

(ii) toString() method

(iii) Equals() method

6. (a) Write a Java program to display all the numbers from 1 to n that are divisible by 3 (5)

(b) Locks and conditions are powerful tools for thread synchronization, but they are not 5 very object-oriented. Explain how does monitor Concept make multithreading safe without forcing programmers to think about explicit locks. (5)

(c) Why is Java called as strongly typed language? (5)

7. Write short note on any three (15)

(i) Filename Filter

(ii) Conditional Operator

(iii) Thread Properties

(iv) Lambda Expressions

(100)

[This question paper contains 8 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 4663

J

Unique Paper Code : 2344002002

Name of the Paper : JAVA Programming

Name of the Course : **Computer Science, Generic Elective**

Semester : IV

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll. No. on the top immediately on receipt of this question paper.
2. The paper has **two** sections.
3. All questions in 'Section A' are compulsory.
4. Attempt **any four** questions from 'Section B'.
5. Parts of a question must be answered together.

P.T.O.

SECTION A

1. (i) Why is Java considered a platform-independent programming language? (4)

(ii) Identify the valid and invalid literals among the following. Justify your answer: (4)

(a) `int x = 0x1G;`

(b) `float pi = 3.14F;`

(c) `char ch = 'AB';`

(d) `long num = = 1234567890L;`

(iii) Give output for the following print statements: (4)

(a) `System.out.print(("Smile\t" + "World\n").repeat(4));`

(b) `System.out.println(3 + 5 * (int) Math.pow(2, 3) - 4);`

(b) Define the following (Any five): (10)

(i) Inner Class and Outer Class

(ii) Boxing and unboxing

(iii) Double Brace initialization

(iv) Anonymous Inner Classes

(v) Static Inner Class

(vi) Abstract Class

5. (a) Can the wrapper classes can be used to implement methods that can modify numeric parameters? Why? Why not? (5)

(b) Write a Java program to reverse a string entered by the user and checks whether the string is a palindrome or not. (5)

(c) Explain the following methods: (5)

(i) `hashCode()` method

```

*
***
*****
*****
*****
***
*

```

(b) Identify and rectify the error alongwith brief explanation: (5)

```

var list = new ArrayList (100); /
/ capacity 100, size 0 list.set(0,
x); // no element 0 yet

```

(c) Explain the lifecycle of a thread in Java with appropriate method names and transitions and a diagram. (5)

4. (a) Write a Java program to calculate the factorial of a number using a loop. (5)

(c) `int a = 5, b = 10;`

```

System.out.println (a > 3 && b
< 20 || a
== 5);

```

(d) `System.out.println (5 | 2^3)`

(iv) Explain the four access control modifiers in Java. (4)

(v) What is the difference between if-else and switch statements in Java? (4)

(vi) To handle exceptional situations in your program, a Java programmer must take into account the errors and problems that may occur. Identify four types of problems that are required to be handled. (4)

(vii) What is the purpose of the try and catch blocks in exception handling? Give suitable examples. (4)

(viii) How a directory in Java is different from file?

Explain. (2)

Section B

2. (a) Write any five file methods that are used in file handling in Java. (5)

(b) Write output for the following code snippets: (10)

```
(i) String greeting = "Hello";

String s = greeting.substring(0,
3);

System.out.println(s);
```

```
(ii) String a = "Java";

String b= new String ("Java");

System.out.println (a == b);

System.out.println (a.equals
```

(b));

```
(iii) String str = "Hello";

str.concat(" World");

System.out.println(str);
```

```
(iv) String x = "Good";

String y = "Morning";

String z = "GoodMorning";

String w = x + y;

System.out.println(z ==w);
```

```
(v) String s = "Java Programming";

System.out.println(s.substring
(2, 5));
```

```
System.out.println(s.length());
```

3. (a) Write a program in Java that prints the following pattern for input n taken from the user (the pattern for n=7 is given below). (5)

P.T.O.