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course : System Analysis &
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Code: CSI-311

(3. a) Ans:- A finite state machine or finite state automation finite automaton, or simply a state machine, is a mathematical model of computation it is an abstract machine that can't be in exactly one of a finite un number of states at any given time.

(3. b) Ans:- Finite state machine is a term used by programmers, mathematicians, engineers and other professionals to describe a mathematical model for any system that has a limited un number of conditional states of being.

* undengtemding needs: the process of analyst analysis modelling helps in the understanding and extraction of user needs for the software system.

* communication:- Analysis models facilite communication between user clients Developers and testere.

* Clarifying Ambiguities: Analysis model Assist in resolving Requirement disputes and providing clarification of on unclear Areas.

* Finding the Data Requirements:- Analysis modelling Assists in determining the Relationship, entities and qualities of the Data.

* Defining Behavior: Analysis modelling aids in the defination of the System Dynamic behavior

* System boundary Identification; it is made easier by analysist modelling, which helps in defining the parameters of the software System.

* Elements of Analysis model: ① Data Directory - it is a repositary that consists of a description at all Data objects used of produced by to the Software it stores the collection of Data Present in the Software, it is very crucial element of the malysis model.

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② Entity Relationship Diagram :- it depicts the Relationship between data objects and is used in emducting data modeling activitis.

③ Data Flow Diagram :- it depicte the function that Transform Data flow and it also shows has Data is Transformed when moving form input to output.

④ State Transition Diagram :- it it Shows various moddes of behavior to the System and also Shows the Transitions from one state to another state in the System. etc.

(4. b) Ans: Bottom-up Strategy. Bottom up Strategy follows the modullen approach. The design of the System. it is called so because it starts from the Bottom as the most basic level modules and moves towards the Lighest Levll modules.

Advantage :- ① Provides falback when new System fails. offers greatest seeunity and ultimately testing of new System.

② Forces users to make new System work Immediate benefit from new method and emtral.

③ Allows tnaning and installation without unneessary use of Resourees Avoid Lorge contingencies from risk manatemnt.

④ Provides expnience and limetest before implemention when Prefenned new System -

Disadvantage: ① Couses cast

onerrurs: new systems may not get sair
trail.

② No foll Back if problems arise with new
System Requires most careful planning.

③ A Loang term phasein eauses a Problem
at whether convension goes well or not.

④ fives impressing that of old System is
erroneous and it is not.

Ans 2:- Advantages of Structured analysis and Structured Design. ① Clarity and Simplicity The SASD method emphasizes the breaking Down complex systems into smaller more manageable and manage.

② Better Communication:- The SA/SD method method Provides a common languag and framework for communation the Design of a system which can and help ensure that the System meets their need and expectation.

③ Improved maintainalaily:- the SA/SD method Provides a clear, organization structure for a System which can make it easier to maintein and update the System over time

④ Better Testability:- the SA/SD method Provides a clean defination of the input & output of a system, which makes it easier to test the system.

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