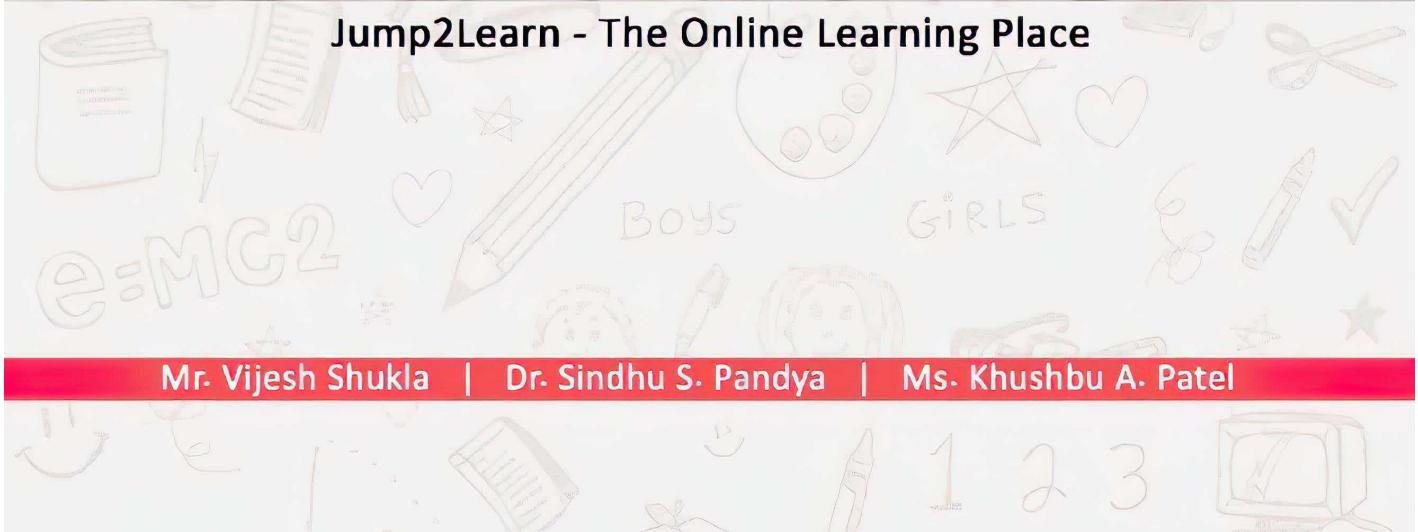


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UNIT-2

CONCEPTS OF SYSTEM

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2.1. SYSTEM:

The term system may be defined as a set of interrelated elements that operate collectively to achieve some common purpose or goal. For example: Human body is a system, consisting of various parts such as head, hands, and legs and so on. The various body parts are related by means of connecting networks of blood vessels and nerves. This system has a main goal which we may call "living". Thus a system can be described by specifying its parts, the way in which they are related, and the goals which they are expected to achieve.

OR

A business is also a system where economic resources such as people, money, material, machine etc. are transformed by various organizational processes such as production, marketing, finance...etc. into goods and services.

OR

A computer based information system is also a system which is a collection of people, hardware, software, data and procedures that interact to provide timely information to authorized people who need it. System is collection of sub-systems which are interconnected & interdependent to achieve the intended objective.

2.1.1. Definition:

"A System may be defined as a set of elements, joined together to achieve a common objective".

2.1.2. Elements of System:

1. Outputs and Inputs
2. Processor(s)
3. Control (Decision Making Subsystem)
4. Feedback
5. Environment
6. Boundaries and Interface

- **Outputs and Inputs:** Inputs are the element (material, human resources and information) that enters the system for processing. A major objective of a system is to produce an output that has value to its user. Whatever the nature of the output (goods, services or information) it must be in line with the expectations of the intended user. A system feeds on input to produce output in much the same way that a business brings in human, financial and material resources to produce goods and services.
- **Processor(s):** The processor is the element of a system that involves the actual transformation of input into output. It is the operational components of a system. Processors may modify the input totally or partially depending on the specifications of the output. This means that as the output specifications change so does the processing.
- **Control:** The control element guides the system. It is the decision-making subsystem that controls the pattern of activities governing input, processing and output. In an organizational context, management as a decision making body controls the inflow, handling and outflow of activities that affect the welfare of the business. In a computer system, the operating system and accompanying software influence the behavior of the system. Output specifications determine what and how much input is needed to keep the system in balance.
- **Feedback:** Control in a dynamic system is achieved by feedback. Feedback measures output against a standard in some form of cybernetic procedure that includes communication and control. CYBERNETICS is the science of communication and control theory that is considered especially with the comparative study of automatic control systems. Output information is fed back to the input and/or to management (Controller) for careful consideration. After the output is considered against performance standards, changes can result in the input or processing and consequently, the output. Feedback may be positive or negative, routine or informational.

- ✓ Positive feedback reinforces the performance of the system. It is routine in nature.
- ✓ Negative feedback generally provides the controller with information for action.
- **Environment:** Environment is within which an organization operates. It is the source of external elements imposed on the system. In fact, it often determines how a system must function. For example, the organization's environment, consisting of vendors, competitors, and others may provide constraints and consequently, influence the actual performance of the business.
- **Boundaries and Interface:** A system should have defined by its boundaries – the limits that identify its components, processes and interrelationships when it interfaces with another system. For example, a teller (ATM) system in a commercial bank is restricted to the deposits, withdrawals and related activities of customers checking and savings accounts.

2.1.3. Characteristics of a System:

1. Organization (Order) :

- ✓ Organization implies structure and order.
- ✓ It is the arrangement of components that help to achieve objectives.
- ✓ In the design of a Business system, for example, the hierarchical relationships starting with the president on top and leading downward to the blue-collar workers represent the organization structure.
- ✓ A computer system is designed around an input device, a central processing unit, an output device and one or more storage units.
- ✓ When linked together they work as a whole system for producing information.

2. Interaction:

- ✓ Interaction refers to manner in which each component functions with other components of a system.
- ✓ In an organization, for example, purchasing must interact with production, advertising with sales and payroll with personnel.
- ✓ In a computer system, the central processing unit must interact with the input device to solve a problem.
- ✓ The interrelationship between these components enables the computer to perform.

The logo consists of the letters 'T' and 'M' in a bold, sans-serif font, with a small circle containing a diagonal line positioned between them.**3. Interdependence:**

- ✓ Interdependence means that parts of the organization of computer system depend on one another.
- ✓ They are coordinated and linked together according to a plan.
- ✓ One subsystem depends on the input of another subsystem.
- ✓ In summary, no subsystems can function in isolation because it is dependent on the data (inputs) it receives from other subsystems to perform its required tasks.

4. Integration:

- ✓ Integration is concerned with how a system is tied together. It is more than sharing a physical part or location.
- ✓ It means that part of the system work together within the system even though each part performs a unique function.
- ✓ Successful integration will typically produce a synergistic (united) effect and greater total impact than if each component works separately.

5. A Central Objective:

- ✓ Objective may be real or stated.
- ✓ Although a stated objective may be real objective, it is not uncommon for an organization to state one objective and operates to achieve another.
- ✓ The important point is that the user must know the central objective of a computer application early in the analysis for a successful design and conversion.

2.1.4. System Performance:

System performance can be measured in various ways:

- **Efficiency:** Efficiency is a measure of what is produced divided by what is consumed. It can range from 0 to 100 percent. For ex. The efficiency of a motor is the energy produced divided by the energy consumed. Efficiency is a relative term used to compare systems.
- **Effectiveness:** Effectiveness is a measure of the extent to which a system achieves its goals. It can be computed by dividing the goals actually achieved by the total of the stated goals. Evaluating system performance also calls for using performance standards.

A system performance is a specific objective of the system.

2.2. CLASSIFICATIONS OF SYSTEMS:

1. Abstract and Physical systems
2. Deterministic and Probabilistic system
3. Open and Closed systems
4. Other Systems

- 1. Abstract and Physical Systems:** Systems can be categorized as abstract systems or physical systems. There can be misunderstanding if one person talks about an information system as asset of concepts, ideals, or characteristics (abstract) and his listener perceive it as an operational system of people, equipment and reports (physical).

A stylized logo consisting of the letters 'T' and 'M' in a bold, blocky font, with a horizontal line connecting them.

An abstract or conceptual system is an orderly arrangement of interdependent ideas or constructs, which may or may not have any counterpart in the real world. Input-Process-Output an orderly arrangement of interdependent ideas or constructs is known as Abstract System. Abstract systems are conceptual on non-physical entities. They may be formulas of relationships among sets of variables or models- the abstract conceptualization of physical situations. For example a model is a representation of a real or planned system. The utilization of models makes it simpler for the analyst to visualize relationships in the system under study. Example: a system of theology is an orderly arrangement of ideas about God, man etc.

Physical systems are concrete operational systems made of people, materials, machine, energy and other physical things. A set of elements which operate together to accomplish an objective is known as physical system. Physical systems are tangible or the material entities. In the case of a library, the physical parts are the books, shelves, desks, chairs, etc. They can be visible and countable. Example: circulatory system, school system, accounting system and computer system, OSI model of networking..

- 2. Deterministic and Probabilistic System:** The system can be classified into different categories based on perfectibility of output & degree of information exchange with the environment.

A system is called deterministic when the inputs are processed so as to achieve 100% output, the system is known as deterministic system where the output certainty is completely predictable. A deterministic system is one in which the occurrence of all

events is known with certainty. In such a system, given a description of the system state at a particular point of time of its operation, the next state can be perfectly predicted.

Example:

- ✓ The solar system is a deterministic system because; the movement of planet can be predicted to high degree of precision. This system is based on specific rules and therefore the outcome can be predicted.
- ✓ A computer program performs specific operation according to predefined set of rules and conditions.

A system is said to be probabilistic when the output can be estimated but not confirmed. A Probabilistic system is one in which the occurrence of events cannot be perfectly predicted. Through the behavior of such a system can be described in terms of probability, a certain degree of error is always attached to the prediction of the behavior of the system.

Example: Share market system, weather forecast

- ✓ **Difference between Deterministic and Probabilistic system:**

Deterministic System	Probabilistic System
A deterministic system operates in a predictable manner wherein the interaction among the parts is known with certainty. If one has a description of the state of the system at a given point in time plus a description of its operation, the next state of the system may be given exactly, without error.	The probabilistic system can be described in terms of probable behavior, but a certain degree of error is always attached to the prediction of what the system will do.

Example: A computer program, which performs exactly according to a set of instructions	Example: A set of instructions given to a human who, for a variety of reasons, may not follow the instructions exactly as given.
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3. Open and Closed System: 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, so as to favor their continued existence. Such systems are 'self organizes', in the sense that they change their organization in response to changing conditions. Example: All living systems (e.g. human, plants and cell etc.) are open systems. They attempt to maintain equilibrium by homeostasis, i.e the process of adjusting to keep the system operating within prescribed limits. An open system is one which has several interfaces with its environment. It allows interface across its boundary. It receives inputs and delivers outputs to the outside. The library system falls into this category, since it must adapt to the changing demands of the user.

A. Characteristics of an open system:

- I. **Input from outside:** Open systems are self-adjusting and self-regulating; it takes input from its environment.
- II. **Process, Output and Cycles:** Open system produce useful output and operate in cycles.
- III. **Entropy:** All dynamic system run over some time and results in loss of energy.
- IV. **Equifinality:** This term implies that goals are achieved through the different actions and a variety of path.
- V. **Differentiation:** Open systems have a tendency towards an increasing specialization of functions and a greater differentiation of their components.

A closed system is self-contained one that does not exchange material, information, or energy with its environment. Though relatively, such systems are rare in business world. Closed systems sustain their operation only as long as they have adequate regulatory information and do not need anything from the environment. A closed system is one that is isolated from environmental influences. In actual, a closed system is uncommon. In system analysis, organizations, applications, and computers are invariably open, dynamic systems influenced by their environment. The concept of closed system is more relevant to scientific systems than to social systems. Example: A chemical reaction in a sealed insulated container

B. Difference between Open System and Closed System

S. No	Open System	Closed System
1.	Open system interacts with environment constantly	Closed System doesn't interact or react with the environment at all.
2.	Has an infinite Scope	Has limited Scope
3.	Relevant variable keep on interacting	The variables are self-contained
4.	Generally flexible and abstract	Rigid

4. Other Systems:

- 1) **Relatively Closed Systems:** in organizations and in information processing, there are systems that are relatively isolated from the environment, but are not completely closed, these will be considered closed systems.

Example: Software without any user

- 2) **Human Machine Systems:** They both perform some of the activities in the accomplishment of a goal (making a decision). The Machine elements, hardware and software are relatively closed and deterministic.

Example: Manufacturing industry

- 3) **Simple System:** It has few components and relationship or interaction between elements is complicated.

- 4) **Stable System:** It undergoes very little changes over time.

- 5) **Dynamic System:** It undergoes rapid and constant change overtime.

- 6) **Adaptive System:** If a system has the ability to change itself or its environment in order to survive, it is known as an adaptive system. Adaptation is required to improve functionality of survivor.

Example:

- ✓ High-level living organism such as animal and human.
- ✓ Development is also based on adaptation system.
- ✓ Successful business that adapts to change in environment is also an example of adaptive system.

- 7) **Non adaptive system:** These systems do not react or adapt to the environment. It is not able to change in response to changes in the environment.

- 8) **Permanent System:** These systems exist for a relatively long period of time. System made by people is generally permanent.

- 9) **Temporary System:** The systems are design to stay for a specific period of time. These are important for the accomplishment of a specific task in business and for research in science.

10) Man Made Information System: An information system prepared by human efforts is called man made information system. An information system may be defined as a set of devices, procedures, and operating system design around user based criteria to produce information and communicate to the user for planning, control and performance.

11) Stationary system: A Stationary system (fixed) is one whose operations either do not differ much or in repetitive cycles. Example: the automobile factory, government agency, supermarket store operation, high school etc.

- ✓ **Non-stationary system:** It is one whose properties and operations vary significantly or in repetitive cycle. Example: advertisement organization, defense system, research and development.
- ✓ **Natural system:** Natural systems are related to nature. A natural system is one that exists in nature, independent of any human involvement. The natural system consists of all the physical and biological materials and their processes

Example: Ecology system, solar system, water system

12) Manufacture system: People make them. Example: transport system, defense system, production, accounting system etc.

2.2.1. The Major Information Systems:

1. Formal information system
2. Informal information system
3. Computer based information system

1. Formal Information System:

A **formal information system** is based on accepted and fixed definitions of data and procedures for collecting, storing, processing and using these data with predefined rules. It is concerned by the pattern of authority, communication and workflow. Policies are generalizations that specify what an organization ought to do. Policies are translated into rules and transmitted to lower level management for implementation. The output represents employee performance.

Example, the use of computerized systems, such as data in databases, where the data tables, relationships, reports, etc. are linked within a defined structure, intranets, projects reports, meetings, presentations, etc.

2. Informal Information System:

An **informal information system**, works on unstated rules, it is an employee based system designed to meet personnel and professional needs and to help in the solution of work related problems it also makes information upward through indirect channels. In this way it is considered to be a useful system because it works within the framework of the business policies. This system has no order, structure, or trace ability, although it may still contain useful information. Examples include conversations (over coffee, in corridors), telephone calls, memos, notice boards, etc.

3. Computer Based Information System:

Computer based information system depends mainly on the computer for handling business application. System analyst develops several different types of information system to fulfill a variety of business needs.

2.3. Information System:

Information system is an organized combination of people, hardware, software, communication network, data resources and technologies that are used to collect manipulate process and distribute data and information. Information System is a procedure that is used to process data and provide useful information.



Example: ATM, Internet

2.3.1. Advantages / Need of Information Systems:

- **Communication:** Information System helps in communication of an organization, and fulfills the information needs of an organization. Managers' use Information System to share information with other employees who require the information. With help of information technologies the instant messaging, emails, voice and video calls becomes quicker, cheaper and much efficient.
- **Operations:** Information System provides complete and updated information which allows you to perform business operation more efficiently. It helps organization to enhance productivity and improve customer service. Information System is also needed to improve product quality.
- **Decisions:** Information System provides information, which helps in making decision.
- **Record:** Information System keeps the record of financial document, monitoring data, communicational record, and operational data. It arranges data from various resources and presents it as valuable historical information.
- **Globalization and reduction of Cultural Gap:** Sharing of information, knowledge and relationship creation between different countries, languages and cultures becomes much easier with information system.

- **Availability:** Information system provides information for businesses for 24x7 time, all over the globe. This means that a business can be open anytime anywhere, making purchases from different countries easier and more convenient.
- **Creation of new types of jobs:** Information system creates new and interesting jobs. Computer programmers, Systems analyzers, Hardware and Software developers and Web designers are some of the employment opportunities created with the help of IT.
- **Cost effectiveness and productivity:** The Information System promotes more efficient operation of the company and also improves the supply of information to decision-makers; IS has a positive impact on output of company.

2.3.2. Disadvantages of Information Systems:

- **Unemployment:** Implementing the information systems can save a great deal of time during the completion of tasks and some labor mechanic works. Most paperwork's can be processed immediately; financial transactions are automatically calculated, etc. As technology improves, tasks that were formerly performed by human employees are now carried out by computer systems. Example, automated telephone answering systems have replaced live receptionists in many organizations.
- **Lack of job security:** As technology keeps on changing with each day. This means that one has to be in a constant learning mode, if he or she wishes for their job to be secure.
- **Security issues:** Thieves and hackers get access to sensitive company data. Such data can include vendor information, bank records, intellectual property and personal data on company management. The hackers distribute the information over the Internet, sell it to rival companies or use it to damage the company's image.
- **Implementation expenses:** To add the information system it require high amount of cost for software, hardware and people. Employees need to be trained with information technology and software.

2.3.3. Classification of Information Systems:

The Information Systems can be categorized into the following 6 classes:

1. Transaction Processing System (TPS)
2. Management Information System (MIS)
3. Decision Support System (DSS)
4. Executive Support System (ESS)
5. Office Automation Systems (OASS), and
6. Business Expert Systems (BESs)

1. Transaction Processing System (TPS):

TPS processes transaction and produces reports. It represents the automation of the fundamental, routine processing, used to support business operations. It does not provide any information to the user for decision-making.

Previously, TPS was known as Management Information System. Prior to computers, data processing was performed manually or with simple machines. The domain of TPS is at the lowest level of the management hierarchy of an organization.

2. Management Information System (MIS):

MIS is an information system, which processes data and converts it into information. A management information system uses TPS for its data inputs.

The information generated by the information system may be used for control of operations, strategic and long-range planning, short-range planning, management control, and other managerial problem solving. It encompasses processing in support of a wide range of organizational functions & management processes. MIS is capable of providing analysis, planning & decision making support. The functional areas of a business may be marketing, production, human resource, finance and accounting.

3. Decision Support System (DSS):

A decision support system (DSS) is an information system application that supports decision-making. DSS tends to be used in planning, analyzing, and trial and error search for solution. The elements of the decision support system include a database, model base & user-interface. The main application areas of DSS are Production, finance and marketing.



DSS can be differentiated from MIS on the basis of processing the information. MIS processes data to convert it into information. DSS processes information to support the decision making process of a manager.

4. Executive Support System (ESS):

Executive Support System (ESS) is an extension of the management information system, which is a special kind of DSS; An ESS is specially tailored for the use of chief executive of an organization to support his decision-making.

It includes various types of decision-making but it is more specific and person oriented. Its main objective is to provide a macro organization view for senior executives and a user-friendly user-interface, so that practical steps may be taken to beat competition.

5. Office Automation Systems (OAS):

Office automation refers to the application of computers and communication technology to office functions. Office automation systems are meant to improve the productivity of managers at various levels of management by providing secretarial assistance and better communication facilities.

Office activities may be grouped under two classes, namely

- Activities performed by clerical personnel
- Activities performed by the executives

In the first category, the following is a list of activities.

- ✓ Typing
- ✓ Mailing
- ✓ Scheduling of meetings and conferences,
- ✓ Calendar keeping, and
- ✓ Retrieving documents

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In the second category, the following is a list of activities.

- ✓ Conferencing.
- ✓ Production of information (messages, memos, reports, etc.) and controlling performance.

6. Business Expert Systems:

These systems are one of the main types of knowledge-based information systems. These systems are based on artificial intelligence, and are advanced information systems. A business expert system is a knowledge based information system that uses its knowledge about a specific, complex application area to act as an expert.

The main components of an expert system are:

- Knowledge Base
- Interface Engine
- User Interface

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2.4 CBIS (Computer Based Information System):

A CBIS is an organized integration of hardware and software technologies and human elements designed to produce timely, integrated, accurate and useful information for decision making purposes.

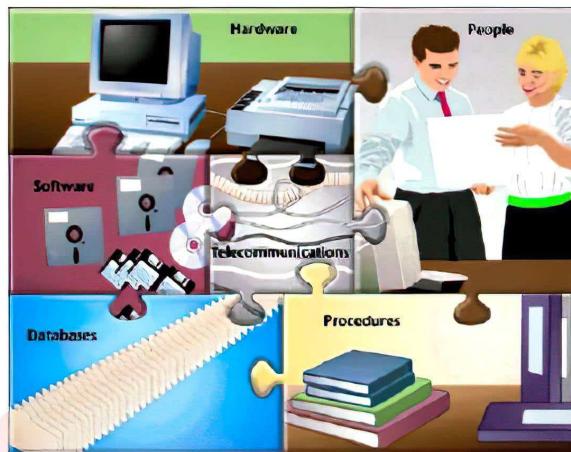
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2.4.1. Functions of CBIS:

- a) **Input:** Consists of raw data either from organization or outside the organization to be processed.
- b) **Process:** Transform raw data into useful information
- c) **Output:** Information that has been processed
- d) **Storage:** A place to store the useful information
- e) **Control:** Control the evolving of information system

2.4.2. Components of CBIS:

- 1) **Resources of people:** (end users and IS specialists, system analyst, programmers, data administrators etc.)
- 2) **Hardware:** (Physical computer equipments and associate device, machines and media)
- 3) **Software:** (programs and procedures)
- 4) **Data:** (data and knowledge bases)
- 5) **Networks:** (communications media and network support)



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1) People Resources:

- End users: (also called users or clients) are people who use an information system or the information it produces. They can be accountants, salespersons, engineers, clerks, customers, or managers. Most of us are information system end users.
- IS Specialists: people who actually develop and operate information systems. They include systems analysts, programmers, testers, computer operators, and other managerial, technical, and clerical IS personnel. Briefly, systems analysts design information systems based on the information requirements of end users, programmers prepare computer programs based on the specifications of systems analysts, and computer operators operate large computer systems.

2) Hardware Resources:

- Machines: as computers and other equipment along with all data media, objects on which data is recorded and saved.
- Computer systems: consist of variety of interconnected peripheral devices. Examples are microcomputer systems, midrange computer systems, and large computer systems.

3) Software Resources:

Software Resources includes all sets of information processing instructions. This generic concept of software includes not only the programs, which direct and control computers but also the sets of information processing (procedures). Software Resources includes:

- System software, such as an operating system
- Application software, which are programs that direct processing for a particular use of computers by end users.
- Procedures, which are operating instructions for the people, who will use an information system. Examples are instructions for filling out a paper form or using a particular software package.

**4) Data Resources:**

Data resources include data (which is raw material of information systems) and database. Data can take many forms, including traditional alphanumeric data, composed of numbers and alphabetical and other characters that describe business transactions and other events and entities. Text data, consisting of sentences and paragraphs used in written communications; image data, such as graphic shapes and figures; and audio data, the human voice and other sounds, are also important forms of data.

Data resources must meet the following criteria:

- Comprehensiveness: means that all the data about the subject are actually present in the database.
- Non-redundancy: means that each individual piece of data exists only once in the database.
- Appropriate structure: means that the data are stored in such a way as to minimize the cost of expected processing and storage.

The data resources of IS are typically organized into:

- Processed and organized data-Databases.
- Knowledge in a variety of forms such as facts, rules, and case examples about successful business practices.



5) Network Resources:

Telecommunications networks like the Internet, intranets, and extranets have become essential to the successful operations of all types of organizations and their computer-based information systems. Telecommunications networks consist of computers, communications processors, and other devices interconnected by communications media and controlled by communications software. The concept of Network Resources emphasizes that communications networks are a fundamental resource component of all information systems. Network resources include:

- Communications media: such as twisted pair wire, coaxial cable, fiber-optic cable, microwave systems, and communication satellite systems.
- Network support: This generic category includes all of the people, hardware, software, and data resources that directly support the operation and use of a communications network. Examples include communications control software such as network operating systems and Internet packages.

Examples of CBIS are:

- ✓ Transaction processing system.
- ✓ Management information system.
- ✓ Decision support systems.
- ✓ Executive information system.

2.4.3 How to convert Manual system into CBIS:

The steps involved in the conversion are preparation of:

1. System description (overview)
2. Input documents
3. Output documents
4. File design
5. Program logic (detail)
6. Computer program
7. System verification
8. Documenting

1) System description: It is usually prepared after preliminary investigation and definition of the problem. The description is essentially a statement of the major inputs, outputs, processing operations and files needed. The purpose is to show the logical flow of information and logical operations necessary to carry out the particular design alternative chosen. These are in both narrative and pictorial form.

a. **Narrative:** The narrative description is an English language description of the operation. It should describe inputs, outputs, files and operations. Description should be of that detail so it will allow users and computer technicians to understand the operation of the system.

b. **Pictorial:** The symbolic form facilitates a quick analysis of the job being performed and provides a visual overview of the entire operation. There are number of methods for pictorial representation, flowchart is one of the most popular techniques. System flow chart is a graphic diagrammatic tool used to show the flow of data media as they are processed by hardware devices and information processing procedures in an information system.

- 2) **Input documents:** The exact layout of input documents is necessary because the computer programs operate only when data are located in prescribed format. Volume of data, frequency, accuracy, and verification requirements and handling of information are the considerations in the selection of input formats.
- 3) **Output documents:** The output format should be correct, because it represents the purpose or objective of the entire operation. The output document is important for managers; hence care should be taken in its design.
- 4) **File design:** The flow of data through the system is represented in the design of data files. The file design considers the type of equipment, storage capacity, input and output media and format. File record layouts specify all content of every record.
Example: disk record layout in disk file.
- 5) **Program logic:** There are number of ways for representation of program logic. Flow chart is easy to describe and understand. The program flow chart shows the step-by-step representation of how the computer program will accomplish the job. Various flow chart symbols are used to represent process, input/output, document, manual, operations (merge, sort, extract, decision), Connector, etc. The flow chart must be written as a sequence of instructions that can be compiled into machine-readable format.
- 6) **Computer program:** The details of computer program are complex and specific. Processor performs its operation on the input data to produce the output data. An instruction to the processor consists of two parts:

1. An operation code.
2. Operands.

The operating code simply says “perform an ADD operation”, “perform a READ operation” and so on. The operands give additional information to the processor.

Some of the application program packages available in the market are:

1. Database management.
2. Graphics.
3. Purchasing decision.
4. Project control.
5. Accounts receivable.
6. Accounts payable
7. Payroll, etc.

7) **System verification:** After the program has been written and run through the compilation process, it is placed in memory in binary form. The computer will execute the instructions of the program in sequence, until the program comes to a halt. The possibility of all the programs working correctly for the first time is less. Test cases must be run against each program and all errors corrected.

8) **Documentation:** Three types of documentation needed are:

- 1) For input, a simple overview of the system, a clear description of what exactly input is expected and a note about what input is not acceptable.
- 2) For running and maintaining the system, all the technical documentation generated during the development process.
- 3) For output, a simple overview of the system, a clear description of what the output means and a note about its limitations.

Question Bank

Short Questions:

1. Give examples of Open & Closed systems.
2. Define System in an organization.
3. Differentiate between Open & Closed system.
4. Differentiate between Probabilistic & Deterministic system.
5. List out the types of system.

Long Questions:

1. Define system. List various types of systems & differentiate between them.
2. Define system in an organization. List various types of systems & differentiate between them.
3. Explain in detail the concept of Open & Closed system.
4. What is information system? Explain advantages and disadvantages of Information system
5. Explain the Classification (types) of Information Systems.
6. Explain CBIS (COMPUTER-BASED INFORMATION SYSTEM) in detail
7. Explain the steps involved in the conversion of manual system into CB
