not possible to determine for them what may be called an absolute zero or the unique origin. The primary limitation of the interval scale is the lack of a true zero; it does not have the capacity to measure the complete absence of a trait or characteristic. ordinal scales for interval scale also incorporates the concept of equality of interval. As such more powerful statistical measures can be used with interval scales. Mean is the appropriate measure of central tendency, while standard deviation is the most widely used measure of dispersion. Product moment correlation techniques are appropriate and the generally used tests for statistical significance are the ‘t’ test and ‘F’ test.

4. Ratio scale: Ratio scales have an absolute or true zero of measurement. The term ‘absolute zero’ is not as precise as it was once believed to be. We can conceive of an absolute zero of length and similarly we can conceive of an absolute zero of time. For example, the zero point on a centimeter scale indicates the complete absence of length or height. But an absolute zero of temperature is theoretically unobtainable and it remains a concept existing only in the scientist’s mind. The number of minor traffic-rule violations and the number of incorrect letters in a page of type script represent scores on ratio scales. Both these scales have absolute zeros and as such all minor traffic violations and all typing errors can be assumed to be equal in significance. With ratio scales involved one can make statements like “Jyoti’s” typing performance was twice as good as that of “Reetu.”

Q14.What is Non-comparative scale and writes down types of Non-comparative scale with example?

The measurement scales, commonly used in marketing research, can be divided into two groups; comparative and non-comparative scales. Comparative scales involve the respondent in signaling where there is a difference between two or more producers, services, brands or other stimuli. Examples of such scales include; paired comparison, dollar metric, unity-sum-gain and line marking scales. Non-comparative scales are; continuous rating scales, itemized rating scales, semantic differential scales and Likert scales.

1. Continuous rating scales: The respondents are asked to give a rating by placing a mark at the appropriate position on a continuous line. The scale can be written on card and shown to the respondent during the interview. Two versions of a continuous rating scale are depicted in below figure:

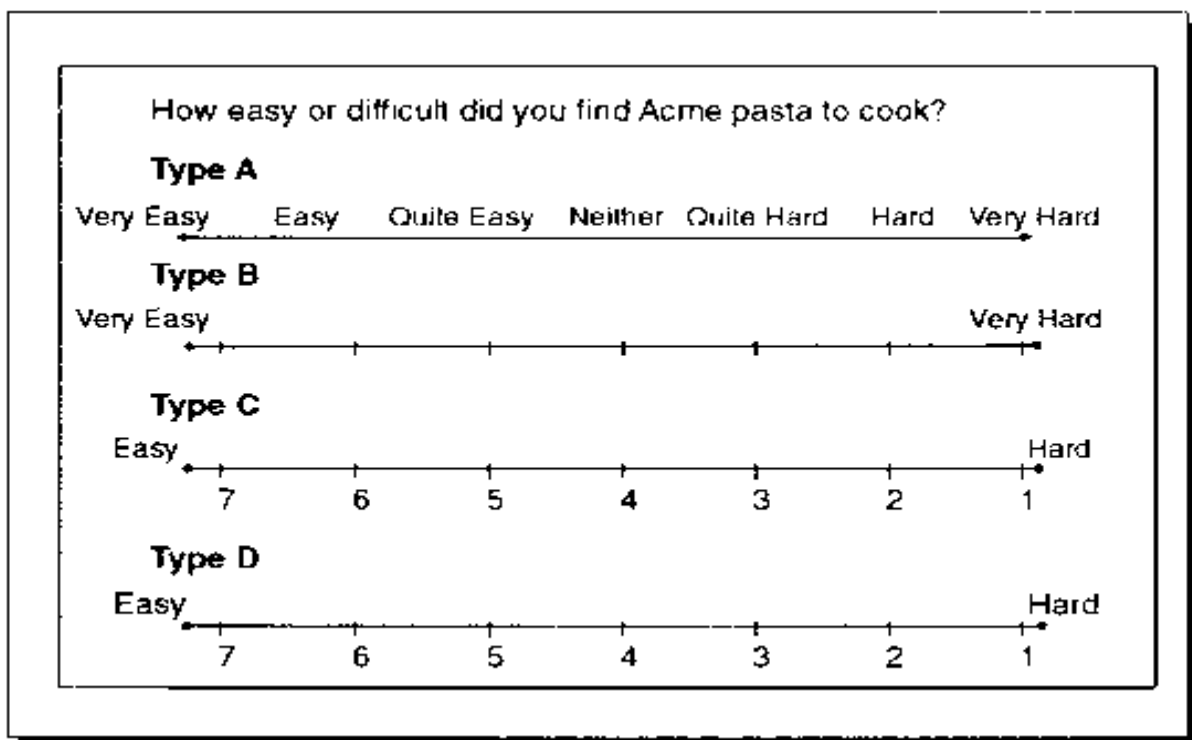


When version B is used, the respondent's score is determined either by dividing the line into as many categories as desired and assigning the respondent a score based on the category into which his/her mark falls, or by measuring the distance, in millimeters or inches, from either end of the scale. Whichever of these forms of the continuous scale is used, the results are normally analysed as interval scaled.

2. Line marking scale: The line marked scale is typically used to measure perceived similarity differences between products, brands or other objects. Technically, such a scale is a form of what is termed a semantic differential scale since each end of the scale is labeled with a word/phrase (or semantic) that is opposite in meaning to the other. Figure 3.8 provides an illustrative example of such a scale.

Consider the products below which can be used when frying food. In the case of each pair, indicate how similar or different they are in the flavor which they impart to the food.

3. Itemised rating scales: With an itemized scale, respondents are provided with a scale having numbers and/or brief descriptions associated with each category and are asked to select one of the limited number of categories, ordered in terms of scale position, that best describes the product, brand, company or product attribute being studied. Examples of the itemized rating scale are illustrated in below figure:

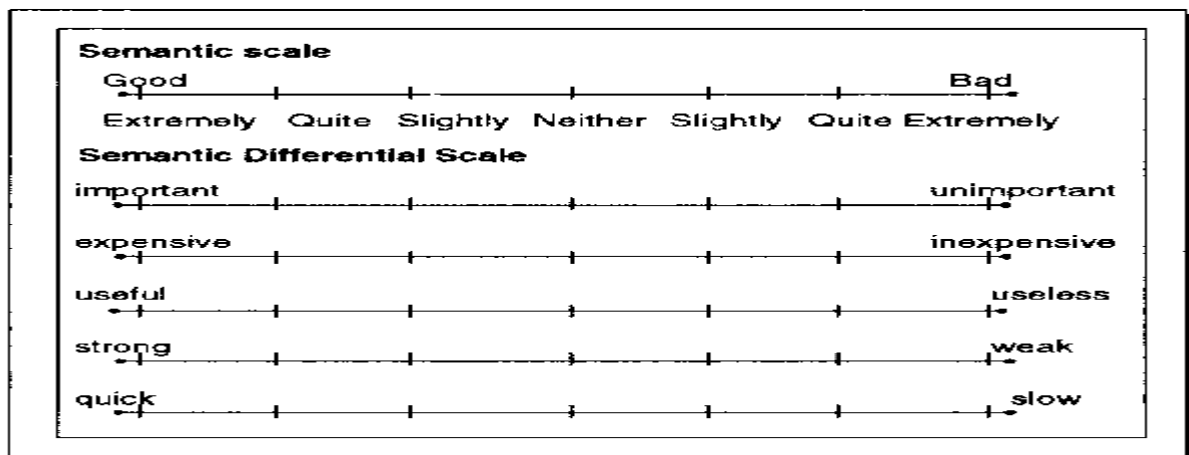


4. Semantic scales: This type of scale makes extensive use of words rather than numbers. Respondents describe their feelings about the products or brands on scales with semantic labels. When bipolar adjectives are used at the end points of the scales, these are termed semantic differential scales. The semantic scale and the semantic differential scale are

illustrated

in

figure



5. Likert scales: A Likert scale is what is termed a summated instrument scale. This means that the items making up a Likert scale are summed to produce a total score. In fact, a Likert scale is a composite of itemized scales. Typically, each scale item will have 5 categories, with scale values ranging from -2 to +2 with 0 as neutral responses. This explanation may be clearer from the example in figure below:

Likert Scale

In general, how you would you rate the quality of Fictionals chocolate ice cream?

☐ Poor ☐ Fair ☒ Good ☐ Very Good ☐ Excellent

Slider Scale

In general, how you would you rate the quality of Fictionals chocolate ice cream?

Poor Excellent
1 2 3 4 5

Likert scales are treated as yielding Interval data by the majority of marketing researchers. The scales which have been described in this chapter are among the most commonly used in marketing research. Whilst there are a great many more forms which scales can take, if students are familiar with those described in this chapter they will be well equipped to deal with most types of survey problem.

Q16. What is Measurement Error and how to avoid it in research?

Measurement Error (also called Observational Error) is the difference between a measured quantity and its true value. It includes [random error](#) (naturally occurring errors that are to be expected with any experiment) and [systematic error](#) (caused by a mis-calibrated instrument that affects *all* measurements).

For example, let's say you were measuring the weights of 100 marathon athletes. The scale you use is one pound off: this is a **systematic error** that will result in **all** athletes body weight calculations to be off by a pound. On the other hand, let's say your scale was accurate. Some athletes might be more dehydrated than others. Some might have wetter (and therefore heavier) clothing or a 2 oz. candy bar in a pocket. These are **random errors** and are to be expected. In fact, all collected samples will have random errors — they are, for the most part, unavoidable.

Measurement errors can quickly grow in size when used in formulas. For example, if you're using a small error in a velocity measurement to calculate kinetic energy, your errors can easily quadruple. To account for this, you should use a formula for [error propagation](#) whenever you use uncertain measures in an experiment to calculate something else.

Different Measures of Error

Different measures of error include:

1. [Absolute Error](#): the amount of error in your measurement. For example, if you step on a scale and it says 150 pounds but you know your true weight is 145 pounds, then the scale has an absolute error of $150 \text{ lbs} - 145 \text{ lbs} = 5 \text{ lbs}$.
2. [Greatest Possible Error](#): defined as one half of the measuring unit. For example, if you use a ruler that measures in whole yards (i.e. without any fractions), then the greatest possible error is one half yard.
3. **Instrument Error**: error caused by an inaccurate instrument (like a scale that is off or a poorly worded questionnaire).
4. [Margin of Error](#): an amount above and below your measurement. For example, you might say that the average baby weighs 8 pounds with a margin of error of 2 pounds ($\pm 2 \text{ lbs}$).
5. **Measurement Location Error**: caused by an instrument being placed somewhere it shouldn't, like a thermometer left out in the full sun.

6. **Operator Error:** human factors that cause error, like reading a scale incorrectly.
7. **Percent Error:** another way of expressing measurement error. Defined as:

$$\text{Percent Error} = \frac{(\text{measured value} - \text{actual value})}{\text{actual value}}$$

8. **Relative Error:** the ratio of the absolute error to the accepted measurement. As a formula, that's:

$$E_{\text{relative}} = \frac{E_{\text{absolute}}}{E_{\text{measured}}}$$

Ways to Reduce Measurement Error

- Double check all measurements for accuracy. For example, double-enter all inputs on two worksheets and compare them.
- Double check your formulas are correct.
- Make sure observers and measurement takers are well trained.
- Make the measurement with the instrument that has the highest precision.
- Take the measurements under controlled conditions.
- Pilot test your measuring instruments. For example, put together a focus group and ask how easy or difficult the questions were to understand.
- Use multiple measures for the same construct. For example, if you are testing for depression, use two different questionnaires.

Statistical Procedures to Assess Measurement Error

The following methods assess “absolute reliability”:

- **Standard error of measurement (SEM):** estimates how repeated measurements taken on the same instrument are estimated around the true score.
- **Coefficient of variation (CV):** a measure of the variability of a distribution of repeated scores or measurements. Smaller values indicate a smaller variation and therefore values closer to the true score.
- **Limits of agreement (LOA):** gives an estimate of the interval where a proportion of the differences lie between measurements.

Q17. Explain what is reliability & Validity in research and describe their relationship?

Reliability refers to how consistently a method measures something. If the same result can be consistently achieved by using the same methods under the same circumstances, the measurement is considered reliable. You measure the temperature of a liquid sample several times under identical conditions. The thermometer displays the same temperature every time, so the results are reliable.

Validity refers to how accurately a method measures what it is intended to measure. If research has high validity, which means it produces results that correspond to real properties, characteristics, and variations in the physical or social world.

High reliability is one indicator that a measurement is valid. If a method is not reliable, it probably isn't valid.

If the thermometer shows different temperatures each time, even though you have carefully controlled conditions to ensure the sample's temperature stays the same, the thermometer is probably malfunctioning, and therefore its measurements are not valid.

How are reliability and validity assessed?

Reliability can be estimated by comparing different versions of the same measurement. Validity is harder to assess, but it can be estimated by comparing the results to other relevant data or theory. Methods of estimating reliability and validity are usually split up into different types.

Types of reliability

Different types of reliability can be estimated through various statistical methods.

Types of reliability		
Type of reliability	What does it assess?	Example
Test-retest	The consistency of a measure across time : do you get the same results when you repeat the measurement?	A group of participants complete a questionnaire designed to measure personality traits. If they repeat the questionnaire days, weeks or months apart and give the same answers, this indicates high test-

Types of reliability		
Type of reliability	What does it assess?	Example
		retest reliability.
Interrater	The consistency of a measure across raters or observers : do you get the same results when different people conduct the same measurement?	Based on an assessment criteria checklist, five examiners submit substantially different results for the same student project. This indicates that the assessment checklist has low inter-rater reliability (for example, because the criteria are too subjective).
Internal consistency	The consistency of the measurement itself : do you get the same results from different parts of a test that are designed to measure the same thing?	You design a questionnaire to measure self-esteem. If you randomly split the results into two halves, there should be a strong correlation between the two sets of results. If the two results are very different, this indicates low internal consistency.

Types of validity

The validity of a measurement can be estimated based on three main types of evidence. Each type can be evaluated through expert judgment or statistical methods.

Types of validity		
Type of validity	What does it assess?	Example
Construct	The adherence of a measure to existing theory and knowledge of the concept being measured.	A self-esteem questionnaire could be assessed by measuring other traits known or assumed to be related to the concept of self-esteem (such as social skills and optimism). Strong correlation between the scores for self-esteem and associated traits would indicate high construct validity.

Types of validity		
Type of validity	What does it assess?	Example
Content	The extent to which the measurement covers all aspects of the concept being measured.	A test that aims to measure a class of students' level of Spanish contains reading, writing and speaking components, but no listening component. Experts agree that listening comprehension is an essential aspect of language ability, so the test lacks content validity for measuring the overall level of ability in Spanish.
Criterion	The extent to which the result of a measure corresponds to other valid measures of the same concept.	A survey is conducted to measure the political opinions of voters in a region. If the results accurately predict the later outcome of an election in that region, this indicates that the survey has high criterion validity.

To assess the validity of a cause-and-effect relationship, you also need to consider internal validity (the design of the experiment) and external validity (the generalizability of the results).

Q18. What is hypothesis testing Describe the process of hypothesis testing with an example?

A hypothesis is an **educated guess** about something in the world around you. It should be testable, either by experiment or observation. For example:

- A new medicine you think might work.
- A way of teaching you think might be better.
- A possible location of new species.
- A fairer way to administer standardized tests.

It can really be *anything at all* as long as you can put it to the test.

Hypothesis Statement: If you are going to propose a hypothesis, it's customary to write a statement. Your statement will look like this:

"If I...(do this to an [independent variable](#))....then (this will happen to the [dependent variable](#))."

For example:

If I (decrease the amount of water given to herbs) then (the herbs will increase in size).

If I (give patients counseling in addition to medication) then (their overall depression scale will decrease).

Hypothesis Testing: Hypothesis testing in statistics is a way for you to test the results of a survey or experiment to see if you have meaningful results. You're basically testing whether your results are valid by figuring out the odds that your results have happened by chance. If your results may have happened by chance, the experiment won't be repeatable and so has little use.

The following steps are involved in hypothesis testing:

The first step is to state the null and alternative hypothesis clearly. The null and alternative hypothesis in hypothesis testing can be a one tailed or two tailed test.

The second step is to determine the test size. This means that the researcher decides whether a test should be one tailed or two tailed to get the right critical value and the rejection region.

The third step is to compute the test statistic and the probability value. This step of the hypothesis testing also involves the construction of the confidence interval depending upon the testing approach.

The fourth step involves the decision making step. This step of hypothesis testing helps the researcher reject or accept the null hypothesis by making comparisons between the subjective criterion from the second step and the objective test statistic or the probability value from the third step.

The fifth step is to draw a conclusion about the data and interpret the results obtained from the data.

Hypothesis testing with example:

Sample problem: A sample of 200 people has a mean age of 21 with a population standard deviation (σ) of 5. Test the hypothesis that the population mean is 18.9 at $\alpha = 0.05$.

- **Step 1:** State the null hypothesis. In this case, the null hypothesis is that the population mean is 18.9, so we write:

$$H_0: \mu = 18.9$$

- **Step 2:** State the alternative hypothesis. We want to know if our sample, which has a mean of 21 instead of 18.9, really is different from the population, therefore our alternate hypothesis:

$$H_1: \mu \neq 18.9$$

- **Step 3:** Press Stat then press the **right arrow** twice to select TESTS.
- **Step 4:** Press 1 to select **1:Z-Test....** Press ENTER.
- **Step 5:** Use the **right arrow** to select **Stats.**
- **Step 6:** Enter the data from the problem:

$$\mu_0: 18.9$$

$$\sigma: 5$$

$$x: 21$$

$$n: 200$$

$$\mu: \neq \mu_0$$

- **Step 7:** Arrow down to **Calculate** and press ENTER. The calculator shows the p-value:

$$p = 2.87 \times 10^{-9}$$

- This is smaller than our alpha value of .05. That means we should **reject the null hypothesis**.

UNIT-4

Q19. What is research report and write down the objective and significance of report writing in research work?

Ans: Research reports are recorded data prepared by researchers or statisticians after analyzing information gathered by conducting organized research, typically in the form of [surveys](#) or [qualitative methods](#). The purpose of research report is to convey the interested persons the whole result of study in sufficient detail and to determine himself the validity of the conclusions.

Objective of Research Report:

A good research report not only disseminates knowledge, but also presents the findings for expansion of the horizon of knowledge. That apart, it also checks the validity of the generalization and inspires others to carry on related or allied problems.

The purpose of the research report may be discussed under the following heads:

1. Transmission of Knowledge:

The knowledge that has been obtained on the basis of research need transmission for proper utilization of the resources invested. Because of that reason, it is always advisable to prepare to report in a written manner so that it can also provide knowledge to layman in understanding various social problems.

2. Presentation of Findings:

Society is more concerned with the finished product in terms of output of research which has the input of immense money, human resources and precious time. Therefore, the social utility of the research report lies in its exposure to the laymen as well as its submission to the sponsoring agency of the project.

Whereas people may acquire knowledge about various social problems in the widest possible manner, the sponsoring agency may take the credit of the conduct of a piece of successful research. Even interesting findings may draw the attention of the world community through mass media. That apart, it may also result in legislative or ameliorative, measures.

3. Examining the Validity of the Generalizations:

Submission of the report enables the researchers to examine the validity and the authenticity of the generalizations. For that purpose the report must be prepared and presented in an organized form. Thereafter it can be checked and the discrepancy, if any, in generalizations, practical or real can be dispelled and the facts can be re-examined and reorganized

4. Inspiration for Further Research:

Research report inspires others to undertake further research in the same line or in any other inter-disciplinary fields. If the report appears to be interesting and a novel one, it is more likely to draw the attention of the social scientists.

Significance Or Importance of report

1. **Decision Making Tool:** Today's complex business organizations require thousands of information. Reports provide the required information a large number of important decisions in business or any other area are taken on the basis of information presented in the reports. This is one of the great importances of report.
2. **Investigation:** Whenever there is any problem, a committee or commission or study group investigates the problem to find out the reason behind the problem and present

the findings with or without the recommendation in the form of a report. It is another importance of report.

3. **Evaluation:** Large scale organizations are engaged in multidimensional activities. It is not possible for a single top executive to keep personal watch on what others are doing. So, the executive depends on reports to evaluate the performance of various departments or units.
4. **Quick Location:** There is no denying the fact that business executives need information for quick decision-making. As top executives are found to be busy for various purposes), they need vital sources of information. Such sources can be business reports.
5. **Development of skill:** Report writing skill develops the power of designing, organization coordination, judgment and communication.
6. **Neutral presentation of facts:** Facts are required to be presented in a neutral way; such presentation is ensured through a report as it investigates, explains and evaluates any fact independently.
7. **Professional Advancement:** Report also plays a major role in professional achievement. For promotion to the rank and file position, satisfactory job performance is enough to help a person. But for promotion to high level position, intellectual ability is highly required. Such ability can be expressed through the report submitted to higher authority.
8. **Proper Control:** Whether activities are happening according to plan or not is expressed through a report. So, controlling activities are implemented based on the information of a report.
9. **A managerial Tool:** Various reports make activities easy for the managers. For planning, organizing, coordinating, motivating and controlling, manager needs help from a report which acts as a source of information.
10. **Encountering Advance and Complex Situation:** In a large business organization, there is always some sort of labor problems which may bring complex situations. To tackle that situation, managers take the help of a report.

Q20. Write down the Layout/ steps and process of research report writing?

Research report writing in effect regardless of the nature of your research study not only organizes your thoughts and research work but also serves as the template for the entire [Research Process](#). Actually, the **research report writing steps & format** acts as a

visual reminder so that you can include every detail of your research work. If you are a beginner in research report writing, then it is essential in order to write rightly your invaluable research paper.

How Research Report Writing Would Be

The purpose of the research report writing is to deliver the results of the research to the interested person as far as possible and publish it in a coherent way so that the reader understands the information. Thus, the reader can determine the rationale of the [research study](#) itself. So, while you write down your own research report keep in mind the following factors well. Though, there is no fixed structure or rule of writing a research report.

(A) The report will agree realistically. Its report would be real based on the data obtained in the study.

(B) It will be complete. The researcher should be aware that all the things are included as per the purpose of the research study.

(C) It will be as short as possible. This does not mean that it is necessary to summarize without discussing the necessary issues. In fact, it is big enough to discuss essential issues in details but short for unnecessary subject matters.

(D) The language of the report would be so clear and understandable. The report should use words that take into account the reader's interest in reading the report.

(E) The researcher would be intellectually honest.

(F) The report will be readable so that the reader feels interested in reading it.

Research Report Writing Steps

The researcher would write the research report in a step by step process. The essential steps in research report writing might be as follows:

Step-1: Organizing the Research Report

Thinking about how the data collected for the study will be structured. Research problems can have different sides. Information can be of different types. All this information should be arranged in a systematic and consistent manner in the light of research questions and assumptions.

Develop an outline for organizing your ideas using the information collected. on note cards. An outline shows your core ideas and what you are about to write about them. Write down all the key concepts. List the subordinate ideas below the core concepts. Avoid repeating any concepts

Step-2: Preparing an Outline

The other important thing about writing a report is to create an outline that gives you an overall outlook on the topic of the study. Adjust the order of the items to be included in the report. Then, understand the title, the most important issues, and its overview. Basically, your outline will form in three main categories: introduction, body and conclusion. But to make sure your paper is complete, consult with your instructor for the specific outline you want to include in your research. A sample outline for the research paper you might follow. But first, let's point out the main sections of your paper and what information each should cover.

Step-3: Writing a Draft Report

After creating the report outline, the researcher will start writing the report based on the information received according to that outline. But first, make a draft report. Then, examine the draft report, find out mistakes, edit and make changes. This not only clears things up from the get-go but also regulates the process of writing a research paper. This helps to establish the basic structure of your paper. Prepare a first draft where you examine your outline and expand on ideas to support your thesis.

Step-4: Report Writing as per Objectives

The researcher needs to be very aware of the purpose of the study from the beginning of the report preparation. Writing reports according to the purpose of research reduces the opportunity for discussion of irrelevant issues of course. The goal of the research is your purpose, which is why you are doing research and the signals where you expect the end to

come. Objectives are precise steps that you will take to get there. So when you write a report, your purpose should be kept in mind.

Research Report Writing Format

A research report has three basic parts.

Firstly, primary things, for example-research title, introduction, acknowledgments, & table of contents, etc.

Secondly, the main part, research discussion or research findings. The main part will necessarily be divided into some chapters.

Then, relevant issues, for example-annexure, bibliography, etc.

An Ideal Research Report Sample

Title	Population Trends in Bangladesh: Prospects & Challenges to Ensure Sustainable Development
Abstract	
Introduction	
Acknowledgment	
Table of Contents	
Chapter-1	Introduction
1.1	Introduction
1.2	Statement of the Problem
1.3	Basic Concepts & Definitions

1.4	Objectives of the Research
1.5	Research Methodology
1.6	Limitations
Chapter-2	<u>Literature Review</u>
Chapter-3	Research Findings
Chapter-4	Conclusion
Bibliography	
Annexure	
Questionnaire	



SUBJECT: INFORMATION SYSTEM MANAGEMENT

BBA (G) - 210

Q1. What do you know about data and information? Explain the relevance of information in decision making?

Ans. **Data** is the raw **facts** and statistics whereas **Information** is **Data** that is accurate and timely; specific and organised for a purpose; presented within a context that gives it meaning and **relevance**; and can lead to an increase in understanding and decrease in uncertainty.

Information plays a vital role in decision-making. Even to take very simple decisions, we need information. To understand the role played by information in decision-making, we have to understand how decisions are taken.

Stages of Decision-making	Role of Information
Identification and structuring of problem/opportunity	One needs information to identify a problem and put it in a structured manner. Without information about a problem or opportunity, the decision-making process does not even start.
Putting the problem/opportunity in context	Without information about the context in which the problem has occurred, one cannot take any decision on it. In a way, the information about the context defines the problem.
Generation of alternatives	Information is a key ingredient in the generation of alternatives for decision-making. One has to have information about possible solutions to generate alternatives.
Choice of best alternative	Based on the information about the suitability of the alternatives, a choice is made to select the best alternative.

Q2. What do you mean by ISM? Define sources of information.

Ans. ISM is the use of information technology, people, and business processes to record, store and process data to produce information that decision makers can use to make day to day decisions. The full form of ISM is **Information Systems Management**. The purpose of MIS is to extract data from varied sources and derive insights that drive business growth.

Sources of Information

1. Internal information

All organisations generate a substantial amount of information relating to their operation. This internal information is vital to the successful management of the organisation. The information may be available from a number of sources within the organisation, for example:

- Marketing and sales information on performance, revenues, markets shares, distribution channels, etc.
- Production and operational information on assets, quality, standards, etc.
- Financial information on profits, costs, margins, and cash flows, investments, etc.
- Internal documentation such as order forms, invoices, credit notes, procedural manuals.

2. External information

An external source of information is concerned with what is happening beyond the boundaries of the organisation. This covers any documentation relating to a subject area produced as a summary or detailed report by an agency external to an organisation. Such information may be obtainable from government agencies or private information providers. Examples might include:

- census figures
- telephone directories
- judgments on court cases
- computer users' yearbook
- legislation, for example
- gallup polls the Data Protection Act
- national opinion polls
- trade journals

- Ordnance Survey maps
- professional publications
- financial services agencies such
- industry standards as Dunn and Bradstreet
- the Internet

Q3. What are the applications of ISM in business?

Ans. ISM application in business falls into several different categories that provide information on all forms of functioning within an organization. Executives and departments within an organization could obtain any of the following forms of data:

- **Business Intelligence System:** In BI, all levels of management and executives can print data and graphs showing information or trends relating to growth, costs, strategic control, efficiency, risk and performance.
- **Executive Information System:** An EI system provides the same information as a BI system, but with greater attention to detail and more confidential information, designed to help top-level executives make choices that impact the entire organization.
- **Marketing Information System:** MI systems provide data about past marketing campaigns so that marketing executives can determine what works, what does not work and what they need to change in order to achieve the desired results.
- **Transaction Processing System:** TPS handles sales transactions and makes it possible for customers to sort search results by size, color or price. This system can also track trends related to sales and search results.
- **Customer Relationship Management System:** Keeping up with customers is key to overall success, and CRMS helps companies know when and how to follow up with customers in order to encourage an ongoing sales relationship with them.
- **Sales Force Automation System:** Gone are the days when sales teams must do everything manually. SFA systems automate much of what must be done for orders and to

obtain

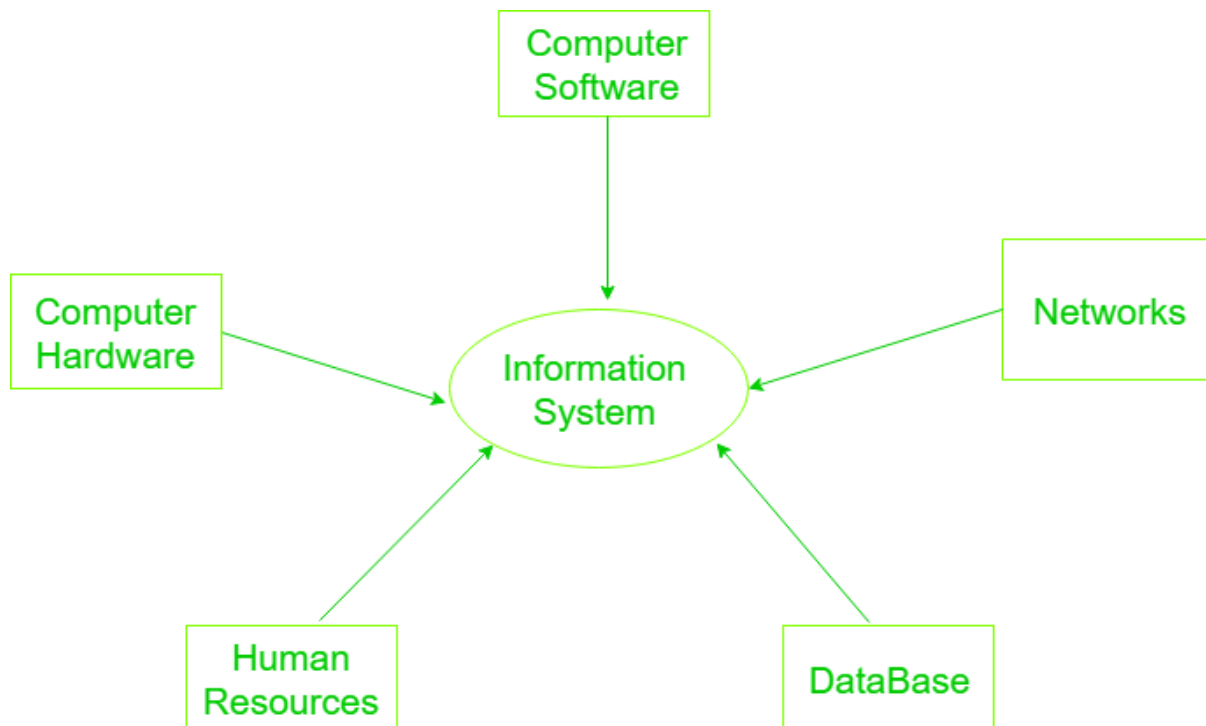
customer

information.

- **Human Resource Management System:** HRM systems track how much employees are paid, when and how they are performing. Companies can use this information to help improve performance or the bottom line.
- **Knowledge Management System:** Customers with questions want answers right away and knowledge management systems allow them to access frequently asked questions or troubleshoot on their own timetable.
- **Financial Accounting System:** Financial accounting systems help to track accounts receivable and accounts payable, in order to best manage the cash flow of a company.

Q4. Discuss the components of ISM?

Ans. An **Information system** is a combination of hardware and software and telecommunication networks that people build to collect create and distribute useful data, typically in an organisational, it defines the flow of information within the system. The objective of an information system is to provide appropriate information to the user, to gather the data, processing of the data and communicate information to the user of the system.



Components of the information system are as follows:

1. Computer Hardware:

Physical equipment used for input, output and processing. What hardware to use it depends upon the type and size of the organisation. It consists of input, an output device, operating system, processor, and media devices. This also includes computer peripheral devices.

2. Computer Software:

The programs/ application program used to control and coordinate the hardware components. It is used for analysing and processing of the data. These programs include a set of instruction used for processing information.

Software is further classified into 3 types:

1. System Software
2. Application Software
3. Procedures

3. Databases:

Data are the raw facts and figures that are unorganised that are and later processed to generate information. Software's are used for organising and serving data to the user, managing physical storage of media and virtual resources. As the hardware can't work without software the same as software needs data for processing. Data are managed using Database

management system. Database software is used for efficient access for required data, and to manage knowledge bases.

4. Network:

- Networks resources refer to the telecommunication networks like the intranet, extranet and the internet.
- These resources facilitate the flow of information in the organisation.
- Networks consists of both the physicals devices such as networks cards, routers, hubs and cables and software such as operating systems, web servers, data servers and application servers.
- Telecommunications networks consist of computers, communications processors, and other devices interconnected by communications media and controlled by software.
- Networks include communication media, and Network Support.

5. Human Resources:

It is associated with the manpower required to run and manage the system. People are the end user of the information system, end-user use information produced for their own purpose, the main purpose of the information system is to benefit the end user. The end user can be accountants, engineers, salespersons, customers, clerks, or managers etc. People are also responsible to develop and operate information systems. They include systems analysts, computer operators, programmers, and other clerical IS personnel, and managerial techniques.

Q5. What types of decisions are taken by top level, middle level and lower levels of management? Give suitable examples.

Ans. The three levels of management provide a separation between the managerial positions of the organization. The administrative rank of an organization worker determines the extent of authority, the status enjoyed and the chain of command that can be controlled by the worker. There are three levels of management found within an organization, where managers at these levels have different roles to perform for the organization to have a smooth performance, and the levels are:

1. **Top-Level Management/ Administrative level**
2. **Middle-Level Management/ Executory**
3. **Low-level Management/ Supervisory**

The levels of Management and Their Functions are discussed below:

1. Top Level Management

Top-Level Management is also referred to as the administrative level. They coordinate services and are keen on planning. The top-level management is made up of the Board of Directors, the Chief Executive Officer (CEO), the Chief Financial Officer (CFO) and the Chief Operating Officer (COO) or the President and the Vice President.

The Top-level management controls the management of goals and policies and the ultimate source of authority of the organization. They apply control and coordination of all the activities of the firm as they organize the several departments of the enterprise which would include their budget, techniques, and agendas.

Top-level management is accountable to the shareholders for the performance of the organization. There are several functions performed by the top-level management, but three of them are the most important, and they are:

- To lay down the policies and objective of the organization
- Strategizing the plans of the enterprise and aligning competent managers to the departments or middle level to carry them out.
- Keeping the communication between the enterprise and the outside world.

2. Middle Level of Management

Middle-level Management is also referred to as the executory level; they are subordinates of the top-level management and are responsible for the organization and direction of the low-level management. They account for the top-level management for the activities of their departments.

The middle-level managers are semi- executives and are made up of the departmental managers and branch manager. They could be divided into senior and junior middle-level management if the organization is big. They coordinate the responsibilities of the sub-unit of the firm and access the efficiency of lower-level managers.

The middle-level managers are in charge of the employment and training of the lower levels. They are also the communicators between the top level and the lower level as they transfer information, reports, and other data of the enterprise to the top-level. Apart from these, there are three primary functions of the middle-level management in the organization briefed below:

- To carry out the plans of the organization according to policies and directives laid down by the top-level management.
- To organize the division or departmental activities.
- To be an inspiration or create motivation for junior managers to improve their efficiency.

3. Lower Level of Management

The lower level Management is also referred to as the supervisory or the operative level of managers. They oversee and direct the operative employees. They spend most of their time addressing the functions of the firm, as instructed by the managers above them.

The lower-level managers are the first line of managers as they feature at the base of operations, so they are essential personnel that communicates the fundamental problems of the firm to the higher levels. This management level is made up of the foreman, the line boss, the shift boss, the section chief, the head nurse, superintendents, and sergeants.

They are the intermediary; they solve issues amidst the workers and are responsible for the maintenance of appropriate relationships within the organization. They are also responsible for training, supervising and directing the operative employees.

The lower level managers represents the management to the operative workers as they ensure discipline and efficiency in the organization. The duty of inspiration and encouragement falls to them, as they strengthened the workforce. They also organize the essential machines, tools and other materials required by the employees to get their job done.

Q6. Explain DDL and DML commands.

Ans. DDL:

DDL is Data Definition Language which is used to define data structures. For example: create table, alter table are instructions in SQL.

DML:

DML is Data Manipulation Language which is used to manipulate data itself. For example: insert, update, delete are instructions in SQL.

DDL	DML
It stands for Data Definition Language.	It stands for Data Manipulation Language.
It is used to create database schema and can be used to define some constraints as well.	It is used to add, retrieve or update the data.
It basically defines the column (Attributes) of the table.	It add or update the row of the table. These rows are called as tuple.
It doesn't have any further classification.	It is further classified into Procedural and Non-Procedural DML.
Basic command present in DDL are CREATE, DROP, RENAME, ALTER etc.	BASIC command present in DML are UPDATE, INSERT, MERGE etc.

Q7. What do you mean by ER model? Explain entities, attributes and types of relations.

Ans. ENTITY RELATIONAL (ER) MODEL is a high-level conceptual data model diagram. ER modeling helps you to analyze data requirements systematically to produce a well-designed database. The Entity-Relation model represents real-world entities and the relationship between them. It is considered a best practice to complete ER modeling before implementing your database.

ENTITY-RELATIONSHIP DIAGRAM (ERD) displays the relationships of entity set stored in a database. In other words, we can say that ER diagrams help you to explain the logical structure of databases. At first look, an ER diagram looks very similar to the flowchart. However, ER Diagram includes many specialized symbols, and its meanings make this model unique. The purpose of ER Diagram is to represent the entity framework infrastructure.

Components of the ER Diagram

This model is based on three basic concepts:

- Entities
- Attributes
- Relationships

ENTITY

A real-world thing either living or non-living that is easily recognizable and nonrecognizable. It is anything in the enterprise that is to be represented in our database. It may be a physical thing or simply a fact about the enterprise or an event that happens in the real world.

An entity can be place, person, object, event or a concept, which stores data in the database. The characteristics of entities are must have an attribute, and a unique key. Every entity is made up of some 'attributes' which represent that entity.

Examples of entities:

- **Person:** Employee, Student, Patient
- **Place:** Store, Building
- **Object:** Machine, product, and Car
- **Event:** Sale, Registration, Renewal
- **Concept:** Account, Course

Attribute(s):

Attributes are the **properties which define the entity type**. For example, Roll_No, Name, DOB, Age, Address, Mobile_No are the attributes which defines entity type Student. In ER diagram, attribute is represented by an oval.

Attribute

1. Key Attribute –

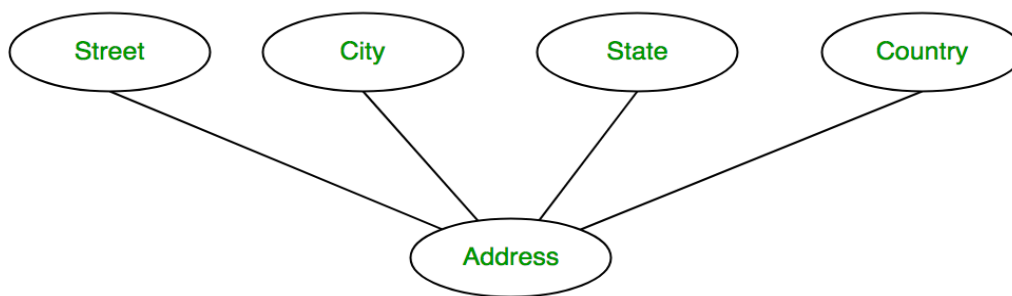
The attribute which **uniquely identifies each entity** in the entity set is called key attribute. For example, Roll_No will be unique for each student. In ER diagram, key

Roll_No

attribute is represented by an oval with underlying lines.

2. Composite Attribute –

An attribute **composed of many other attribute** is called as composite attribute. For example, Address attribute of student Entity type consists of Street, City, State, and Country. In ER diagram, composite attribute is represented by an oval comprising of ovals.



3. Multivalued Attribute –

An attribute consisting **more than one value** for a given entity. For example, Phone_No (can be more than one for a given student). In ER diagram, multivalued attribute is represented by double oval.

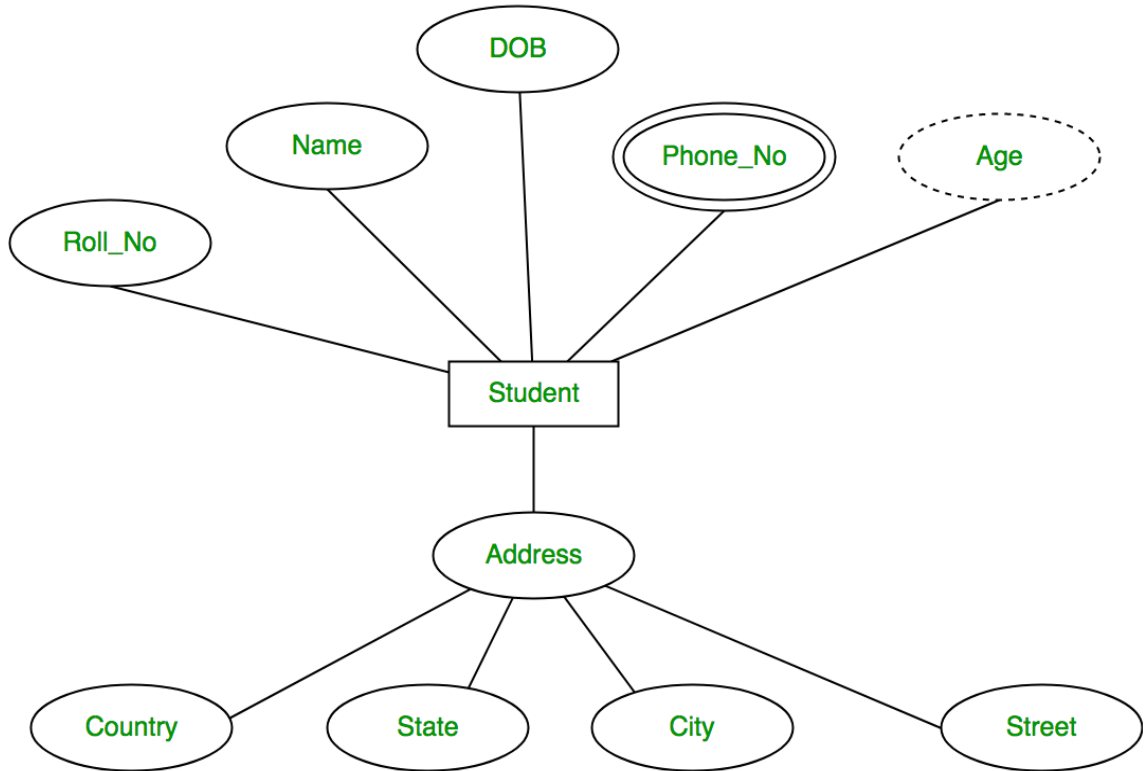
Phone_No

4. Derived Attribute –

An attribute which can be **derived from other attributes** of the entity type is known as derived attribute. e.g.; Age (can be derived from DOB). In ER diagram, derived attribute is represented by dashed oval.



The complete entity type **Student** with its attributes can be represented as:

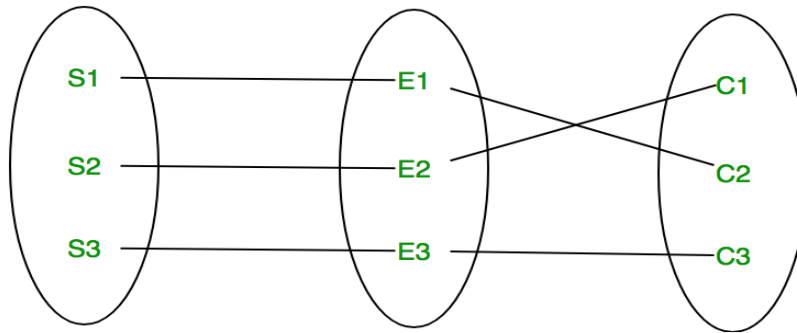


Relationship Type and Relationship Set:

A relationship type represents the **association between entity types**. For example, 'Enrolled in' is a relationship type that exists between entity type Student and Course. In ER diagram, relationship type is represented by a diamond and connecting the entities with lines.



A set of relationships of same type is known as relationship set. The following relationship set depicts S1 is enrolled in C2, S2 is enrolled in C1 and S3 is enrolled in C3.

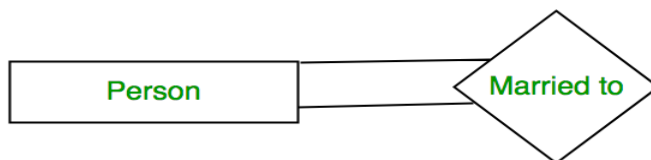


Degree of a relationship set:

The number of different entity sets **participating in a relationship** set is called as degree of a relationship set.

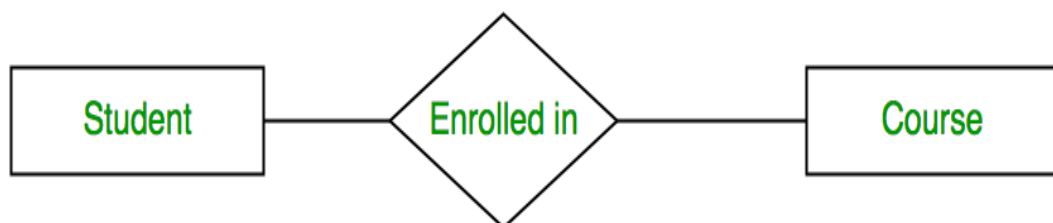
1. Unary Relationship –

When there is **only ONE entity set participating in a relation**, the relationship is called as unary relationship. For example, one person is married to only one person.



2. Binary Relationship –

When there are **TWO entities set participating in a relation**, the relationship is called as binary relationship. For example, Student is enrolled in Course.



3. n-ary Relationship –

When there are n entities set participating in a relation, the relationship is called as n-ary relationship.

Q8. Why is normalization important in database?

Ans. Normalization is a process to eliminate the flaws of a database with bad design. A poorly designed database is inconsistent and create issues while adding, deleting or updating information.

The following makes Database Normalization a crucial step in database design process:

Resolving the database anomalies

The forms of Normalization i.e. 1NF, 2NF, 3NF, BCF, 4NF and 5NF remove all the Insert, Update and Delete anomalies.

Insertion Anomaly occurs when you try to insert data in a record that does not exist.

Deletion Anomaly is when a data is to be deleted and due to the poor design of database, other record also deletes.

Eliminate Redundancy of Data

Storing same data item multiple times is known as Data Redundancy. A normalized table do not have the issue of redundancy of data.

Data Dependency

The data gets stored in the correct table and ensures normalization.

Isolation of Data

A good designed database states that the changes in one table or field do not affect other. This is achieved through Normalization.

Data Consistency

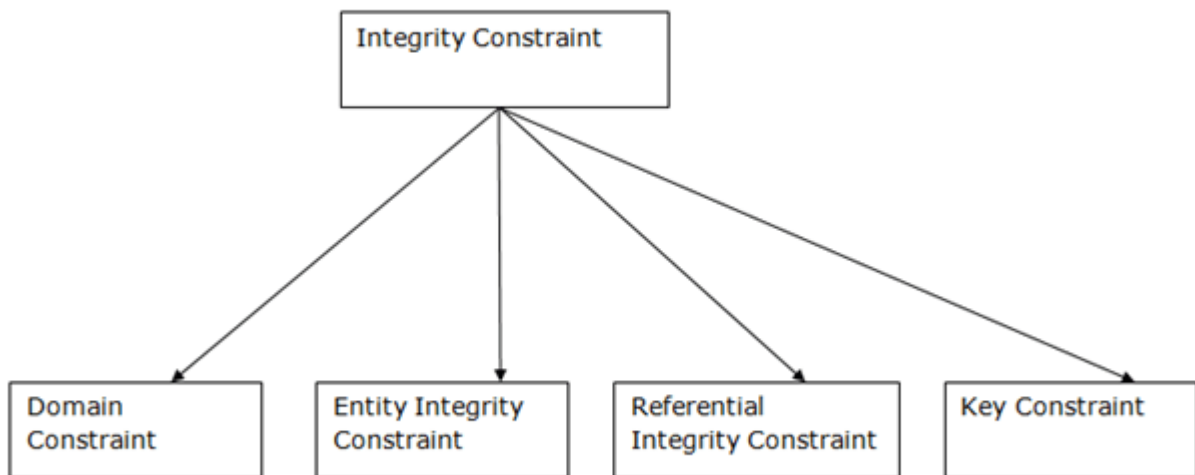
While updating if a record is left, it can led to inconsistent data, Normalization resolves it and ensures Data Consistency.

Q9. Explain the use of referential integrity constraint.

- **Ans.** Integrity constraints are a set of rules. It is used to maintain the quality of information.

- Integrity constraints ensure that the data insertion, updating, and other processes have to be performed in such a way that data integrity is not affected.
- Thus, integrity constraint is used to guard against accidental damage to the database.

Types of Integrity Constraint



Referential Integrity Constraints

- A referential integrity constraint is specified between two tables.
- In the Referential integrity constraints, if a foreign key in Table 1 refers to the Primary Key of Table 2, then every value of the Foreign Key in Table 1 must be null or be available in Table 2.

Example:

(Table 1)

EMP_NAME	NAME	AGE	D_No
1	Jack	20	11
2	Harry	40	24
3	John	27	18
4	Devil	38	13

Foreign key

Not allowed as D_No 18 is not defined as a Primary key of table 2 and In table 1, D_No is a foreign key defined

Relationships

(Table 2)

Primary Key

<u>D_No</u>	D_Location
11	Mumbai
24	Delhi
13	Noida

Q10. Compare the following-(1) Open and closed systems (2) Deterministic and Probabilistic system

Ans. (1) Open and closed systems

An open system is one that interacts with its environment and thus exchanges information, material, or energy with the environment, including random and undefined inputs. Open systems are adaptive in nature as they tend to react with the environment in such a way organizing', in the sense that they change their continued existence.

Such systems are 'self organizing', because they change their organization in response to changing conditions. A closed system is one, which doesn't interact with its environment. Such systems, in business world, are rare. Thus the systems that are relatively isolated from the environment but not completely closed are termed closed systems.

(2) Deterministic and Probabilistic system

A deterministic system is one in which the occurrence of all events is known with certainty. If the description of the system state at a particular point of time of its operation is given, the next state can be perfectly predicted.

A probabilistic system is one in which the occurrence of events cannot be perfectly predicted. Though the behaviour of such a system can be described in terms of probability, a certain degree of error is always attached to the prediction of the behaviour of the system.

Q11. How project/software development life cycle stages do differs in waterfall and spiral methodologies?

Ans. Both the models, Waterfall model and Spiral model are used in software development. Waterfall model is also known as classical or linear model because it follows sequential stages while the spiral model does not follow the sequential stages it follows the evolutionary way. The amount of risk in waterfall model is more as compared to spiral model because the errors or risks are identified and refined after the completion of each stage.

There are some differences between these two models waterfall and spiral model which are given below:

S.NO.	WATERFALL MODEL	SPIRAL MODEL
1.	Waterfall model works in sequential method.	While spiral model works in evolutionary method.
2.	In waterfall model errors or risks are identified and rectified after the completion of stages.	In spiral model errors or risks are identified and rectified earlier.
3.	Waterfall model is adopted by customers.	While spiral model is adopted by developers.
4.	Waterfall model is applicable for small project.	While Spiral model is used for large project.
5.	In waterfall model requirements and early stage planning is necessary.	While in spiral model requirements and early stage planning is necessary if required.
6.	Flexibility to change in waterfall model is Difficult.	Flexibility to change in spiral model is not Difficult.

- | | |
|--|---|
| 7. There is high amount risk in waterfall model. | There is low amount risk in spiral model. |
|--|---|

Q12. What is System Development Life Cycle? Explain its various stages?

Ans. System development life cycle is used in system engineering which helps in defining a process in testing, planning, creating, deploying an information system. Like any other product development used in business organizations, system development requires careful analysis and design before implementation. System development generally has the following phases:

Planning and Requirement Analysis

The project planning part involves the following steps:

- Reviewing various project requests
- Prioritizing the project requests
- Allocating the resources
- Identifying the project development team

The techniques used in information system planning are:

- Critical Success Factor
- Business System Planning
- End/Mean Analysis

The requirement analysis part involves understanding the goals, objectives, processes and the constraints of the system for which the information system is being designed.

It is basically an iterative process which includes systematic investigation of the processes and requirements. Various diagramming techniques are used which are created by the analyst in a blue print format. Those are in the form of:

- Data flow diagrams
- Context diagrams

Requirement analysis has the following sub-processes:

- Conducting preliminary investigation
- Performing detailed analysis activities
- Studying current system

- Determining user requirements
- Recommending a solution

Defining Requirements

The requirement analysis stage generally completes by creation of a 'Feasibility Report'. This report contains:

- A preamble
- A goal statement
- A brief description of the present system
- Proposed alternatives in details

The feasibility report and the proposed alternatives help in preparing the costs and benefits study.

Based on the costs and benefits, and also taken into consideration of all problems that may face due to human, organizational or technological bottlenecks, the best alternative is to be chosen by the end-users of the system in order to solve the problem.

Designing System Architecture

System design specifies how the system will accomplish this objective. System design consists of both logical design and physical design activity, which produces 'system specification' satisfying system requirements developed in the system analysis stage.

In this stage, the following documents are prepared:

- Detailed specification
- Hardware/software plan

Building or Developing the System

The most creative and also challenging phase of the system life cycle is designing the system, which refers to the technical specifications that will be applicable in implementing the candidate system. It also involves the construction of programmers and program testing.

It has the following stages:

- Acquiring hardware and software, if necessary
- Database design
- Developing system processes

- Coding and testing each module

The final report includes procedural flowcharts, record layout, report layout and plan for implementing the candidate system. Information on personnel, money, hardware, facility and their estimated cost must also be provided. At this point projected cost must be close to actual cost of implementation.

Testing the System

System testing is a type of test plan that contains several key activities and steps for programs, strings, system, and user acceptance testing. The system performance criteria deals with turnaround time, backup, file protection and human factors.

Testing process focuses on both:

- The internal logic of the system/software, ensuring that all statements have been tested;
- The external functions, by conducting tests to find out the errors and to ensure that the required input will actually produce output results.

In some cases, a 'parallel run' of the system is performed, where both the current and the proposed system are used to run in parallel for a specified period of time and the current system is used to validate the proposed system.

Deployment of the System

When the system is put into production stage, it is used by the end-users. Sometimes, this system is put into Beta stage where feedback of the users is received and depending upon the feedback; the system is corrected or improved before a final release or official release of the system.

System Evaluation and Maintenance

Maintenance is very important to delete the errors in the working system throughout its working life and need to tune the system to any variation in its working environment. Frequently, small system deficiencies are found, whenever the system is brought into operation and to remove them certain changes has to be made. System planner must always plan for availability resources to carry on these maintenance functions.

Q13. What is structured analysis?

Ans. Structured Analysis is a development method that allows the analyst to understand the system and its activities in a logical way.

It is a systematic approach, which uses graphical tools that analyze and refine the objectives of an existing system and develop a new system specification which can be easily understandable by user.

It has following attributes –

- It is graphic which specifies the presentation of application.
- It divides the processes so that it gives a clear picture of system flow.
- It is logical rather than physical i.e., the elements of system do not depend on vendor or hardware.
- It is an approach that works from high-level overviews to lower-level details.

Q14. Differentiate between Centralized and distributed processing.

Ans. **Centralized processing** is the **processing** in which a centrally located computer system processes the data. A very powerful computer is needed for the **centralized processing** for gaining high speed and fast access. All the data get stored into the **centralized** data storage.

Advantages of the centralized processing

1. Centralized processing helps in reducing the cost because it will not emphasize on more hardware and machines.
2. Centralized processing provides a better data security.
3. Processing is consistent in centralized processing systems.
4. The data and the program on each information system are independent to other information systems.

Disadvantages of centralized processing

1. Large data storage is required at the central information system.
2. It will reduce the local accountability.
3. High traffic can cause input/output bottlenecks.
4. Ability to respond to the information request in a timely manner gets reduced.
5. Needs a high cost in transmitting transactions.

Distributed processing is a phrase used to refer to a variety of computer systems that use more than one computer (or **processor**) to run an application. This includes parallel **processing** in which a single computer uses more than one CPU to execute programs.

Advantages of Distributed Data Processing (DDP)

- ▶ Inexpensive
- ▶ Easy to replace remote computers
- ▶ Optimized processing
- ▶ Easy to expand
- ▶ Parallel processing
- ▶ Better performance
- ▶ Backup of data
- ▶ Local data synchronization

Disadvantages of distributed data processing (DDP)

- ▶ Complexity
- ▶ Data Security
- ▶ Planning data synchronization is difficult

Q15. Explain Expert System architecture in detail.

Ans. An **expert system** is the highest form of automation of the management computing office which allows document communication and manipulation. Decision support systems help with problem-solving by allowing data and model manipulation. **Expert systems** go beyond conventional manipulation of this kind, as they allow experts to 'teach' computers about their fields so that fewer expert decision-makers can support the system more of the decision-making process.

Expert systems are one of the most cutting-edge information technology facts. That is, in some of the most complex and least-understood human information handling tasks, i.e. decision-making, problem-solving, diagnosis and learning, they help people. We do this by holding a large amount of factual information on a subject area, along with lines of reasoning employed in that field by human experts.

Expert System Components

The key components of Expert System are as followings,

1. **User Interface:**

It contains a computerized system between the user and the machine for friendly communication. This system provides an interface to the user in a graphical way.

2. **Inference Engine:**

It regains & determines the data process. It performs this task to deduce new facts which are subsequently used to draw further conclusions. This component is associated with an expert system as the brain of the expert system.

3. **Knowledge Base:**

This is the most important element of an expert system because it holds the expert's knowledge of problem-solving. It is here that the expert's elicited knowledge is stored. It contains the rules, facts and object descriptions, etc. The knowledge base is always stored in the data with the newest expert system products. The knowledgebase information is all that is needed to understand & formulate the problem, and then solve it.

4. **Data Acquisition Subsystem:**

The specialist has to learn the information reflected in the knowledge base.

Information acquisition software is used by a person who has problem experience to build, incorporate or modify the base of knowledge. Potential knowledge sources include human experts, research reports, textbooks, databases and the experience of the user himself.

Advantages of Expert System

Expert System (ES) gives clear responses for routine actions, procedures and activities .

- Expert System (ES) retains significant levels of the knowledge base.
- Expert System (ES) supports organizations to explain the rationale of their decision-making.

Disadvantages Expert System

- Expert System (ES) doesn't reply creatively as a human expert in unusual ways.
- Expert System (ES) requires more technical aspects due to this difficult in use.
- Highly costlier system.

Q16. Discuss various types of information system.

Ans. ” An information system is a set of interrelated components that works together to collect, process, store and breakdown the information to support decision making. ”

Information Systems are classified by organisational levels, mode of data, processing, system objectives and type of support provided.

Following are the TYPE of information system:

1. Transaction Processing System (TPS):

- Transaction Processing System are information system that processes data resulting from the occurrences of business transactions
- Their objectives are to provide transaction in order to update records and generate reports i.e. to perform store keeping function
- The transaction is performed in two ways: **Batching processing** and **online transaction processing**.
- **Example:** Bill system, payroll system, Stock control system.

2. Management Information System (MIS):

- Management Information System is designed to take relatively raw data available through a Transaction Processing System and convert them into a summarized and aggregated form for the manager, usually in a report format. It reports tending to be used by middle management and operational supervisors.
- Many different types of report are produced in MIS. Some of the reports are a summary report, on-demand report, ad-hoc reports and an exception report.
- **Example:** Sales management systems, Human resource management system.

3. Decision Support System (DSS):

- Decision Support System is an interactive information system that provides information, models and data manipulation tools to help in making the decision in a semi-structured and unstructured situation.
- Decision Support System comprises tools and techniques to help in gathering relevant information and analyze the options and alternatives, the end user is more involved in creating DSS than an MIS.
- **Example:** Financial planning systems, Bank loan management systems.

4. Experts System:

- Experts systems include expertise in order to aid managers in diagnosing problems or in problem-solving. These systems are based on the principles of artificial intelligence research.
- Experts Systems is a knowledge-based information system. It uses its knowledge about a specify are to act as an expert consultant to users.
- Knowledgebase and software modules are the components of an expert system. These modules perform inference on the knowledge and offer answers to a user's question

Q17. Explain Transaction Processing System.

Ans. Transaction processing systems are used to record day to day business transactions of the organization. They are used by users at the operational management level. The main objective of a transaction processing system is to answer routine questions such as;

- How printers were sold today?
- How much inventory do we have at hand?
- What is the outstanding due for John Doe?

By recording the day to day business transactions, TPS system provides answers to the above questions in a timely manner.

- The decisions made by operational managers are routine and highly structured.
- The information produced from the transaction processing system is very detailed.

For example, banks that give out loans require that the company that a person works for should have a memorandum of understanding (MoU) with the bank. If a person whose employer has a MoU with the bank applies for a loan, all that the operational staffs have to do is verify the submitted documents. If they meet the requirements, then the loan application documents are processed. If they do not meet the requirements, then the client is advised to see tactical management staff to see the possibility of signing a MoU.

Examples of transaction processing systems include;

- **Point of Sale Systems** – records daily sales
- **Payroll systems** – processing employee's salary, loans management, etc.
- **Stock Control systems** – keeping track of inventory levels
- **Airline booking systems** – flights booking management

Q18. Explain Decision support system.

Ans. A decision support system (DSS) is an interactive computer-based information system that, like MIS also serves at the management level of an organization. However, in contrast to MIS (that processes data), it processes information to support the decision making process of managers. It provides middle managers with the information that enables them to make intelligent decisions. A DSS in bank, for example, can enable a manager to analyze the changing trends in deposits and loans in order to ascertain the yearly targets.

DSS's are designed for every manager to execute a specific managerial task or problem. Generally, they help managers to make semi-structured decisions, the solution to which can be arrived at logically. However, sometimes, they can also help in taking complex decisions.

Components of Decision Support Systems (DSS)

A decision support systems consists of three main components, namely database, software system and user interface.

1. DSS Database: It contains data from various sources, including internal data from the organization, the data generated by different applications, and the external data mined from the Internet, etc. The decision support systems database can be a small database or a standalone system or a huge data warehouse supporting the information needs of an organization. To avoid the interference of decision support system with the working of operational systems, the DSS database usually contains a copy of the production database.

2. DSS Software System: It consists of various mathematical and analytical models that are used to analyze the complex data, thereby producing the required information. A model predicts the output in the basis of different inputs or different conditions, or finds out the combination of conditions and input that is required to produce the desired output.

A decision support system may comprise different models where each model performs a specific function. The selection of models that must be included in a decision support system family depends on user requirements and the purposes of DSS. The DSS software contains the predefined models (or routines) using which new models can be built to support specific type of decisions.

3. DSS User Interface: It is an interactive graphical interface which makes the interaction easier between the DSS and its users. It displays the results (output) of the analysis in various forms, such as text, table, charts or graphics. The user can select the appropriate option to view the output according to his requirement.

Q19. Explain the importance of decision making in ISM.

Ans. Managers regularly make decisions that impact the daily lives of their employees, so having accurate data is important. Changes introduced by management have the power to alter someone's life by:

- Increasing or decreasing stress levels.

- Increasing or decreasing workload.
- Increasing or decreasing ease of job performance.
- Increasing or decreasing job task understanding.
- Giving or taking away livelihood.

The large impact of managerial decisions on the everyday lives of people as well as on the company's bottom line means that decisions cannot be made lightly or without adequate information.

Decision-Making Processes

Many companies train their managers to make decisions using a structured decision-making process. While these processes vary slightly from organization to organization, a basic seven-step process is common:

1. Identify the problem.
2. Gather data related to the problem.
3. Identify possible solutions to the problem.
4. Consider pros and cons of each solution.
5. Choose the solution that minimizes risks while increasing benefits.
6. Execute your plan, adjusting as needed.
7. Review the effectiveness of your plan to help inform future decisions.

Q20. What is multimedia? How does it help in Information Processing?

Ans. Multimedia can be defined as any application that combines text with graphics, animation, audio, video, and/or virtual reality. A computer system is a combination of equipment (hardware), processes and programs (software), and people organized to perform a function. Combining these definitions, a business multimedia system includes equipment, programs, and people organized for the purposes of communication, data storage and retrieval systems (multimedia databases and electronic filing systems), information security, and Internet use (Web pages and electronic-business applications).

Within organizations, multimedia systems are used in all forms of information systems from transaction processing systems to executive decision support systems. These systems also can

be found across industries such as accounting, banking, communications, education, entertainment, insurance, manufacturing, medical, retailing, and real estate. Anywhere there is a need for combining text, pictures, sounds, and animation, multimedia systems are found.

Multimedia systems are used for security to keep intruders out of a system and for the protection of stored documents. Scanning devices are available to scan potential user's eyes (retina imaging) or thumb prints to gain access to a computer or site. Other systems can scan a person's signature or capture voice pattern recognition for the same purposes. Stored text, pictures, original document images, sound files, and video files can be protected through encryption methods, read/write protection, password management, and copyright protection that keep intruders from copying or accessing sensitive files.



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