

# **Mid Assessment | Summer 2023**

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**CSE - 21<sup>st</sup> Batch | Course Title: System Analysis & Design**

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## Answer to the Question no- 1

### **System Design**

System design is the phase that bridges the gap between problem domain and the existing system in a manageable way. This phase focuses on the solution domain, i.e. "how to implement?"

It is the phase where the SRS document is converted into a format that can be implemented and decides how the system will operate.

In this phase, the complex activity of system development is divided into several smaller sub-activities, which coordinate with each other to achieve the main objective of system development.

### **Inputs to System Design-**

System design takes the following inputs –

- Statement of work
- Requirement determination plan
- Current situation analysis
- Proposed system requirements including a conceptual data model, modified DFDs, and Metadata (data about data).

### **Outputs for System Design-**

System design gives the following outputs –

- Infrastructure and organizational changes for the proposed system.
- A data schema, often a relational schema.
- Metadata to define the tables/files and columns/data-items.
- A function hierarchy diagram or web page map that graphically describes the program structure.
- Actual or pseudocode for each module in the program.
- A prototype for the proposed system.

## Answer to the Question no- 2

### **Advantages of Structured Analysis and Structured Design (SA/SD):**

1. **Clarity and Simplicity:** The SA/SD method emphasizes breaking down complex systems into smaller, more manageable components, which makes the system easier to understand and manage.
2. **Better Communication:** The SA/SD method provides a common language and framework for communicating the design of a system, which can improve communication between stakeholders and help ensure that the system meets their needs and expectations.
3. **Improved maintainability:** The SA/SD method provides a clear, organized structure for a system, which can make it easier to maintain and update the system over time.
4. **Better Testability:** The SA/SD method provides a clear definition of the inputs and outputs of a system, which makes it easier to test the system and ensure that it meets its requirements.

## Answer to the Question no- 3

### **Objectives of Analysis Modelling:**

- It must establish a way of creating software design.
- It must describe the requirements of the customer.
- It must define a set of requirements that can be validated, once the software is built.

### **Elements of Analysis Modeling:**

Given below are the elements mentioned-

- **Data Dictionary:** Data dictionaries are lists of all the names used in the system models; description of the entities, their attributes and relationships are included.
- **Data Flow Diagram:** Data flow diagram model the data processing of the system.
- **State Transition Diagram:** It represents the dynamic model, which shows changes in the state that an object goes through during its lifetime in response to an event.
- **Entity Relationship Diagram:** It consists of information required for each entity or data objects and shows a relationship between objects. It shows the structure of the data in table format.
- **Data Object Description:** It represents the composite information of one entities such that the software understands it.

## Answer to the Question no- 4

### **Bottom-up approach:**

#### **Advantages:**

- The economics can result when general solutions can be reused.
- It can be used to hide the low-level details of implementation and be merged with the top-down technique.

#### **Disadvantages:**

- It is not so closely related to the structure of the problem.
- High-quality bottom-up solutions are very hard to construct.
- It leads to the proliferation of 'potentially useful' functions rather than the most appropriate ones.