

## AUTUMN MID SEMESTER EXAMINATION-2024

School of Computer Engineering  
Kalinga Institute of Industrial Technology, Deemed to be University  
Subject Name: OOPJ [Subject Code: IT 20004]

Time: 1 1/2 Hours

Full Mark: 20

*Answer any four Questions including Q.No.1 which is Compulsory.  
The figures in the right margin indicate full marks.*

1.

1 X 5

i>In Java, can a class be abstract and final at the same time? Justify your answer.

ii>Write the output of the following java code with justification-

```
class B1{
    static{
        float pi= 3.14f;
        System.out.println("Value of pi is :"+pi);
    }
    public static void main (String ar[]){
        System.out.println("Hello");}
}
```

iii> Write any two usage of 'final' keyword in Java.

iv> Write the output of the following java code with intermediate results-

```
class ab{
    public static void main (String arg[]){
        int p=9;
        int q=10;
        int n= (p|q)%(p&q);
        System.out.println (n);
    }
}
```

v> What is the use of 'finally' keyword In Java ?

2. a>Explain any two OOP concepts and their benefits with suitable java code. /2.5

b>Explain the use of following operators in Java with example - /2.5

(I) short circuit OR operator

(ii) right shift with sign extension

3.a>Write a Java program that accepts 3 integer numbers from command-line /2.5

arguments and also accepts 2 integers using Scanner class. Then print only the repeated numbers, if any. /2.5

b>Differentiate between method overloading and method overriding in Java.

Explain how calls to overridden methods are resolved during program run-time.

- 4.a> Define an interface 'transaction' in Java with two methods – deposit() and withdraw(). And define two classes – HDFC and ICICI which use above interface. Write the driver code to check the functionality of both the methods using objects of both the classes. /2.5
- b> Write a program in java to take eight numbers from user also write a method to count the no. of even numbers in the list. If the count of even numbers is different from count of odd numbers then throw an user defined exception -InvalidSetException otherwise display the sum of all numbers. /2.5
5. Write a class Student with data members as - rollno, name, branch and a method request() for requesting hostel accommodation. Also write another class Hostel with data members as -hostelno, ACroom\_charge, Nonac\_room\_charge and a method sem\_charge() for printing total hostel charge for the semester. The request method will call the method sem\_charge after creating an object of Hostel class with all user inputs. Write the main class to create an object of Student class with all user inputs and requests for accommodation. /5

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