Q. What do you mean by system? 2019 1a 2018 1c 2016 1a 2014 1a

Ans: System: The term system is derived from the Greek word 'systema' – which means an organized relationship among components.

"*A system is an orderly grouping of interdependent components linked together according to a plan to achieve a specific objective.*"

The word component may refer to –

- Physical parts
- Managerial steps or
- A subsystem in a multilevel structure.

Example: Result processing system. A computer system with components as keyboard, CPU, memory, monitor requires an orderly grouping of the components for the design of a success system.

Q. What are the three basic implications in the study of system? 2018 1a 2014 1a

Ans: The study of systems has three basic implications –

P- Predetermined objective
I I - interdependence and interrelationship
P - priority of whole

- A system must be designed to achieve a predetermined objective.
- Interrelationships and interdependence must exist among the component.
- The objectives of the organization as a whole have a higher priority than the objectives of its subsystems.

Q. Explain the characteristic of a system? 2018 1b 2016 1a

Ans: Characteristic of a system: The most important characteristics of a system are –

- **Organization:** Organization implies structure and order. It is the arrangement of components that helps to achieve objectives.

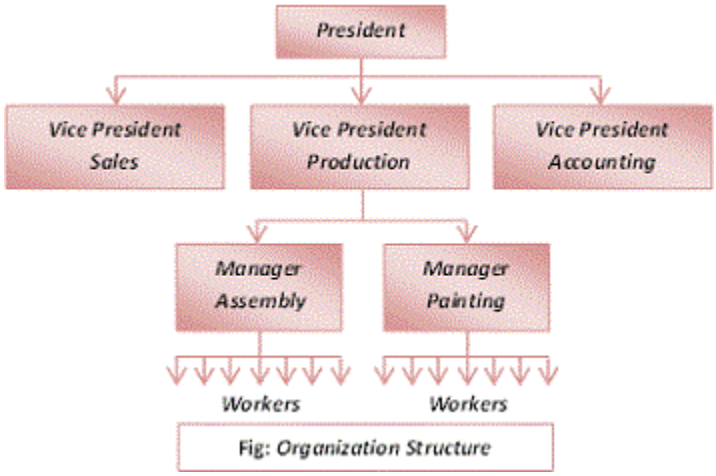

Fig: Organization Structure

- **Interaction:** It refers to the manner in which each component functions with other components of the system. In an organization,
  - Purchasing must interact with production.
  - Advertising with sales.
- **Interdependence:** No subsystem can function in isolation. So interdependence means that parts of the organization or computer system depend on one another. They are coordinated and linked together according to a plan.
- **Integration:** It refers to the holism of systems. Integration is concerned with how a system is tied together. It means that parts of the system work together within the system even though

each part performs a unique function. Successful integration has a greater total impact of the system.

- **Central objective:** Every system must have a central objective. Objective may be real or stated. Although the stated objective may be the real objective, but it is not uncommon for an organization to state one objective and operate to achieve another.

Q. What are the elements of a system? Explain them. 2020 1b 2019 1b 2018 1c 2017 1b 2015 1b

Ans: Elements of a system: A system has the following element –

2. Can you have a viable system without feedback? explain 2014 1c

- **Inputs:** Whatever a system takes from its environment for processing called inputs, such as materials human resources, information etc.
- **Outputs:** It is the outcome of processing. Whatever a system returns to its environment in order to fulfill its goal is called output. The output must be in line with the expectation of the user

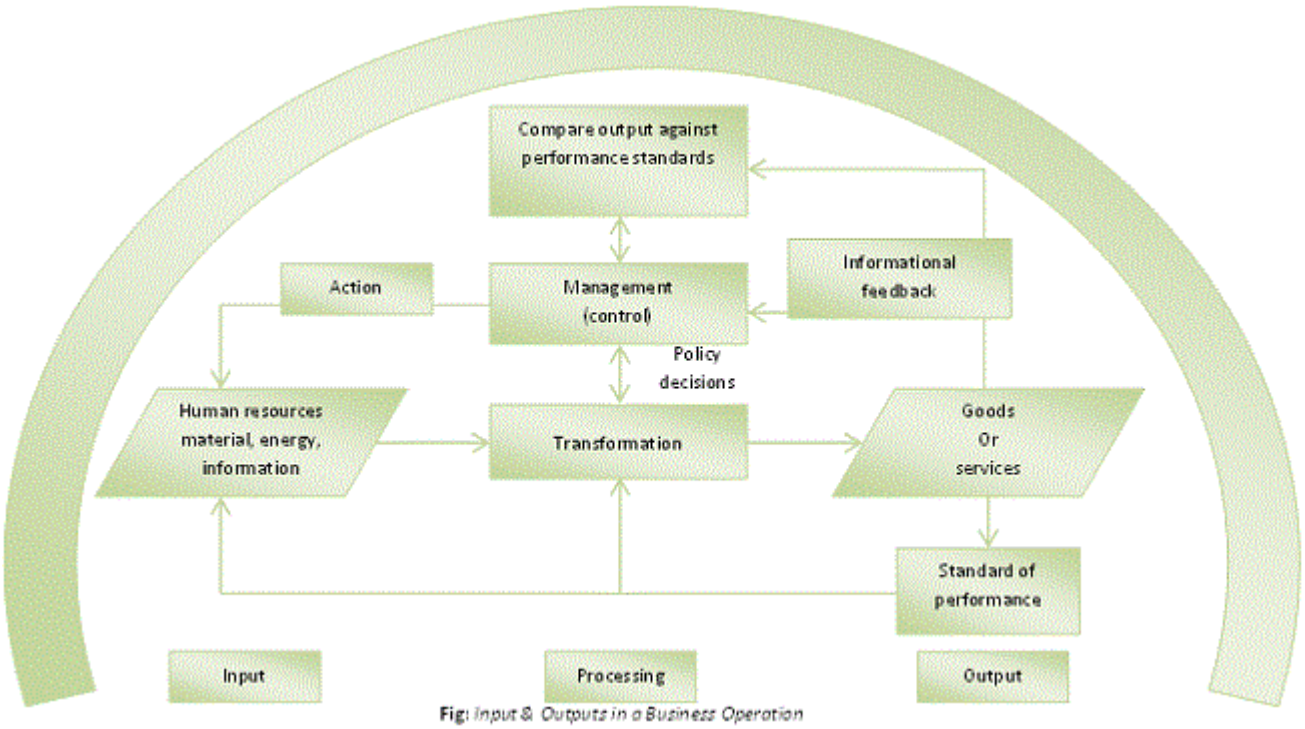

Fig: *Input & Outputs in a Business Operation*

- **Processors:** The processor is the element of a system that involves the actual transformation of input into output.
- **Control:** It governs the activity of input, process and output. Control involves monitoring and evaluating feedback to determine whether a system is moving toward the achievement of its goal. The control function makes necessary adjustments to a system input and process components to ensure that it produce proper output.
- **Feedback:** Feedback is data about the performance of a system. Feedback measures output against a standard. If the output is not satisfactory the necessary adjustment must be taken. A system with feedback and control is called cybernetic system / self-monitoring / self-regulating / auto controlled system.
- **Environment:** A system does not exist in vacuum; rather it exists and functions in an environment. A system boundary separates a system from its environment and other systems. The environment of the "supra system" within which an organization operates. If a system is one of the components of a larger system, then it is subsystem and the larger system is its environment.

- **Boundary:** The system boundary separates a system from its environment and other systems. Each system has its boundary that determines its sphere of influence and control. A system has a boundary within which all of its components are contained and which establishes the limits of a system. Components within the boundary can be changed and controlled, but things outside the boundary can't be changed.
- **Interface:** The system is connected to its environment by input and output interface when the system exchanges input and outputs with its environment.

Q. Why we need feedback in an organization?
Ans: We need feedback in an organization because –

- 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.
- In the feedback system, the user may be told that the problems in a given application verify his / her initial concerns and justify the need for change.
- When a system is implementing then the user informs the analyst about the performance of the new installation.
- The feedback often results in enhancements to meet the user's requirements.

Q. What are the types of system? Define all of them.
Ans: Systems have been classified in different ways. Common classifications are –

- **Physical or abstract system:** Physical systems are tangible entities that may be static or dynamic in operation. For example, the physical parts of the computer center are the office desk and chair facilitates operation of the computer. They can be seen and counted.

Abstract systems are conceptual or non – physical entities. They may be as straight forward as formulas of relationships among sets of variables or models. A model is a representation of a real or planned system. Models are the abstract conceptualization of physical situation.

- **Open or closed system:** A system that interact freely with its environment taking input and returning outputs to the outside, is called an open system. Open system permits interaction across its boundary. As the environment changes an open system must adapt to changes.

A closed system is isolated from environment influences. It does not interact with the environment; changes in the environment and adaptability are not issues for a closed system. In reality, a completely closed system is rare.

- **"Man – made" system:** An information system may be defined as a set of devices, procedures and operating systems designed around user based criteria to produce information and communicate it to the user for planning, control and performance. The major information systems are –
    - *Formal information systems.*
    - *Informal information systems.*
    - *Computer based information systems*.

2016 1c what is information system?

Q. Distinguish between physical system and abstract system. 2020 1a 2019 1a 2017 1a 2015 1a 2014 1b
Ans: The differences between physical system and abstract system are given below:

Physical system	***Abstract system***

1. Physical systems are tangible entities.	**1.** Abstract systems are conceptual entities.
2. The physical parts of the computer center are the offices desks and chairs that facilitate operation of the computer.	**2.** Abstract system may be straight forward as formulas of relationships among sets of variables or models.
3. Physical system can be seen and counted.	**3.** Models are the abstract conceptualization of physical situations.

Q. Distinguish between open system and closed system. 2017 1c

Ans: The differences between open system and closed system are given below:

Open system	*Closed system*
1. A system that interact freely with its environment taking input and returning outputs of the outside is called open system.	1. A closed system is isolated from environment influences.
2. Open system permits interaction across its boundary.	2. Closed system does not permit interaction across its boundary.
3. As environment change open system must change.	3. If environment change closed system do not change.
4. Open system is available and popular system.	4. Completely closed system is rare.
5. It is dynamic system.	5. It is static system.

Q. Identify five important characteristics of an open system. 2020 1c 2015 1c

Ans: Five important characteristics of open system are: in what way is a system entropic

- **Input from outside:** Open systems are self-adjusting and self-regulating. When functioning properly an open system reaches a steady state or equilibrium.
- **Entropy:** All dynamic systems tend to run down over time, resulting in entropy or loss of energy. Open system resist entropy by seeking new inputs or modifying the processes to return to steady state.
- **Process, output and cycles:** Open systems produce useful output and operate in cycles, following a continuous flow path.
- **Differentiation:** Open systems have a tendency toward an increasing specialization of functions and a greater differentiation of their components. This characteristic offers compelling reason for the increasing value of the concept of systems in the systems analyst's thinking.
- **Equifinality:** The term implies that goals can be achieved through different paths. There is more of consensus on goals than on paths to reach the goals.

Q. Explain major information systems or explain formal, informal and computer based information systems.

Ans: The major information systems are explained below: 2016 1c

- **Formal information system:** A formal information system is based on the organization, represented by the organization chart. The chart is a map of positions and their authority

relationships indicated by boxes and connected by lines. It is concerned with the pattern of authority's communication and work flow.

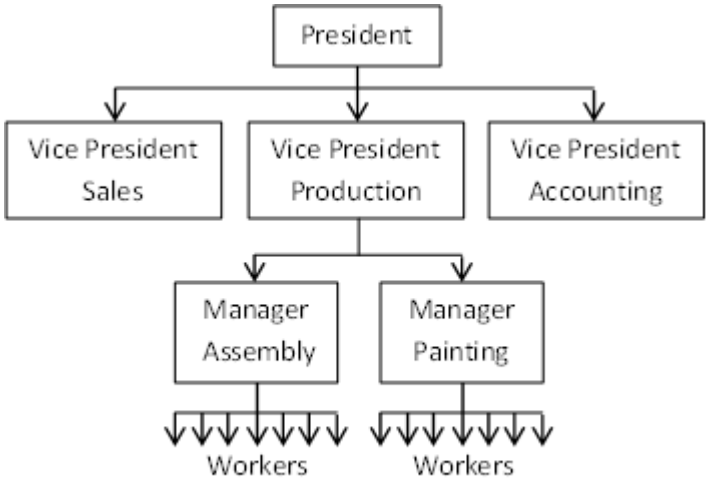

Fig: *Formal information system structure.*

Policies are taken by top management that specifies what an organization ought to do. Policies are translated into rules and regulation and transmitted to lower level management for implementation.

- **Informal information system:** An informal information system is an employee-based system design to meet personnel and vocational needs and to help solve work related problems. It sometimes may funnels information upward through indirect channels. But it is a useful system because it works within the framework of the business and its stated policies.
- **Computerbased information system:** The computer is now a required source of information. Systems analysis relies heavily on computers for problem solving. This suggests that the analyst must be familiar with computer technology and have experience in handling people in an organization context.

Q. Write down the differences between formal information system and informal information system.

Ans: The differences between formal information system and informal information system are given below:

Formal information system	*Informal information system*
1. Formal information systems are organization based system.	**1.** Informal information systems are employee based system.
2. Formal information system focused on the goal of the organization.	**2.** Informal information system focused on the employee's facility.
3. Policies are taken by top management and follows top – down approach.	**3.** Sometimes may funnels information upward through indirect channels.
4. It is useful because policies are translated into rules and regulation and transmitted into lower level management for implementation.	**4.** It is useful system because it works within the framework of the business and its stated policies.

Q. What do you mean by system model? Define various business system models.

Ans: System model: A model is a representation of a real or a planned system. The use of models makes it easier for the analyst to visualize relationships in the system under study. Types of system models are:

- **Schematic models:** A schematic model is a two – dimensional chart depicting system elements and their linkages.
- **Flow system models:** A flow system model shows the flow of the material, energy, and information that holds the system together. There is an orderly flow of logic in such models. A widely known example is PERT (Program Evaluation and Review Technique)

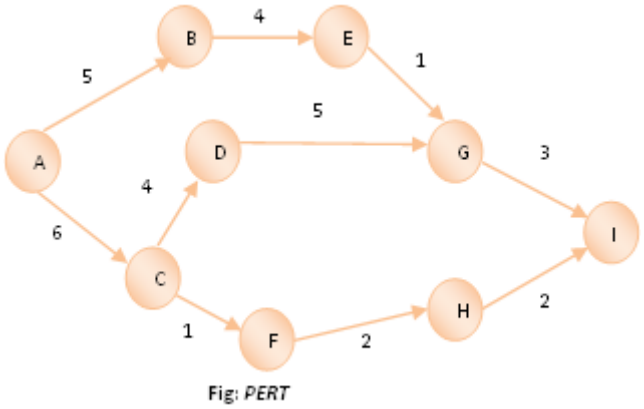

Fig: *PERT*

- **Static system models:** This type of model exhibits one pair of relationships such as activity time or cost – quantity. The Gantt chart, for example, gives a static picture of an activity time relationship.
- **Dynamic system models:** Business organizations are dynamic systems. A dynamic model approximates the types of organization of applications that analyst deal with. It depicts an ongoing, constantly changing system. As mentioned earlier, it consists of –
    - Inputs that enter the system
    - The processor through which transformation takes place
    - The programs required for processing
    - The outputs that result from processing.

Q. What are the categories of information? Show the management and information level in a typical organization.

Ans: Categories of information: There are three categories of information related to managerial levels and decisions managers make. These are –

- **Strategic information:** Strategic information deals with long range planning policies that are of direct interest of upper management. Decision is achieved with the aid of Decision Support System (DSS

Information such as population growth, trends in financial investment and human resources and these can be changed or policies for long range goal are made by the upper – level management. Characteristics of decision are unstructured, judgmental and processing system is open, dynamic, and adaptive.

Fig: *Management and information level in a typical organization.*

- **Managerial information:** The second level of information is managerial information. It deals with short and intermediate range planning that is months rather than years. It is maintained with the aid of Management Information System (MIS). It is used by middle management and department heads for implementation and control. So it is control based rather than decision.

Example:

- Sales analysis.
- Personnel information report.
- **Operational information:** It is short – term, daily information used to operate a business. Operational information is established by data processing system (DPS).

Example:

  - Daily employee absence sheets.
  - Current stock available for sale.

Q. Write down the workings of interface.
Ans: The workings of interface is –

- Security
- Filtering
- Encode – decode
- Data interface.

Q. What do you mean by MIS? Explain it. 2016 3b
Ans: MIS: MIS is a combination of information for various managerial levels. Lower – level management needs detailed information to make day to day structured decisions. Higher level management requires summarized information to attain goals. In either case, management action is based on information that

is accurate, relevant, complete and timely. MIS has been successful in meeting these information criteria quickly and responsively.
A key element of MIS is the database – a non-redundant collection of interrelated data items that can be processed through application programs and available to many users.
Information provided to managers includes displays and reports that can be –

- On demand
- Periodically
- Whenever exceptional condition occurs.

Q. Why is a database important in MIS? Explain.
Ans: Database is important in MIS because –

- It contains non – redundant collection of interrelated data items.
- Information can available to many users.
- Data are stored once in the database and are accessible when needed.
- Data are timely updated, so MIS can report accurately, relevantly, completely and timely.
- Storage space duplication is eliminated.

Q. What are the problems of MIS?
Ans: MIS poses several problems and they are –

- MIS reports are historical and tend to be dated.
- Another problem is that many illustrations have databases that are not in line with user requirements.
- A major problem encountered in MIS design is obtaining the acceptance and support of those who will interface with the system.

Q. What are the purposes of system model?
Ans: The purposes of system model are:

- A system model makes system easier for the analyst to visualize relationships in the system.
- A system model point out the significant elements and the key interrelationships of a complex system.
- A system model creates the reality with which the system is concerned.
- A business system model show the benefits of abstracting complex systems to model form.

Q. Write short note on DSS.
Ans: DSS: The historical nature of MIS reports and the need to deal with unstructured problem situation prompted the introduction of DSS. The concept is future oriented, emphasizing decision making in problem situations, not information processing.
DSS requires a computer – aided environment and combines man machine and decision environment.
The origin of the term is "simple":

- ***Decision*** – emphasizes decision making in problem situations.
- ***Support*** – requires computer – aided decision situations.
- ***System*** – focuses the integrated nature of problem solving, suggesting a combined man machine and decision environment

DSS uses analytical models, as the forms of –

- ***What – if*** analysis
- ***Goal – seeking*** analysis
- ***Optimization*** analysis

Herbert Simon described decision making as a three phase continuous process model, as –

- Intelligence
- Design
- Choice

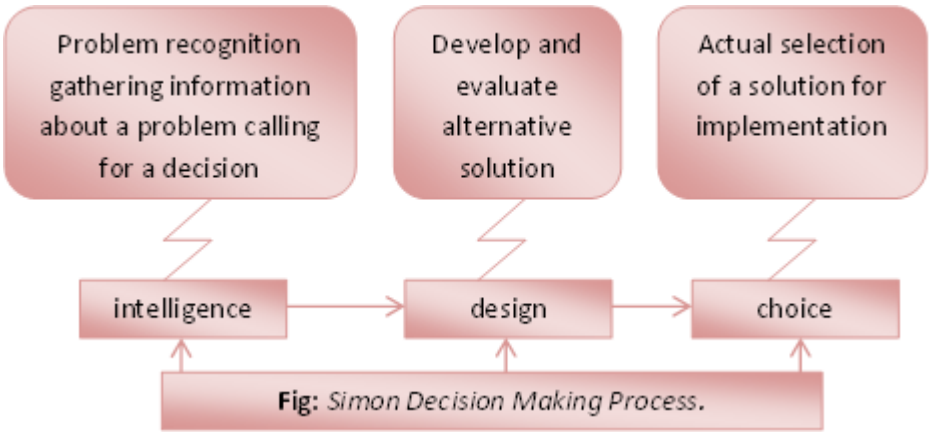

Fig: *Simon Decision Making Process.*

A DSS can provide intelligence through information retrieval and statistical packages.
The design phase of decision making focuses on the evaluation of decision alternatives. During this phase computer based deterministic or stochastic models may be used for decision design. DSS plays a major role in decision design under uncertainty. The output of the model is the basis for the choice phase of decision making.

In what way is a system entropic? 2017 1d

Answer:
Entropy is measured by change in outputs over time. A system is entropic in a way that it is continuously processing output and while doing so it's losing energy.

Can you have a viable system without feedback? explain

ANSWER:
A viable system is an autonomous system which is built such that it can change itself according to the change of condition/ situation. It's adaptable autonomous system. This feat is most commonly achieved by the use of feedback i.e. giving output as input in the current iteration or call.
A system requires feedback to fix out bugs and errors made by the developer, a system can be viable without feedback however getting feedback is recommended.

What do you mean by a candidate system?
Answer: A candidate System is needed while designing a system.
It represents the original System to be made and analysed by the analist so that changes and improvements can be made in it on the basis of Feasibilty studies.
And when the Candidate system approves all the requirements of the customer, The final system is made on the basis of this candidate system.