Q.P. Code: 36158

(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

a. Write a short note on Java Virtual Machine (JVM).

b. 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.

c. What are the primitive data types in Java? Briefly explain their size, range and other details.

d. Explain the terms : narrowing, widening, instantiation, auto boxing.

e. Briefly explain: (i) Type annotations (ii) Lambda expressions.

f. List and explain the the salient features of Java.

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

a. Write a short note on access specifiers in Java.

b. Write a comparative note on overloading and overriding in Java.

c. Explain the functionality of different types of iterative statements in Java using suitable examples.

d. Explain : (i) Variable Arguments(Varargs) (ii) this.

e. Demonstrate the behavior of static members in Java using a suitable example.

f. Explain the semantics and functionality of the given statements :
    (i)   Rectangle rec = new Rectangle(a,b);
    (ii)   break out;
    (iii)   public static void main(String arg[]) {.. }

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

a. Differentiate between abstract class abstract class and interfac in Java.

b. What is an inheritance? Explain multiple inheritance in Java.

c. 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.

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