Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 12-12-2025 **Time:** 01:00pm– 04:00pm

School: SOCSE	**Program:** B.TECH	
Course Code: CSE2279	**Course Name:** Object Oriented Analysis and Design	
Semester: V	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks	**24**	**26**	**24**	**26**	**--**

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **10Q x 2M=20M**

1.	Define polymorphism in OOAD.	**2 Marks**	**L1**	**CO1**
2.	Identify the key components of a use case diagram.	**2 Marks**	**L1**	**CO1**
3.	Define Class with UML notation.	**2 Marks**	**L1**	**CO2**
4.	Outline the purpose of an activity diagram?	**2 Marks**	**L1**	**CO2**
5.	Define aggregation with a real-world example.	**2 Marks**	**L1**	**CO2**
6.	Define two types of Axioms in OOD.	**2 Marks**	**L1**	**CO3**
7.	State “protected” class visibility in OOD	**2 Marks**	**L1**	**CO3**
8.	Recite an artifact in a deployment diagram?	**2 Marks**	**L1**	**CO4**
9.	List any two GUI design guidelines.	**2 Marks**	**L1**	**CO4**
10.	Define scenario-based testing?	**2 Marks**	**L1**	**CO4**

Part B

Answer the Questions. **Total Marks 80M**

11.	**a.**	Examine how Jim Rumbaugh's OMT Object, Dynamic, Functional models are implemented in software development process with example.	**10 Marks**	**L2**	**CO1**
	b.	Explain in detail the Object-Oriented System Development Life Cycle (OOSDLC) with suitable diagrams.	**10 Marks**	**L2**	**CO1**
		Or			
12.	**a.**	Using Rumbaugh's Object Modeling Technique (OMT), explain how a Library Management System can be modeled where the librarian can issue books to students, manage member records, and update the catalog. The system should ensure that books are issued only if available and that each student can borrow a maximum of three books at a time.	**10 Marks**	**L2**	**CO1**
	b.	Explain the process and components of the Unified Approach (UA) with the help of a neat diagram.	**10 Marks**	**L2**	**CO1**
13.	**a.**	Apply noun phrase approach for grocery store system.	**10 Marks**	**L3**	**CO2**
	b.	Why analysis is a difficult activity and explain the Object oriented analysis process in detail	**10 Marks**	**L2**	**CO2**
		Or			
14.	**a.**	Apply noun phrase approach for Hospital management system.	**10 Marks**	**L3**	**CO2**
	b.	Explain the Common class pattern approach for identifying classes with examples.	**10 Marks**	**L2**	**CO2**
15.	**a.**	Explain the Object-Oriented Design Corollary with types and examples.	**10 Marks**	**L2**	**CO3**
	b.	Sketch and explain the State Transition Diagram and the Activity Diagram for an Online Airline Ticket Reservation System. Illustrate the different states, transitions, and activities involved from flight search to ticket confirmation. Describe the purpose of each diagram and explain how they represent the dynamic behavior of the system.	**10 Marks**	**L3**	**CO3**
		Or			
16.	**a.**	In an Online Food Delivery System, a customer places an order through a mobile app. The system verifies the customer's login, displays the restaurant menu, and allows the customer to select food items. Once the order is confirmed, the system checks the restaurant's availability, processes the online payment, and sends the order details to the delivery partner. After successful payment confirmation, the customer receives an order tracking notification and an estimated delivery time. Based on the above scenario, identify the main objects involved and sketch an sequence diagram showing how these objects interact to complete the "Place Food Order" use case.	**10 Marks**	**L3**	**CO3**

	b.	Summarize the purpose and key concepts of State Transition Diagrams and Activity Diagrams in UML. Explain how each diagram represents system behavior. Using a suitable example and also describe the major states/activities and transitions involved in both diagrams.	**10 Marks**	**L2**	**CO3**

17.	**a.**	Explain in detail the Component Diagram of a Food Ordering System using UML. Begin by defining what a component diagram is and discuss its importance in object-oriented software design. Describe the UML notations used to represent components, interfaces, dependencies, and connectors, providing suitable examples for each. Sketch a well-labeled component diagram for the Food Ordering System, clearly showing how various components such as Customer, Order, Food Item, Category, Payment, Security, Persistence, and Database interact with each other. Explain the functionality and interaction of each component in maintaining data access, security, and system integration.	**20 Marks**	**L3**	**CO4**
		Or			
18.	**a.**	Airline companies use software to manage their reservation system using online web portals and mobile applications. This helps to ensure that users can view fight details, availability, different offers and compare different flights and book the most ideal option for themselves. Online services like web checking and pre booking of meals reduce real time hassle when flight is operating/about to depart. Sketch UML diagrams for the given scenario.	**20 Marks**	**L3**	**CO4**