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## First Semester B.E./B.Tech. Degree Examination, June/July 2025 Basics of Java Programming

Time: 3 hrs

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.*

*2. M : Marks, L: Bloom's level, C: Course outcomes.*

| Module – 1 |    |  | M  | L  | C   |
|------------|----|--|----|----|-----|
| Q.1        | a. | Explain the key principles of Object-Oriented Programming (OOP) in Java.   | 06 | L2 | CO1 |
|            | b. | Write a simple Java program that demonstrates the use of variables, datatypes and array.                                 | 08 | L2 | CO2 |
|            | c. | Describe the importance of type conversion and casting in Java.  | 06 | L1 | CO4 |
| OR         |    |  |    |    |     |
| Q.2        | a. | Discuss encapsulation, inheritance and polymorphism with example.  | 10 | L3 | CO4 |
|            | b. | Describe the Java class libraries and their significance. Illustrate with an example how to use a standard Java library. | 10 | L3 | CO4 |
| Module – 2 |    |  |    |    |     |
| Q.3        | a. | Describe the various types of operators available in Java with examples.   | 10 | L3 | CO4 |
|            | b. | Explain the working of the switch statement.   | 05 | L2 | CO1 |
|            | c. | Explain the different control statements in Java.  | 05 | L2 | CO1 |
| OR         |    |  |    |    |     |
| Q.4        | a. | Write a program to find the biggest of three numbers using ternary operator.   | 08 | L3 | CO3 |
|            | b. | How do operator precedence and parentheses affect the evaluation of expressions? Provide example.                        | 12 | L3 | CO2 |
| Module – 3 |    |  |    |    |     |
| Q.5        | a. | Write a Java program to illustrate the use of parameterized constructor and default constructors.                        | 12 | L2 | CO3 |
|            | b. | Explain static variable and static methods in Java with example.   | 08 | L2 | CO3 |
| OR         |    |  |    |    |     |
| Q.6        | a. | Explain memory allocation and use of garbage collector in Java.  | 06 | L2 | CO3 |
|            | b. | Write a Java program to implement a static class.  | 08 | L2 | CO3 |
|            | c. | Explain the implementation in detail the basic operations such as push, pop and display.                                 | 06 | L2 | CO3 |

## Module – 4

|     |    |  |    |    |     |
|-----|----|--|----|----|-----|
| Q.7 | a. | Explain the concept of dynamic method dispatch.                                      | 08 | L2 | CO3 |
|     | b. | Write a Java program to demonstrate dynamic method dispatch using an abstract class. | 12 | L3 | CO3 |

## OR

|     |    |   |    |    |     |
|-----|----|---|----|----|-----|
| Q.8 | a. | Describe the different types of inheritance supported by Java. Write a Java program to demonstrate single and multilevel inheritance. | 12 | L3 | CO4 |
|     | b. | What is method overriding in Java? How does it differ from method overloading?  | 08 | L3 | CO4 |

## Module – 5

|     |    |  |    |    |     |
|-----|----|--|----|----|-----|
| Q.9 | a. | Explain the concept of packages in Java.         | 06 | L2 | CO3 |
|     | b. | How do you create and import packages?           | 06 | L1 | CO2 |
|     | c. | Write a Java program that uses a custom package. | 08 | L2 | CO2 |

## OR

|      |    |   |    |    |     |
|------|----|---|----|----|-----|
| Q.10 | a. | Describe the exception handling mechanism in Java.                      | 06 | L3 | CO4 |
|      | b. | Write a Java program to demonstrate the creation of a custom exception. | 08 | L2 | CO3 |
|      | c. | Explain how to throw and catch this custom exception.                   | 06 | L2 | CO3 |

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