

(Please write your Exam Roll No.)

Exam Roll No. 02160444

## END TERM EXAMINATION

FIRST SEMESTER (MCA) DECEMBER-2024

Paper Code: MCA-109

Subject: Object Oriented Programming and JAVA

Time: 3 Hours

Maximum Marks: 60

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

- Q1 Answer all the following questions briefly: (2x10=20)
- Explain why char in C++ takes one byte and char in java takes two bytes?
  - Difference between throw and throws.
  - What is polymorphism? Give a real life example of the same.
  - Explain the need of synchronization.
  - Explain Usage of PATH and CLASSPATH variable for executing java code.
  - Explain the use of abstract class.
  - How do you create a socket connection in Java?
  - What is the difference between TCP and UDP connections?
  - What is the Java Virtual Machine (JVM) and what role does it play in Java execution?
  - What are the difference between String, StringBuffer, and StringBuilder in Java?

### UNIT-I

- Q2
- Explain the concept of platform dependent and platform independent language. Also, what is a platform? (5)
  - Explain the usage of final and abstract class with appropriate examples. (5)
- Q3 Write a java program, create one dimensional array, accept numeric values and find the smallest number. (10)

### UNIT-II

- Q4
- What is a main thread? Can we start a main thread? Can we change its name? Give example to support your answer. (5)
  - What are different type of exceptions in java? Explain with example. (5)
- Q5
- Explain thread life cycle and list the methods to transfer from one stage to another? (5)
  - Create a class "Mobile". Raise an exception, each time the user tries to enter alphanumeric data or the mobile number is less than or greater than 10 digits. (5)

### UNIT-III

- Q6
- Design a simple paint program using event handling. The paint program should allow users to draw lines, circles, and rectangles on a canvas. Use mouse events to capture user input and draw the shapes on the canvas. (5)
  - Explain how to use adapter classes to implement event handling in Java. Provide an example of how to create an adapter class for a specific event listener interface. (5)

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- Q7 (a) Explain when and why you would use an anonymous class in Java. Provide a real-world scenario where an anonymous class would be an appropriate solution. (5)
- (b) Discuss the key features and advantages to Swing compared to AWT in Java GUI development. Provide example of components and functionalities that are unique to Swing. (5)

**UNIT-IV**

- Q8 (a) Explain default and functional interface with appropriate example. (5)
- (b) Why is JDBC used when ODBC was already there? Write the connectivity steps and list the package and classes used for connectivity from java to backend server. (5)
- Q9 Write short notes on the following:- (2x5=10)
- (a) JAVA 8 memory optimization
- (b) RMI Architecture.

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