

(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**

- Write a short note on Java Virtual Machine (JVM).
- Write in detail about different types of operators in Java, category-wise quoting their functionality, operands and return type. Give one example statement for each.
- What are the primitive data types in Java? Briefly explain their size, range and other details.
- Explain the terms : narrowing, widening, instantiation, auto boxing.
- Briefly explain: (i) Type annotations (ii) Lambda expressions.
- List and explain the the salient features of Java.

2. Attempt any three of the following:**15**

- Write a short note on access specifiers in Java.
- Write a comparative note on overloading and overriding in Java.
- Explain the functionality of different types of iterative statements in Java using suitable examples.
- Explain : (i) Variable Arguments(Varargs) (ii) this.
- Demonstrate the behavior of static members in Java using a suitable example.
- Explain the semantics and functionality of the given statements :
 - Rectangle rec = new Rectangle(a,b);
 - break out;
 - public static void main(String arg[]) {.. }

3. Attempt any three of the following:**15**

- Differentiate between abstract class abstract class and interfac in Java.
- What is an inheritance? Explain multiple inheritance in Java.
- Explain the terms/keywords : final , finally , finalize()

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- d. Explain the below given code and the concept(s) it represents :

```
Shape gen = new Shape();
Rect r = new Rect(); Circ c = new Circ();
int k = Integer.parseInt(args[0]) ;
if (k==1) gen = r; else gen=c;
gen.showdata();
```
- e. How do you create your own package and import it in a Java program? Explain the procedure step-wise using a suitable example.
- f. Explain the below given code fragments :
 - (i) interface values extends demoval { ... }
 - (ii) class sample extends dsamp implements dval { .. }

4. Attempt any three of the following:

15

- a. What is a vector? List out any five vector methods and quote their functionality. Write one example for each.
- b. Explain life cycle of thread with a neat labeled diagram.
- c. Explain any 3 different cases of exception handling.
- d. Explain the semantics and functionality of the given statements :
 - (i) FileReader ins = new FileReader(inf);
 - (ii) dos.writeDouble(27.36);
- e. Explain the difference between the following using a suitable example.
 - (i) equals() , compareTo() , equalsIgnoreCase()
 - (ii) substring(k) , subtring(k , j)
 - (iii) Indexof('x') , lindexof('x' , n);
- f. Explain :
 - (i) int k = Integer.parseInt(num);
 - (ii) val = lval.longValue();
 - (iii) dval = Double.valueOf(s);

5. Attempt any three of the following:

15

- a. Briefly explain: delegation model, event, event listeners, and event sources.
- b. What is an Applet? Explain its life cycle in Java.
- c. What is a layout manager? Explain any two layouts.
- d. Write about: Button, Textfield, and Label controls.
- e. Explain the semantics and functionality of the given statements :
 - (i) public void paint(Graphics g) || { ... }
 - (ii) b.addActionListener(this);
 - (iii) repaint();
- f. Explain <APPLET> and <PARAM> tags with their attributes.
