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499 : Con. No.-JP

Con. 10011-13.

GS-9279

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions, out of **remaining** questions.
(3) Draw **neat and clean** diagram, wherever **required**.
(4) Assume **suitable** data, if **necessary**.

Q1 A. Carefully study the following case study and answer the following questions.

Draw a class diagram for an information modeling system for a school. [10]

School has one or more Departments. Department offers one or more Subjects. A particular subject will be offered by only one department. Department has instructors and instructors can work for one or more departments. Student can enrol in upto 5 subjects in a School. Instructors can teach upto 3 subjects. The same subject can be taught by different instructors. Students can be enrolled in more than one school.

Q1. B Explain the following with suitable examples [10]
(a) Association
(b) Aggregation
(c) Multiplicity
(d) Generalization

Q2. A Explain the different types of Cohesion and Coupling [10]

Q2. B What is Requirement? Explain the different types of Requirements in detail. [10]

Q3. A Write the problem statement and Draw a Deployment diagram for an online "Airline Reservation System" [10]

Q3. B What are the design principles? Explain the difficulties and risk in design? [10]

Q4. A Draw the Sequence diagram for the following scenario. [10]

A customer wants to draw money from his bank account. He enters his card into an ATM (automated teller machine). The ATM machine prompts "Enter PIN". The customer enters his PIN. The ATM (internally) retrieves the bank account number from the card. The ATM encrypts the PIN and the account number and sends it over to the bank. The bank verifies the encrypted account and PIN number. If the PIN number is correct, the ATM displays, "Enter Amount". Draws money from the bank account and pays out the amount.

Q4. B Draw the Activity diagram for the scenario in Q4 (a), show swim lanes [10]

[TURN OVER

Q5. A Draw Use Case diagram for the following system, clearly show the include and extends relationship between usecases [10]

A computerized library system for a university keeps track of all books and periodicals in the library and their check-out status. Checkout and return are automated through a bar code reader (an external device). The library system also interfaces with an external relational database which stores information about the library users (students, faculty, and staff), including whether they have any library items checked out. . Library users can access the catalog and recall books and periodicals. Library employees have the same access as well as additional capabilities (e.g., listing the status of an item).

Q5. B Differentiate between static and Dynamic modeling in detail [10]

Q6. A. Enlist the design Pattern and explain any two Design pattern [10]

Q6. B. For a Library management system, design the test cases for the "issue and return of book" [10]

Q7. Write Short Notes on: (Any Two) [20]

- a) Testing Strategies
 - b) User Interface Design Principles
 - c) Framework and Components
 - d) Software Quality Assurance
 - e) Mapping Model to Code
 - f) State Modelling in UML
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