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**PRESIDENCY UNIVERSITY**

**Bengaluru**

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| **End - Term Examinations – JANUARY 2025** |
| **Date:** 16 – 01- 2025 **Time:** 09:30 am – 12:30 pm |

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| **School:** SOCSE | **Program:** B. TechCSE | |
| **Course Code :** CSE3082 | **Course Name** : Object Oriented Analysis and Design | |
| **Semester**: V | **Max Marks**: 100 | **Weightage**: 50% |

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

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

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| **Answer ALL the Questions. Each question carries 2marks. 10Q x 2M=20M** | | | | |
| **1** | Identify the key components of a class. | **2 Marks** | **L1** | **CO1** |
| **2** | State one advantage of using inheritance in object-oriented programming. | **2 Marks** | **L1** | **CO1** |
| **3** | Mention the importance of unified process? | **2 Marks** | **L1** | **CO1** |
| **4** | Give any 2 difference between association and aggregation relationships with examples. | **2 Marks** | **L1** | **CO2** |
| **5** | What is the purpose of use case diagram? | **2 Marks** | **L1** | **CO2** |
| **6** | Define CRC | **2 Marks** | **L1** | **CO2** |
| **7** | List the 6 types of corollary? | **2 Marks** | **L1** | **CO3** |
| **8** | Define Private, Public, Protected protocols used in class visibility | **2 Marks** | **L1** | **CO3** |
| **9** | Give UML notation for required and provided interface used in component diagram. | **2 Marks** | **L1** | **CO4** |
| **10** | What is the main objective of software testing? | **2 Marks** | **L1** | **CO4** |

**Part B**

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| **Answer the Questions Total 80 Marks.** | | | | | |
| **11** | **a.** | Illustrate how three macro processes are used to develop object oriented software development with diagram. | **10 Marks** | **L2** | **CO1** |
| **b.** | Discuss static and dynamic binding with example | **05 Marks** | **L2** |
| **c.** | With diagram, explain four quality measures used for system evaluation | **05 Marks** | **L2** |
| **or** | | | | | |
| **12.** | **a.** | Discuss how the principles of the Booch metheodology can be applied to enhance the object-oriented design of a software system. Provide specific examples to illustrate your points. | **10 Marks** | **L2** | **CO1** |
| **b.** | Create a use-case scenario for a ATM Transaction system and analyze how Jacobson Methodology could be leveraged to streamline system requirements and development. | **10 Marks** | **L3** |
|  |  |  |  |  |  |
| **13.** | **a.** | Outline use case diagram with notations. Generate a use case diagram for a online airline ticket reservation system that incorporates functionalities like flight search, requires authentication, booking availability, payments, cancellation process. Ensure that the diagram captures all relevant actors and their interactions with extends and uses properties. | **10 Marks** | **L3** | **CO2** |
| **b.** | Discover the classes using noun phrase approach guidelines in object-oriented modeling. Use this Noun Phrase approach to extract and categorize nouns for the given scenario.  An airline company is building a new reservation system that allows customers to book flights, manage bookings, and receive flight updates. Customers must create an account by providing personal details such as their name, contact information, and payment preferences. Users can search for available flights based on departure and arrival locations, travel dates, and seat preferences (e.g., economy, business class). The system will display flight details such as flight number, departure time, arrival time, duration, and fare options. The airline staff and administrators also need access to the system to manage flight schedules, monitor seat availability, and update pricing based on demand and promotions. Customers should also be able to modify or cancel their bookings, subject to the airline’s cancellation policy. | **10 Marks** | **L3** |
| **or** | | | | | |
| **14.** | **a.** | Apply the Common Class Pattern approach to a Hotel Booking application. Explain how classes are identified, their responsibilities assigned, and their collaborations modeled. Include examples for clarity. | **10 Marks** | **L3** | **CO2** |
| **b.** | Consider you are approaching presidency university library counter to borrow object oriented analysis and design book. The librarian will track all the lendable books and issue dates, due dates, overdue fine. Draw a class diagram with all the relationships, multiplicity for library management system to handle the above scenario. | **10 Marks** | **L3** |

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| **15.** | **a.** | Devise state transition diagram with notations. Use this state chart diagram for order processing system to depict the steps involved in the user’s login, product search, and checkout process. | **10 Marks** | **L3** | **CO3** |
| **b.** | Summarize how axioms and corollaries influence the design of classes and their relationships in an object – oriented system with examples? | **10 Marks** | **L2** |
| **Or** | | | | | |
| **16.** | **a.** | Apply your knowledge of Activity Diagrams to model a complex real-world scenario, such as a library management system. Identify the key activities, decisions, and parallel flows involved in this process. | **10 Marks** | **L3** | **CO3** |
| **b.** | With example, explain how different types of attributes are defined during class design? | **05 Marks** | **L2** |
| **c.** | Explain different types of methods that are defined by the class? | **05 Marks** | **L2** |

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| **17.** | **a.** | Construct an UML deployment diagram with notations and generate deployment diagram for ATM transaction system | **10 Marks** | **L3** | **CO4** |
| **b.** | Describe how the Access Layer ensures communication between the presentation layer and business logic layer. | **05 Marks** | **L2** |
| **c.** | Construct a detailed component diagram for the online LMS (Library Management System), highlighting the interconnections between components and their roles in the system. | **05 Marks** | **L3** |
| **Or** | | | | | |
| **18.** | **a.** | Summarize the main differences between verification and validation in the context of testing strategies. | **05 Marks** | **L2** | **CO4** |
| **b.** | Demonstrate how to implement object storage persistence to store and retrieve multimedia files efficiently in a web application. | **05 Marks** | **L3** |
| **c.** | Create a component Diagram for a mobile-based food delivery system with modules for user applications, restaurant management, and delivery tracking. Explain how the deployment ensures smooth data flow between all entities and handles peak traffic efficiently. | **10 Marks** | **L3** |

**\*\*\*\*\* BEST WISHES \*\*\*\*\***