

(Time: 2½ hours)

Total Marks: 75

- N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt any three of the following:

15

- What is Java Virtual Machine (JVM)? Explain JVM components.
- Explain the following.
 - Autoboxing
 - Conditional operator
- Define Identifier. Explain rules for identifiers in Java.
- List of and explain any five features of Java.
- Explain the following methods of String.
 - length()
 - equals()
 - charAt()
 - compareTo()
 - substring()
- How is main() method of Java written? Explain it in detail.

2. Attempt any three of the following:

15

- When do we use switch-case statement? Explain it with example.
- List and explain the types of classes in Java.
- What is a constructor? Explain characteristics of constructor.
- Write a program to illustrate the concept of method overloading.
- What do you mean by variable arguments? Explain it with example.
- When do we use 'foreach' loop? Explain it with example.

3. Attempt any three of the following:

15

- Differentiate between classes and interfaces.
- What is a package? Write steps to create a package in Java.
- What is an interface? How can we implement interface in a class?
- Explain the following with example.
 - this
 - super
- Write a program to illustrate the concept of abstract method and abstract class.
- Write a program to implement multilevel inheritance with default constructor in each class.

4. Attempt any three of the following:

15

- Write a short note on exception handling in Java.
- Explain life cycle of a Thread.
- How is a Vector different from an array? How can you create a Vector in Java?
- Explain the use of enumeration datatype in Java.
- Define Stream. Explain how we can write binary data to a file.
- What are the different ways of creating a new Thread in Java?

[TURN OVER]

5. Attempt *any three* of the following:

15

- a. Create an applet to display "Java World", Change the text color to Red.
 - b. Create an AWT application to create a frame with a Button named "Square", a Label and a TextField. Enter a number in the TextField .Click of the Button should display square of that number in the Label.
 - c. What is the use of LayoutManager? Explain GridLayout and BorderLayout.
 - d. Explain the following Listener interfaces
 - (i) KeyListener
 - (ii) MouseListener
 - e. Explain checkbox class along with its constructors in detail.
 - f. What is the use of adapter classes? Explain any one Adapter class in detail.
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