

# END TERM EXAMINATION

FOURTH SEMESTER [B.TECH] JUNE 2024

Paper Code: CIC-212

Subject: Programming in Java

Time: 3 Hours

Maximum Marks: 75

**Note: Attempt five questions in all including Q.No.1 which is compulsory. Select one question from each unit.**

- Q1 Answer the following questions: (5x3=15)
- Discuss any five differences between Interface and Abstract Class.
  - Explain the concept of wrapper classes in Java and discuss their significance?
  - What is remote method invocation? Explain briefly.
  - How to create Inner & Outer Class? How it is helpful for achieving Security.
  - What is the thread's priority? Define the values for different priority in java.

## UNIT-I

- Q2 a) What is JVM? Explain JVM architecture in detail. (8)
- b) What is Sandbox security model? How does it help in providing security to resources? Discuss in detail. (7)
- Q3 a) Explain the security promises of the Java Virtual Machine (JVM) and how it achieves them. (5)
- b) Write a short note on the following: (10)
- Various Instructions sets used in Java.
  - Garbage Collections
  - Class File Format

## UNIT-II

- Q4 a) Write a Java program demonstrating the implementation of an interface. Define an interface named Shape with methods calculate Area() and calculate Perimeter(). Implement this interface with classes Circle and Rectangle. Test the implementation by creating objects of these classes and invoking the interface methods to calculate their respective areas and perimeters. (7)
- b) What is exception handling? Create customized exceptions and make use of all the 5 exception keywords used in exception handling. (8)
- Q5. a) Explain the concept of Applet programming in Java and describe the life cycle of an applet. Provide a Java Applet program illustrating the key stages of an applet's life cycle. (8)
- b) What is the difference between String Buffer and String Class? Show the use of two methods of String Buffer and String class with the help of example. (7)

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**UNIT-III**

- Q6. a) What is thread? Explain the life cycle of a thread with the help of a diagram. What are the various ways to create the thread? Explain to anyone with the help of example. (8)
- b) What is thread synchronization? When do we use it? Write a program to illustrate the concept of Thread Synchronization method (7)
- Q7. a) Why is event used in Java? What is the difference between adapter class and listener interface? Explain with the help of an example. (8)
- b) Discuss various types of layouts used in AWT. Write a program to show the use of Border Layout and Grid Layout with various components. (7)

**UNIT-IV**

- Q8. a) Explain different types of JDBC drivers. Write the steps to connect a Java application to a database? Explain with the help of example. (10)
- b) Write a program to sort the content of a given text file. (5)
- Q9. a) Write a program to implement the Client -Server Application. (7)
- b) Write the short note on: (8)
- (i)What is JNI and how it works?
  - (ii)What is object serialization vs deserialization?
  - (iii)What are Java collections? Give some methods of Collection interface.

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