

Section A

Q.-1. Respond to any three of the following questions in brief. (30)

- (1) Explain the structure of a Java program, detailing the purpose of the documentation, package, import, and class definition sections.
- (2) Discuss Java's primitive data types, their memory requirements, and their ranges.
- (3) Discuss Method Overriding and the concept of dynamic method dispatch (runtime polymorphism).
- (4) Explain the Java Thread Model and the various states in a thread's life cycle.
- (5) Discuss AWT components and the use of Layout Managers to arrange them on a container.

Section B

Q.-2. Write short notes on any four of the following topics. (20)

- (1) Short note on the main characteristics of Java.
- (2) Differentiate between static and dynamic loading in Java.
- (3) Briefly explain command-line arguments.
- (4) What is a Jar file and how is it created?
- (5) Compare checked and unchecked exceptions.
- (6) How do you create a thread by implementing the Runnable interface?

Section C

Q.-3. Tick (✓) the correct alternative. (10)

(1) Which package is imported implicitly in every Java program?

- | | |
|--------------|--------------|
| A) java.io | B) java.util |
| C) java.lang | D) java.awt |

(2) Which method is used to start a thread?

- | | |
|--------------|------------|
| A) run() | B) start() |
| C) execute() | D) begin() |

(3) Which tool is used to compile a Java source file?

- | | |
|---------|----------|
| A) java | B) javac |
| C) jdb | D) javap |

(4) Which keyword is used to implement single or multilevel inheritance?

- | | |
|---------------|-------------|
| A) implements | B) inherits |
| C) addition | D) extends |

(5) Which layout manager is the default for a Frame?

- | | |
|---------------|-----------------|
| A) FlowLayout | B) BorderLayout |
| C) GridLayout | D) CardLayout |

(6) Which exception is thrown when an exceptional arithmetic condition occurs, such as divide-by-zero?

- | | |
|--------------------------|------------------------|
| A) NullPointerException | B) ArithmeticException |
| C) NumberFormatException | D) IOException |

(7) Which method of the Vector class returns the number of elements currently stored?

- A) capacity()
- B) size()
- C) length()
- D) count()

(8) Which keyword is used to explicitly raise an exception object?

- A) throws
- B) try
- C) catch
- D) throw

(9) Which exception is thrown when an attempt is made to access an array element beyond its index?

- A) ArrayIndexOutOfBoundsException
- B) NullPointerException
- C) ArithmeticException
- D) SQLException

(10) Which operator is used to assign a value to a variable?

- A) 0
- B) 0
- C) ++
- D) !=

Section D

Q.-4. State whether the following statements are true or false. (10)

- (1) Encapsulation in Java combines data and program code together within an object.
- (2) An identifier in Java is allowed to start with a numeric digit.
- (3) The boolean data type in Java occupies exactly 8 bits in memory.
- (4) Static variables (class variables) are shared by all objects of that class.
- (5) The super keyword is used in a child class to refer to the parent class object.
- (6) The public access modifier provides the narrowest scope for variables and methods.
- (7) Recursion is the process where a method calls itself repeatedly to solve a problem.
- (8) A checked exception is ignored at compile-time and only checked at runtime.
- (9) The maximum value for thread priority in Java is defined as 10.
- (10) Byte streams are primarily used to handle 16-bit Unicode characters.
