



School of Computer Science Engineering and Information Systems

Winter Semester 2024-2025

Continuous Assessment Test – II

Programme Name & Branch: M.Tech. (SE)

Course Name & code: ICSE102L Structured and Object-Oriented Programming

Class Number (s): VL2024250504143, VL2024250504150, VL2024250504154,

VL2024250504159, VL2024250504163

Faculty Name (s): Jothish Kumar M, Shunmuga Perumal P, Nancy Victor

Rampriya R S, Jerart Julius L

Exam Duration: 90 Min.

Maximum Marks: 50

Course Outcomes

CO2: Recognize the application of modular programming approach; create user defined data types and idealize the role of pointers.

CO3: Comprehend various elements of object-oriented programming paradigm; propose solutions through inheritance and polymorphism; identify the appropriate data structure for the given problem and devise solution using generic programming techniques.

General instruction(s):

Q.No.	Question	Max Marks	CO	BL
1.	A library management system is designed to track multiple books and their information. The system allows users to store and manage book details dynamically. The user can add multiple books, update their details, and calculate late fees based on the number of overdue days. Each book contains the following information: • Book ID (an integer identifier) • Book Name (a string) • Price (the price of the book) • Due Date (the number of days after which the book is overdue) The system needs to: 1. Dynamically allocate memory to store information for multiple books. 2. Allow updating the price and overdue days for a specific book. 3. Calculate the late fee for each book (Rs. 5 per overdue day). 4. Display the details of all books (ID, Name, Price, Late Fee). Write a C program using pointers to manipulate book data and functions to perform operations like adding books, updating details, and calculating late fees.	10	CO2	BL4
2.	A University Management System needs to store and manage the information of students. Create a structure "Student" with the following structure members. - o Student ID (unique) - o Name - o Date of Birth (Date: Day, Month, Year) - o Address (Street, City, Postal Code) - o Marks of 'n' subjects (Use array) Create separate structures for Date of birth and address. Write a C program to get the details of a student and display the student information along with the total marks obtained.	10	CO2	BL3

3.	Create a C++ program with a class named "Product". The "Product" class should have the following data members: 1. "Product_ID" 2. "Product_Name" 3. "Category" 4. "Quantity" 5. "Price_Per_Unit" 6. "Discount_Percentage" The "Product" class should have the following member functions: 1. "Accept()" - Used to get input for all data members. 2. "Calculate_Total_Price()" - Calculates the total price after applying the discount. The formula for the total price is: $\text{Total_Price} = (\text{Price_Per_Unit} * \text{Quantity}) * (1 - (\text{Discount_Percentage} / 100))$ 3. "Display()" - Display all the data that has been received as input along with the calculated total price. Create "N" number of product details and output the result for each product.	10	CO3	BL3
4.	Create a class 'TIMES' that has three integer data members for hours, minutes and seconds. Use a a. constructor to initialize the object to zero b. parameterized constructor to initialize the object to some value c. copy constructor d. member function to add two times e. member function to display time in HH:MM: SS format. Write a main function to create two TIMES objects, add them and display the result in HH:MM: SS format.	10	CO3	BL3
5.	Create two different classes with an integer data member each in both the classes. Using the concept of friend functions, swap the values. Display the values of data members before and after the swap function is called.	10	CO3	BL3