

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-IV Semester (BI)

COURSE CODE (CREDITS): 18B11CI415 (4)

MAX. MARKS: 25

COURSE NAME: Object Oriented Programming

COURSE INSTRUCTORS: EPN

MAX. TIME: 1 Hour 30 Min

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 Java Virtual Machine (JVM)? Explain how the implementation of JVM makes Java a platform independent language.	CO-2	2
Q2	Differentiate between pass by value and pass by reference in C++, explaining their distinctions through illustrative examples.	CO-2	2
Q3	What are arrays in Java? Explain the steps of declaration, creation and initialization of multidimensional arrays in Java.	CO-2	3
Q4	A leap year is exactly divisible by 4 except for century years (years ending with 00). The century year is a leap year only if it is perfectly divisible by 400. Write a Java program to check a weather a year is leap year or not.	CO-1	3
Q5	Create a C++ program that prompts the user to enter a string and appends the string to a file named "log.txt". Each time the program runs, it should append the entered string as a new line in the file. Additionally, the program should display the contents of the "log.txt" file after appending the string. Ensure that the program handles file opening errors and closes the file properly after use.	CO-4	5
Q6	Implement a class template called MyVector to represent a vector (dynamic array) that can store elements of any data type. The class should include methods to add elements, remove elements, get the size of the vector, and access elements by index. Test your class template by creating instances for integers, doubles, and strings, and perform various operations such as adding elements, removing elements, and accessing elements.	CO-2	5

Q7	Find the output of the following C++ code snippet. Assume that the code snippet appear inside the <code>main()</code> function wherever not given and the header file ' <code>iostream</code> ' is included in the program.	CO-3	5
	<pre>(a) char s1[6] = "Hello"; char s2[6] = "World"; char s3[12] = s1 + " " + s2; cout << s3;</pre>		
	<pre>(b) void square (int *x, int *y) { *x = (*x) * --(*y); } int main() { int number = 30; square(&number, &number); cout << number; return 0; }</pre>		
	<pre>(c) void swap(int &a, int &b) { int temp; temp = a; a = b; b = temp; cout << "In swap " << a << b; } int main(){ int a = 5, b = 10; swap(a, b); cout << "In main " << a << b; return 0; }</pre>		
	<pre>(d) class X { int m; public: X():m(10) {} X(int mm): m(mm){} int getm(){ return m; } }; class Y : public X { int n; public: Y(int nn) : n(nn) {} int getn() { return n; } }; int main() { Y obj(100); cout<<obj.getm()<< " "<< obj.getn()<< endl; }</pre>		
	<pre>(e) template<class T> class A { public: A(){ cout<<"Created\n"; } ~A(){ cout<<"Destroyed\n"; } }; int main(int argc, char const *argv[]) { A <int>a1; A <char>a2; A <float>a3; return 0; }</pre>		