



Daffodil International University
Faculty of Science & Information Technology
Department of Computer Science & Engineering
Midterm Examination, Fall 2025
Course Code: CSE221, Course Title: Object Oriented Programming
Level: 2 Term: 2

Time: 01:30 Hrs

Marks: 25

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.		Explain the concepts of classes and objects in Java (or OOP) with suitable real-life examples, illustrating how they represent real-world entities and their characteristics.	03	CO1
2.		Predict the output of the following program below. <pre> class A { A() { System.out.println("A's Constructor"); } void show() { System.out.println("Show from A"); } } class B extends A { B() { System.out.println("B's Constructor"); } void show() { System.out.println("Show from B"); } } public class Test { public static void main(String[] args) { A obj = new B(); obj.show(); } } </pre>	02	CO2
3.	a)	A financial organization is developing a Banking Transaction System using Object-Oriented Programming concepts to efficiently manage customer accounts. Each Account includes attributes such as <u>accountNo</u> , <u>holderName</u> , and <u>balance</u> , along with methods to <u>deposit</u> and <u>withdraw money</u> . To handle specialized account operations, the organization introduces a single subclass, SavingsAccount , which extends Account by adding an additional attribute <u>interestRate</u> and a method <u>calculateInterest()</u> that computes and adds interest to the account balance. Now draw a UML	05	

		Class Diagram to represent the attributes, methods, and single inheritance relationship between the Account and SavingsAccount classes		CO3
	b)	In a Ride Fare Estimation System , the company needs to calculate ride fares under different conditions such as fixed fare and discounted fare for special customers. Analyze the scenario and identify a suitable Object-Oriented Programming concept that can make the fare calculation more flexible and reusable. Then, write a short Java code snippet to demonstrate your identified concept.	03	
4.		A software company is developing a Smart Transportation Management System using Object-Oriented Programming concepts to efficiently manage information about different types of vehicles such as Car and ElectricCar . Each Vehicle possesses attributes like vehicleNo, brand, and mileage. The Car class inherits from Vehicle and introduces an additional attribute fuelType along with a method displayDetails() that presents the car's information. Furthermore, the ElectricCar class extends the Car class by adding a new attribute batteryCapacity and overrides the displayDetails() method to incorporate battery-related details		CO2
	a)	• Demonstrate the inheritance in the above scenario. • Use method overriding to redefine the displayDetails() method. • In your main() method, create an object of ElectricCar and display its details.	10	
	b)	Explain conceptually how inheritance in this scenario allows method access and reuse.	02	