Module 2.

1. Define System, with block diagram explain control system model.

System is defined as a set of elements arranged in an orderly manner to accomplish an objective.

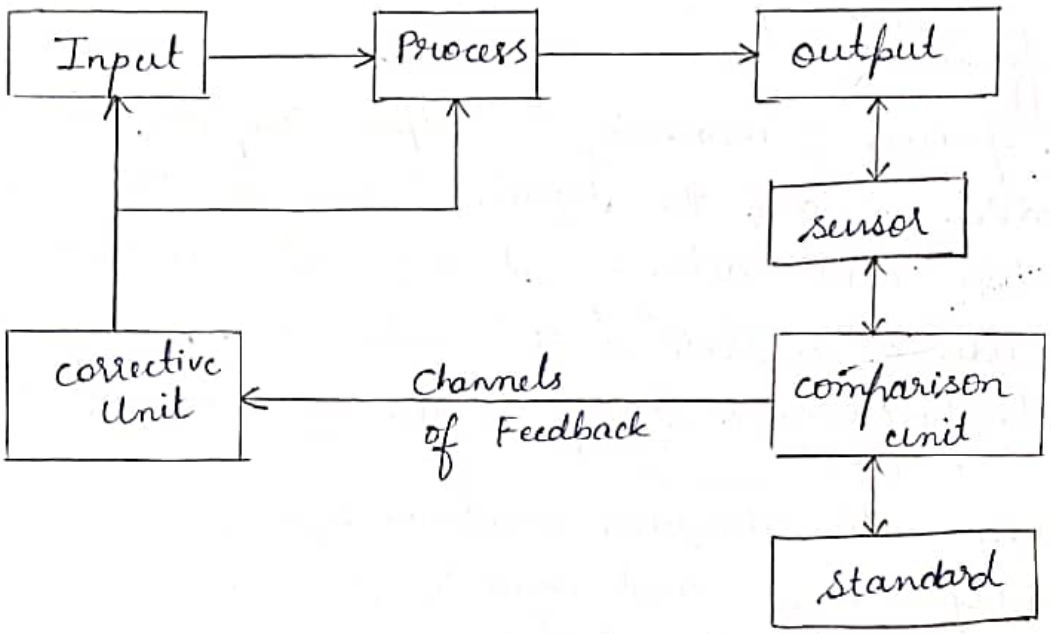


fig:- Control System Model.

- The systems are designed to achieve specific objectives, ensuring the achievement of the objectives through System control, becomes the integral part of the system design.
- The control calls for, in the first place, a measurement of the output in some terms.
- The device that measures the output is called a sensor.
- The next step is to set the standard of norm of the output as an index of the system performance.
- The sensor measures the output & compares it with the standard.
- If the measured output compares well with the standard the system provides a feedback to continue the operations.

- If the measured output does not compare well with the standard, then a feedback is provided to the system to stop the operations.
- The process of comparision of a measured output with the standard is done by a unit called as comparision unit
- The mechanism, which provides a signal to the system about the quality of performance, favorable or adverse is called a feedback mechanism.
- The process of measuring the output, comparing with the standard, sending the signal to the correction unit & the correction unit acting upon it, is called a control.
- The role of control is to regulate the system operation and performance, & keep it in an equilibrium condition.

2. Explain with diagram control system model for Dataprocessing and quality assurance.

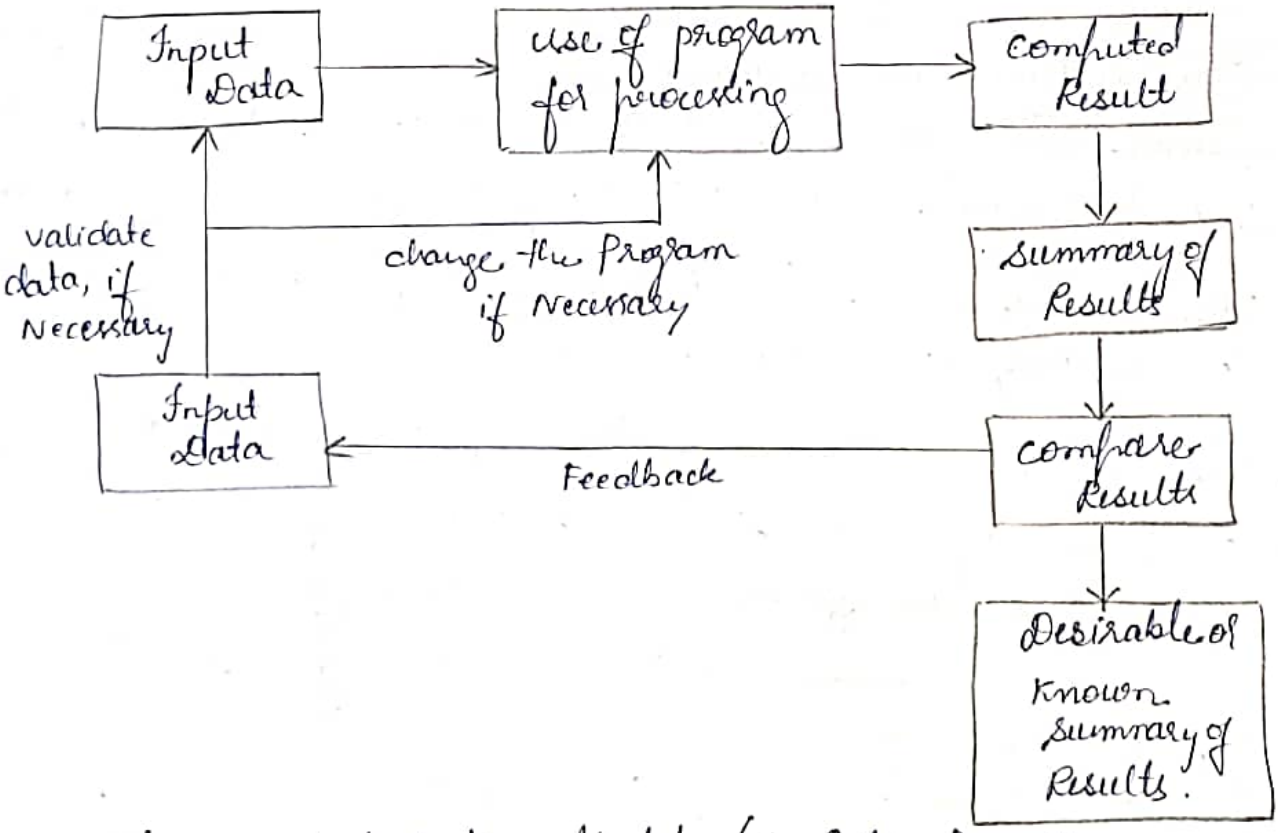


fig:- Control system Model for Data Processing.

- The information system receives the inputs of the data and the instructions to process the data according to the given instruction and give the output of the processed results.
- The information systems are designed in a particular environment of business, industry and management.
- When the environment factors of the input change, the system process is under a stress.
- The stress beyond a limit affects the other system elements which in turn affects the achievements of the goal.
- The system may have the ability to manage the stress and still be in a condition to achieve the desired goal.
- The concept of control is based on the condition of a feedback.
- The concept of control system model is applied to data processing where all the features are used in the programs of the data processing.

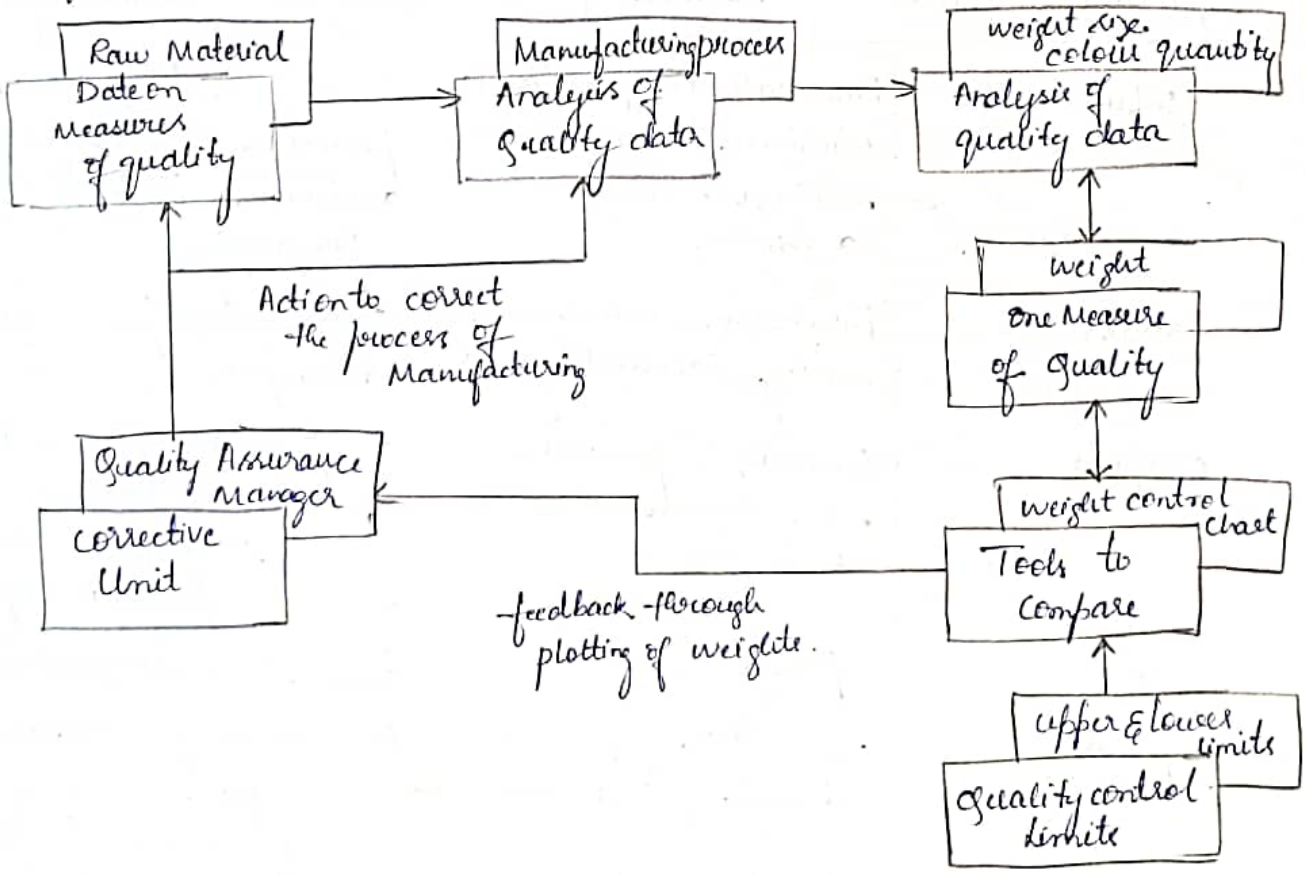


fig:- MIS Model of Quality Assurance.

- The concept of control system is used in the management information system.
- The corrective unit in the MIS is the manager or the decision maker.
- Through a process of decision making, the manager regulates the business system so that the desired results are achieved.
- The MIS model through its control feature, provides the information needed by the Quality Assurance Manager.
- The MIS model which does not explicitly provide a feature of control of the business results, degenerates into a data processing system losing the purpose of the MIS as a support to decision making.

3. For the following system components : How MIS supports for business system and management information system.
input, output, process, sensor, comparision unit standard, feedback, corrective unit.

System Components	Business System	Management information system
Inputs	Raw Materials, plant and machinery, manufacturing selling, arrangement, accounting.	Data from transaction of purchase, production and sales, receipts and payments.
process	Purchasing, manufacturing selling, accounting.	Transaction processing and data processing
outputs	Quality of production, sales, stocks, income and profit.	Computation of production in numbers, sales in value, stocks in weight, income & profit in rupees.
Sensor	Profit	Income less assigned cost
Comparision unit	Expectation of profit vs actual profit	Algebraic comparision module to compare income vs budgeted income profit vs budgeted profit.

Standard feedback	Profit, Trial Balance sheet and Analyses	Exception reports after analysis showing products earning profit below the budget
Corrective Unit	Managing Director, Business Decisions	Marketing Manager pricing, advertising & promoting decisions.

4. Explain types of system.

∴ A system is defined and determined by its boundaries & objectives.

- It is quite likely that the systems is an arrangement of smaller systems in a logical order.
- When many smaller systems together make a larger system, the smaller systems are called the subsystems of the larger system.
- A large system can be split or decomposed into smaller subsystems up to a certain level.
- The decomposition of a system into subsystems can be in a serial form or it could be in a matrix form.
- In a serial system processing, the entire output of a subsystem is the input to the next subsystem and so on.
- In the matrix arrangement the different outputs go to different subsystems.

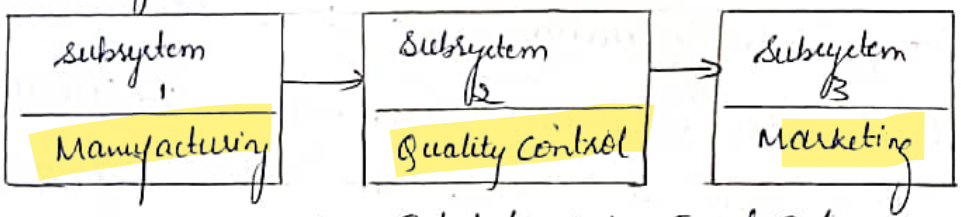


fig:- Subsystems in Serial Order

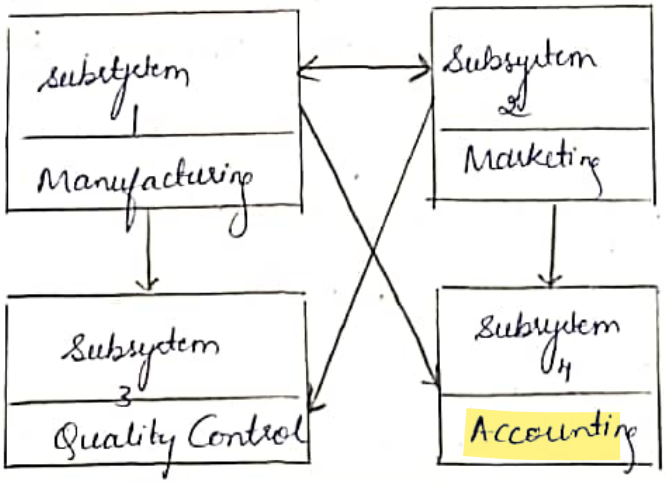


fig:- Subsystems operating in Matrix Order

- If the process of input transformation is not visible and understand then we say that the system is a black box and the process is not transparent.

fig:- Black box System.

5. How do you handle System Complexity. Explain the same with material management system as an example.

- Handling system complexity involves breaking down the system into smaller, more manageable components, understanding the relationships between the components, and implementing strategies to simplify & streamline processes.
- In the context of a material management system, which involves the procurement, storage & distribution of materials with an organization, handling system complexity can be achieved through following steps.

1. Define clear process and workflows :- clearly define the processes involved in material management, including procurement, inventory management & distribution.
2. Implement a integrated software system :- Use a centralized software system that integrates all aspects of material management, including inventory tracking & supplier management
3. Establish clear communication channels :- Ensure that there is clear communication b/w different departments
4. Regularly review & optimize processes: Regularly review material management processes to identify areas of inefficiency or complexity.
5. Train Employee : Provide training to employees to understand the process.

6. Explain with diagram bill passing system in a Hierarchical structure of a system.

A bill passing system in a commercial organization can be shown in hierarchical structure

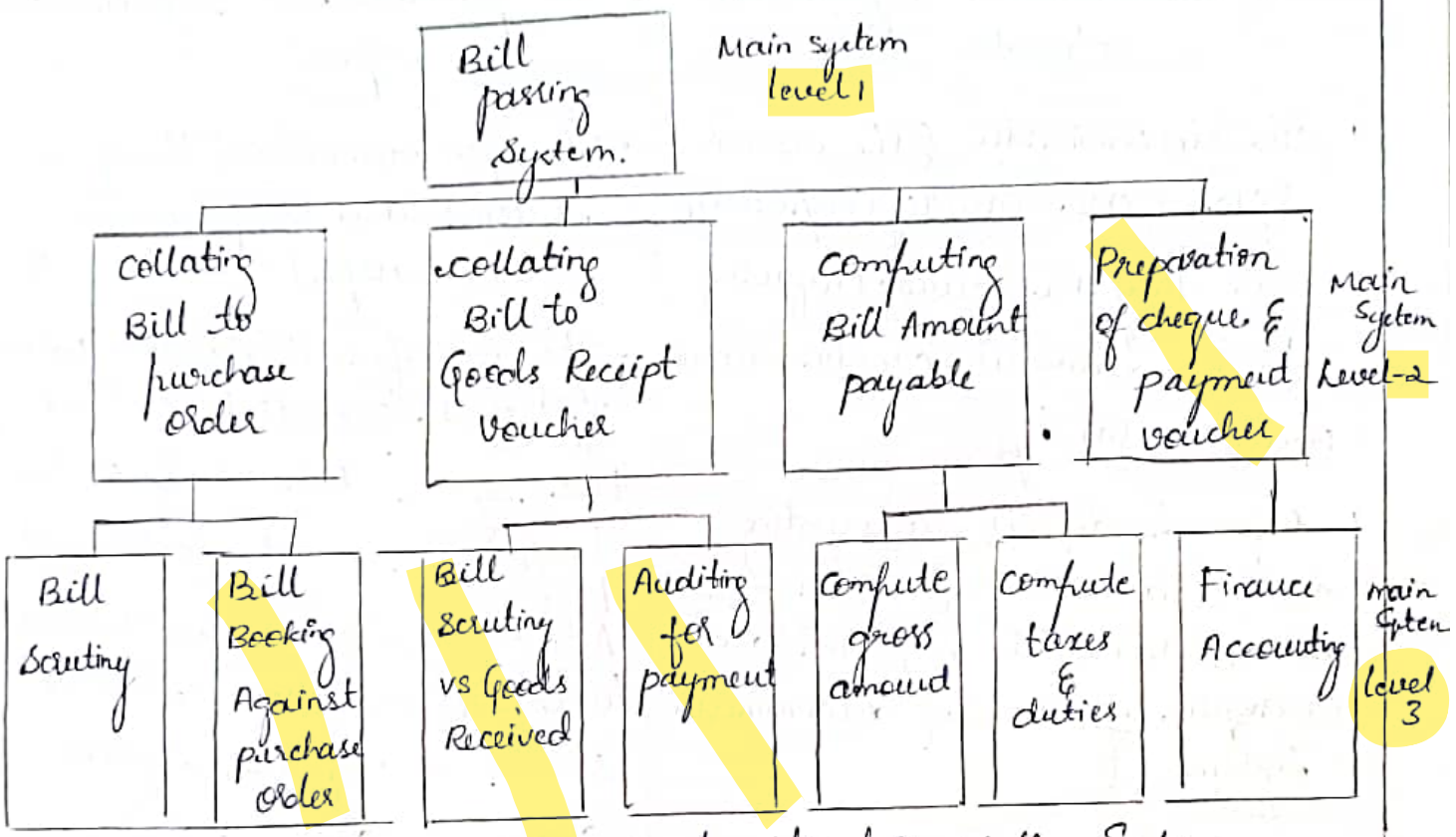


fig:- Hierarchical structure of the System.

- Breaking the system in a hierarchical manner provide a way to structured system analysis.
- It gives a clear understanding of the contribution of each subsystem in terms of data flow and decisions and its interface to the other subsystems.
- A system is called deterministic when the inputs the process & the outputs are known the certainty.
- In a deterministic system, can predict output with certainty
- A system is called probabilistic, when the output can only be predicted in probabilistic terms.

7 Difference b/w Deterministic system and probabilistic system.

Deterministic System	Probabilistic System
• The deterministic systems are closed	• The probabilistic systems are open
• The deterministic & the closed systems are easy to computerize as they are based on facts & their behaviour can be predicted with certainty.	• The probabilistic & the open systems are complex in every aspect.
• A fixed deposit accounting system, an invoicing system & share accounting systems are examples of closed & deterministic systems.	• They call for considerable amount of checks & controls so that the system behaviour or the performance can be controlled. All such systems must ideally have self organising corrective system to keep the system going its desired path.

8 List & explain different classes of system.

1. Data Processing system
2. Business function processing system
3. Transaction processing system
4. Integrated Information processing system.
5. Application processing system.

Data processing System.

• DPS is designed to capture, collect or enter the data to process in a certain specified manner to achieve the following

→ Data is complete correct & valid from all aspects.

→ It brings out more MIS reports for business function management, such as Sales, Production, Materials, Customer Relations & so on.

→ Business function is built on several business process applications.

Integrated Information Processing System (IPS)

→ Integrated information Processing system sits on the top of the rest of the systems discussed so far namely DPS, TPS, APS, BPS.

→ IPS draws its input from these systems, & applies information processing rules to bring out an output. IPS generally meets a requirement of top management in the area of planning, budgeting & Strategic control.

9. General model of MIS.

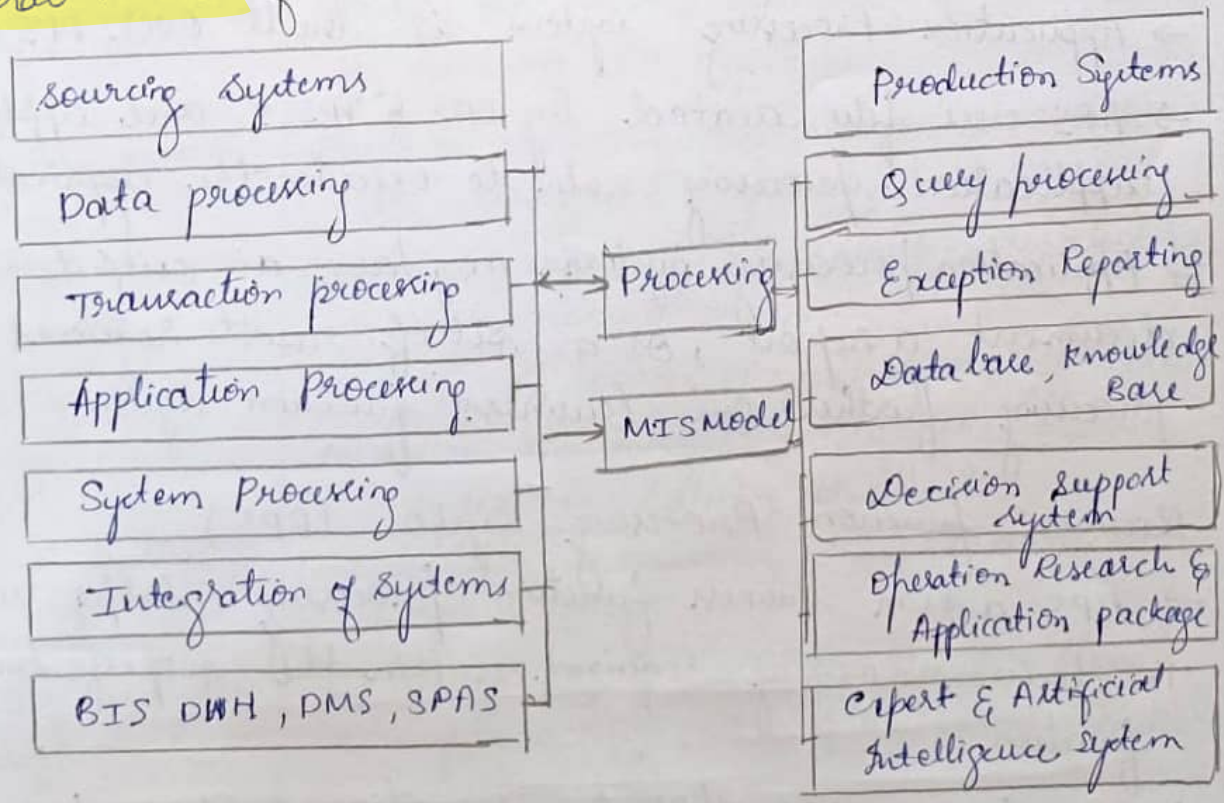


fig:- General Model of a Management Information System

→ Such data then is processed and organized in some form for further processing.

→ DPS may have an algorithm using one or more data inputs & may produce one or more outputs.

Transaction processing System (TPS)

→ TPS is designed to handle a transaction b/w parties

→ The parties could be two or more & have designated role in TPS

→ TPS uses data files, master files, transaction records & process the data in a manner specified in the transaction process designed to execute the transaction.

→ TPS output is a transaction in itself & updating the various records based on the result processed as a part of a transaction execution.

Application processing System (APS)

→ Application Processing System is built over DPS and TPSs

→ APS uses file created by DPS & TPS s and applies application-processing rules to execute the application.

→ Application processing system may have an output as a document, a report, or a set of results required for processing further in business function system.

Business function Processing System (BPS)

→ BPS aids in business function processing & helps management in decision-making required within the scope of business function.

→ BPS focuses more through information support for management of business function.

→ MIS is designed to provide the information which is exceptional in nature from the point of view of business.

→ The exception is nature from the could be abnormal events, surprising developments, shocking news or something that was not consistent with the exceptions.

→ The MIS must catch all such points & report them to the concerned management.

→ It must therefore recognize all such possible points & provide a measure for comparison with the actual performance.

→ MIS is an open system interfacing continuously with the internal & external environment & is self organizing to meet the ever increasing & changing information needs of the organisation.

10. Explain the Steps in System Analysis & design

Steps	Explanation
1) Need for information	Identify the users & application of the information for achieving the objectives
2) Define the system	Helps to determine the system ownership, its benefits & complexity.
3) Feasibility	Hardware & software availability & capability for implementation.
4) Detailing of the Requirements	Study of the sources of generating the information. Establish I/o linkages, modify the existing system to satisfy the needs.
5) Conceptual System design	Conceptualism is necessary to understand the system process.
6) Detailing the system design	Helps in bringing a clarity in the data flow. The responsibility centres & the process centres are identified.

Structuring the system design	Helps in understanding the dataflow from one level to the other & processes carried out at each level
conceptual model of Computer System	Helps to put down the data processing flow in the computerised system.
Break the system in programme modules	Draw the Computer system charts modules will be data entry, data validation, data processing, reporting & sorting.
Develop the test data test cases for checking the system ability	Confirms whether the system design is satisfactory. Suggest the modifications
Install the system	Install, test & run the system before the user is exposed in a live mode
Implementation	Helps to identify the user problems & provide solutions
Review & Maintainance	Helps to maintain the system quality & the quality of information through modification

11 Explain the procedure for analysis of the Existing System.

1. carry out the analysis of the system at a place where the system is functioning. This step will ensure that the analyst is accepted as one of those operating the system.
2. Spend some time with the operating personnel & observe the system to understand their details of the system.
3. Make a list of rules, formulae, guidelines policies etc which are used in running the system.
4. study the flow of data in the system in units, summary & aggregates from document to document & from one stage to the other.
5. Make a list of the outputs containing information. Get the contents of the reports approved by the head of the department.

6. Compare the costs of the old & the new system, & benifits offered

7. Obtain approval of the new system from the users & the top management.

8. Write a system manual for use of the people in the department & for reference to the other users of the system.

12. Explain different stages in system development cycle

1) Definition of the system & its objective → The stage assures clarity to the users of the system & the system designer. The terms of reference are also set.

2) development of the system → More clear understanding of real life situation, problems & weakness

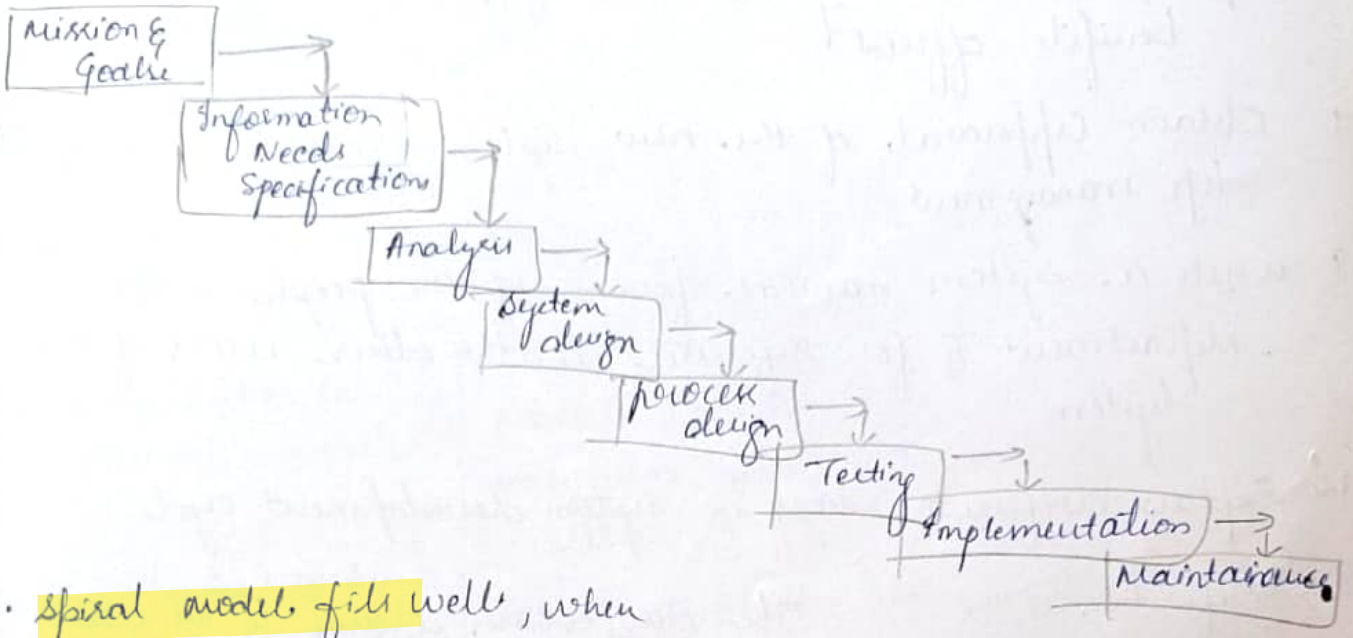
3) Installation of the system & testing → The steps ensures that the operational problems are resolved & the user gets live experience of the system.

4) operation of the system → The system is operated in full course & existing systems discontinued.

5) Review & Evaluation → This is an audit by the designer for improvement through test data & audit trail.

13. Explain waterfall model & spiral model.

- In order to design good system, traditionally the developers have used the waterfall model
- This model fits when the changes into the requirement specifications are not required frequently.



- Spiral model fits well, when we are developing large systems, where the specifications cannot be ascertained in one stroke completely & correctly.
- Some of them get surfaced when the system is put to use after its testing.

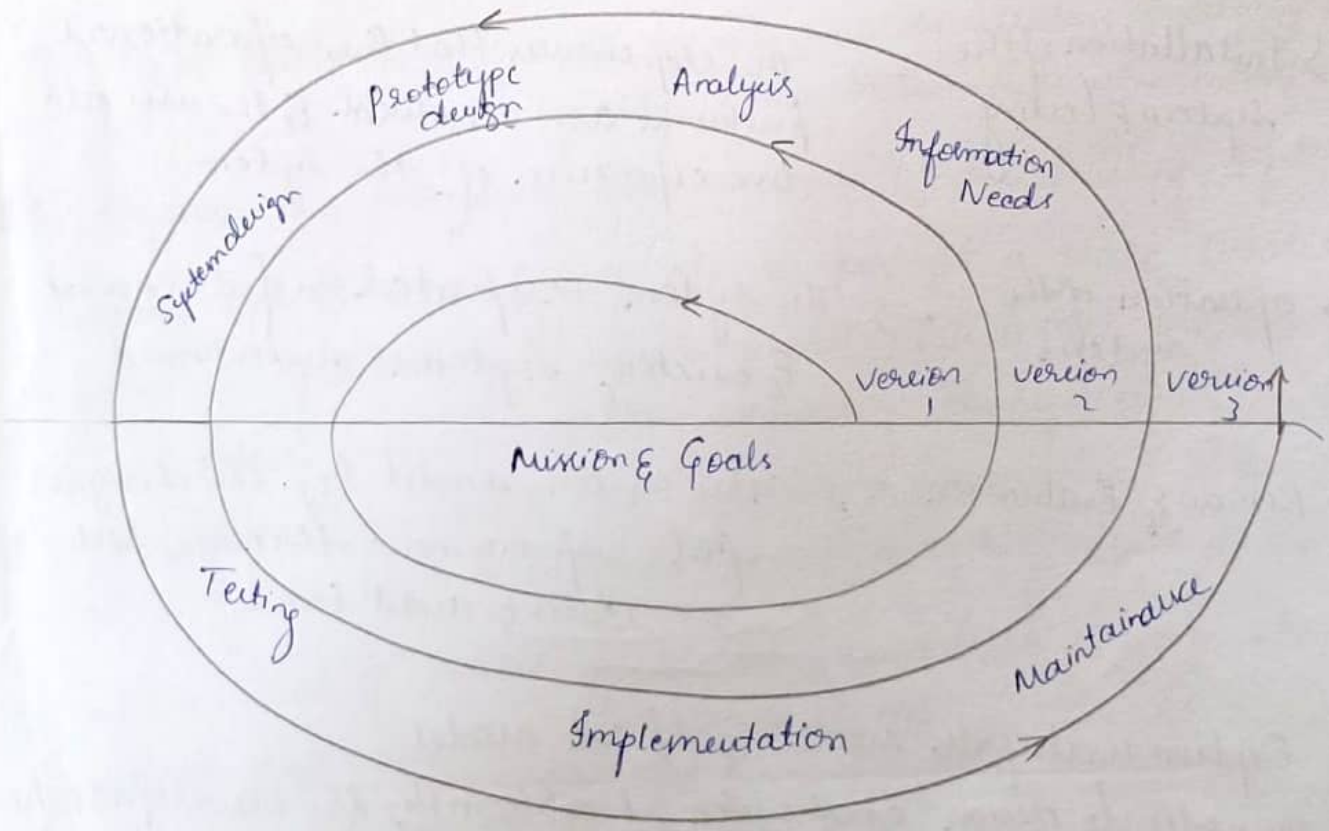


fig- Spiral model.