

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2025

B.Tech-IV Semester (BI)

COURSE CODE (CREDITS): 18B11CI415 (4)

MAX. MARKS: 35

COURSE NAME: Object Oriented Programming

COURSE INSTRUCTORS: EPN

MAX. TIME: 2 Hours

**Note:** (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	What is the use of 'final' keyword in java? Explain with examples?	CO-1	2
Q2	What are the different 'access specifiers' in Java? Describe their visibility in various types of classes and packages	CO-1	3
Q3	Develop a formula and write a program in C++ using nested loops to generate a pattern of triangle as shown below. The program should get the number of rows in the pattern from the user and make a triangle of variable size.  <pre> 1 2 2 3 3 3 4 4 4 4 4 5 5 5 5 5 5 5 5 5 </pre>	CO-1	5
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-3	5
Q5	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	5
Q6	Write a multithreaded program in Java to accomplish the following task. Print values from 1 to 10, print names of ten places and print names of ten countries.	CO-4	5

Q7	Define a class LinkedList in Java with members data of integer type and a reference next of LinkedList type. Define methods to insert and display the elements of the linked list.	CO-3	5
Q8	Define a class Matrix in C++ with operator overloading methods to add, subtract and multiply two matrices. Write the main method to test the functionality of the class.	CO-2	5