

National Institute of Technology, Kurukshetra
End Semester Examination, Nov-Dec, 2024

Subject- Object oriented Programming using Java
 B.Tech.-III(IT)

Roll No. 123103110
 Course Code- ITPC 205
 MM: 50, Duration- 3 hrs

Note: All questions are compulsory.

Ques 1. (a)	Can you instantiate an abstract class in Java? Justify your answer with an example.	3
(b)	What is the difference between == and equals() when comparing objects in Java? Provide an example.	3
(c)	What would be the output ? <pre> public class Calculator { public static void main(String[] args) { System.out.println("Sum 1: " + sum(1, 2, 3)); System.out.println("Sum 2: " + sum(10,-2)); System.out.println("Sum 3: " + sum()); } public static int sum(int... numbers) { int total = 0; for (int num : numbers) { total += num; } return total; } }</pre>	2
(d)	What would be the output ? <pre> public class Operator { public static void main(String[] args) { int x = 10; int y = 5; int result = x++ + ++y; System.out.println("x: " + x); System.out.println("y: " + y); System.out.println("result: " + result); } }</pre>	2
Ques 2. (a)	Explain Java's architecture and the architecture of the Java Virtual Machine (JVM).	5
(b)	What are object aliases? Explain how one object reference variable can be an alias for another. Illustrate this with a code example. Explain the difference between a reference value and a reference variable in Java.	5

Ques 3. (a)	Explain table of visibility modifiers in java. What is package? How are packages created, accessed and run in java?	5
(b)	<p>What are Java's Built in Exception? Write the importance of finally block and what would be the output of below code?</p> <p>I. If file is missing II. If file is opened successfully</p> <pre> import java.io.*; public class practice { public static void main(String[] args) { FileReader fr = null; try { // Attempting to open a file fr = new FileReader("abc"); System.out.println("File opened successfully!"); } catch (FileNotFoundException e) { System.out.println("File not found!"); } finally { System.out.println("In finally block!"); try { if (fr != null) { fr.close(); System.out.println("File closed successfully!"); } } catch (IOException e) { System.out.println("Error closing the file!"); } } } } </pre>	5
Ques 4. (a)	Explain the inheritance in details and difference between early binding and late binding.	5
(b)	Write the difference between String, StringBuilder and the StringBuffer classes with programme.	5
Ques 5. (a)	Write a Java program that creates two threads. First thread displays — "Good Morning" every one second, the second thread displays "Bye" every two seconds. All threads will run maximum 1/2 minute. Write the output and explain how many times good morning and bye will be printed?	5
(b)	What are the types of events in Java? Explain the common event listener interfaces in Java?	5