USN : 2GI20TS011 Course Code : 18CS52 / 18IS52

Fifth Semester B.E. Semester End Examination, JANUARY_MARCH_2023

OBJECT ORIENTED MODELING AND DESIGN

Time: 3 hrs. Max. Marks :100

Instructions :1. Answer any FIVE full Question selecting at least ONE Question from Each Unit.

MODULE 1

	L	CO	PO	M
1a. What is object Orientation? Explain the aspects of OO approach	[2]	[1]	[1]	[7]
1b. Define models. Explain the purpose of building models. Explain about relationship among the three models.	[2]	[1]	[1]	[8]
1c. Consider the following classes: Person, Car, CarLoan, Company, Bank. Design the class diagram considering given classes.	[3]	[1]	[2]	[5]

OR

2a. As a Software developer you are asked to develop a software for five-star hotel in Belgaum. The hotel is planning to develop an automated food preparation system, identify appropriate classes and design the class model for the above scenario. Class diagram should include following

1.Multiplicity
2.Association end names
3.Association class
4.Generalization and Inheritance

[4] [1, 2] [2] [10]

2b. With the help of UML diagrams, explain the following.

(i) Association
(ii) Aggregation
(iii) class and object
(iv) Association class
(v) Ordering

[2] [1] [1] [10]

MODULE 2

3a. Define the term Event. Explain different types of event with an example. [2] [2] [1] [7]

3b. Explain the following in context of State Diagram Behavior with relevant examples for each.

1. Do-activities
2. Entry and Exit activities.

[2] [2] [1] [6]

3c. Consider a bulb with a push down switch. The bulb initially remains off. When the switch is pushed down, the bulb is on. Again when the switch is pushed up, the bulb turns off. The lifecycle of the bulb continues in this way until it gets damaged.
By considering the above scenario draw the state diagram with activity effects. [3] [2] [3] [7]

OR

4a. Define state diagram. Draw thestate diagram for a vending machine. Initially, the vending machine is idle. When a person inserts coins, the machine adds the amount to the cumulative balance. After adding some coins, a person can select an item. If the item is empty or the balance is insufficient, the machine waits for another selection. Otherwise, the machine dispenses the item and returns the appropriate change.
Draw the main state diagram for the vending machine and its submachine dispense item. [3] [2] [3] [10]

4b. Define nested states. Draw the nested state diagram for the ATM system [3] [2] [2] [10]

MODULE 3

5a. Develop a use-case diagram for E-Commerce applications with tabular description. Assume appropriate actors.

[3] [1, 2] [2] [7]

5b. Draw an activity diagram for admission process in college management system.

[3] [2] [2] [8]

5c. List and explain guidelines for use case models.

[2] [1] [1] [5]

OR

6a. Explain the following with Proper UML Notations.

i)Include Relationship
ii)Extend Relationship
iii)Generalization Relationship

[2] [2] [1] [10]

6b. Consider a computer email system

i) List three actors. Explain the relevance of each actor
ii) Identify use cases and prepare use case diagram for computer email system
iii)Also draw the activity diagram for the same.

[3] [2] [2] [10]

MODULE 4

7a. List the steps to construct a domain class model. Explain the criteria for eliminating unnecessary and incorrect attributes and keeping the right attributes with example.

[2] [3] [1] [10]

7b. Considering ATM example Explain the various steps that are performed in constructing a domain state model. Draw domain state model for account with respect to ATM example.

[3] [3] [2] [10]

OR

8a. How do you eliminate unnecessary and incorrect classes during domain analysis? Explain with an example

[2] [3] [5] [10]

8b. Illustrate with an example the steps to organize the classes by using inheritance to share common structure

[2] [3] [5] [10]

MODULE 5

9a. How activity diagram can be used in the application interaction model. Construct an Activity diagram for ATM card verification process.

[3] [3] [3] [10]

9b. List and explain steps involved in constructing application interaction model.

[2] [2] [1] [10]

OR

10a. What do you mean by Class design? Identify the steps involved in class design.

[2] [3] [1] [10]

10b. Explain the following in context of application interaction model by analyzing Amazon E-commerce Web Application.

i)Determining system boundary
ii)Finding use-cases
iii)Find actors

[4] [3] [2] [10]