

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION - APRIL-2023

COURSE CODE (CREDITS): 19B1WCI734 (2)

MAX. MARKS: 25

COURSE NAME: Object Oriented Technologies Using Java

COURSE INSTRUCTORS: Dr Emjee Puthooran

MAX. TIME: 1 Hour 30 Minutes

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

- Q1 (a). What is type casting? Explain with an example. [CO-2, 2M]
- (b). What is method overloading in Java? Briefly describe with an example. [CO-2, 3M]
- Q2 (a). What are the differences between an interface and an abstract class in Java? Give the situation where each of them can be used. [CO-3, 2M]
- (b). Write an interface 'OfficeEquipment' with attributes part_number and brand and method display_details(). Define classes 'Printer' and 'Scanner' and implement the interface OfficeEquipment. [CO-3, 3M]
- Q3 (a). What are the different types of errors that could occur in a Java program? Describe the errors can be handled in Java. [CO-4, 2M]
- (b). Write a Java program to find the roots of a quadratic equation $ax^2 + bx + c = 0$. The user inputs the coefficients a, b, c of the equation. The program should use exception handling to avoid error in calculation when the coefficient a equals 0. [CO-4, 3M]
- Q4. A library in a University is having provision to issue books to students and staff. It collects different penalties from both categories in case of late return of books. The library also manages different registers which hold information about members, books, magazines, newspapers and penalties collected. Identify different classes for this problem and implement in Java. Test your classes using a main program. [CO-2, 5M]
- Q5. Define an abstract base class 'MotorVehicle' in Java with attributes model and registration_number and method display(). Derive two classes 'Car' and 'Bus' from the class 'MotorVehicle'. Test your classes using a main program. [CO-2, 5M]