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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF ENGINEERING

MAKEUP EXAMINATION – JULY 2024

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| **Semester : IV & III** | **Date :** **08-07-2024,** |
| **Course Code :** **CSE3082** | **Time :** **01.30pm to 04.30pm** |
| **Course Name :** **Object Oriented Analysis and Design** | **Max Marks :100** |
| **Program :B.Tech** | **Weightage :50%** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

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| **PART A** | | | |
| **ANSWER ANY 4 QUESTIONS 4Q X 5M=20M** | | | |
| 1 | In what ways does the Booch Methodology challenge traditional software engineering approaches, and how does its emphasis on object-oriented design principles and iterative development cycles contribute to the creation of robust, scalable, and maintainable software systems? | (CO 1) | [Comprehension] |
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| 2 | Compare and contrast the Common Class pattern approach and the use case driven approach in identifying classes. How do these approaches differ in their emphasis on reuse, flexibility, and alignment with system functionalities? | (CO 2) | [Comprehension] |
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| 3 | At the bus stop, BMTC has a vending machine where people may buy drinks and chocolates. The vending machine supplier will load all the goods once every item is empty. Draw a use case diagram for the scenario mentioned above. | (CO 2) | [Comprehension] |
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| 4 | Explain the four reasons why people are not utilizing reusability concept. | (CO 3) | [Comprehension] |
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| 5 | Explain in detail about designing of Methods and Protocols in managing classes? | (CO 3) | [Comprehension] |
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| 6 | Define the access layer in software architecture. Explain its role in facilitating communication between the application and the underlying data storage mechanisms. | (CO 4) | [Comprehension] |
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| **PART B** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 10M=50M** | | | |
| 7 | Sachin is curious about the processes involved in creating object-oriented software development. His manager will assist him in providing a clear diagram to illustrate the OOSD activities. | (CO 1) | [Comprehension] |
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| 8 | Construct the Interaction Diagram for   1. PizzaHut Order System 2. Basic login flow | (CO 1) | [Comprehension] |
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| 9 | You have been assigned to develop a use case diagram for an online shopping system. The system allows users to browse products, add them to their cart, proceed to checkout, and make payments. Registered users can also track their order status and update their account information. Additionally, administrators can manage products, view sales reports, and handle user accounts. | (CO 2) | [Application] |
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| 10 | Draw the state diagram for the bellow given scenario.  When the customer inserts the bank or credit card in the ATM’s card reader, the entry action i.e read card is performed by the ATM machine. If the card is not valid then the machine will perform exit action. After the card is being read successfully, the ATM machine will ask for Pin. Then the customer enters the pin and ATM machine then reads pin. If the pin entered is not valid then machine will perform exit action. If the pin entered is valid, then the machine further process towards transaction. After successful transaction, machine undergoes the exit action i.e., eject card that discharges the customer’s card. | (CO 3) | [Application] |
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| 11 | Explore collaboration and sequence diagrams for scenarios in a student database system. Illustrate the system's interactions and processes.   1. Register a subject. (b) Viewing results of current semester. | (CO 3) | [Application] |
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| 12 | Examine the deployment diagram for SBI banking application which includes modules for transaction processing, user management, and reporting. The current diagram has all modules deployed on a single server. Suggest an optimized deployment strategy using at least three nodes. Draw the new deployment diagram and explain the benefits of your strategy. | (CO 4) | [Application] |
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| 13 | Discuss how regression testing is carried out in an object-oriented design environment. Describe the methods and tools you would use to ensure that new changes do not negatively impact existing functionality, using a library management system as an example. | (CO 4) | [Application] |
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| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 15M=30M** | | | |
| 14 | You have been assigned the task of designing a Library Management System (LMS) for a university. The system should handle various functionalities such as user login, searching for books, borrowing and returning books, and viewing user account details. You need to create a state chart diagram to represent the states and transitions involved in the LMS. | (CO 3) | [Application] |
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| 15 | Imagine you are part of a development team tasked with creating a Food Ordering System for a popular restaurant chain. The system should allow customers to place orders online, manage the menu, process payments, and handle delivery logistics. Your job is to design a component diagram that illustrates the major components of this system and how they interact with each other. | (CO 4) | [Application] |
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| 16 | You are part of the IT team for a large corporation that has decided to implement a new distributed system to support its operations across multiple locations worldwide. This Corporate Distributed System will consist of several interconnected servers and services to ensure high availability, scalability, and security. Your task is to design a deployment diagram to illustrate how the system’s components are deployed across the different physical nodes. | (CO 4) | [Application] |
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