**Java Exam Preparation Practice Sheet - 2**

**Group – F (Multithreading) – Full Marks: 20 – Time: 45 Minutes**

1. Write a program that will create two threads named ***one*** and ***two*** from the main thread. Each of the thread will display the message “**Thread *name* Starting**”, where ***name*** is the name of the thread. Each thread will then print a message “**Hello from thread *name***” 3 times on the screen. Here, ***nam*e** is the name of the child thread. After each write on the screen it will sleep for 500 milliseconds. Main thread should wait for the termination of the child threads. [E 11.1] 8

2. How can you create a thread in Java? [T 11.3] 3

3. Explain the usefulness of **isAlive()** and **join()** methods. [T 11.4] 4

4. What is *synchronization*? When do we use it? How can threads be synchronized?

[T 11.8 & 11.10] 1 + 1 + 3 = 5

**Group – G (Wrapper Classes, String, and The Collections Framework) – Full Marks: 25 –
Time: 45 Minutes**

1. Write a Java program that will perform the following operations: [E 35.1] 5

1. Create an object of type ***ArrayList*** that will contain a list of floating-point numbers.
2. Now insert the following data: 12.34, 34.5, 5.6, 7.89, 10.12, 3.45
3. Show the number of elements in the object.
4. Remove 5.6 and 10.12
5. Display the content of the object.

2. Generate the output of the following program: [Complete Concepts Program – String] 9

public class CompleteConcept\_Chapter35\_2 {

 public static void main(String[] args) {

 String a = new String("Hello Universe!");

 System.out.println(a.toUpperCase());

 System.out.println(a.toLowerCase());

 System.out.println(a.length());

 System.out.println(a.charAt(0));

 System.out.println(a.indexOf('e'));

 System.out.println(a.indexOf("Uni"));

 System.out.println(a.substring(6));

 System.out.println(a.substring(6, 9));

 System.out.println(a.equals("hello universe!"));

 System.out.println(a.equalsIgnoreCase("hello universe!"));

 System.out.println(a.startsWith("Hello"));

 System.out.println(a.startsWith("Uni", 6));

 System.out.println(a.endsWith("e!"));

 System.out.println(a.contains("Uni"));

 System.out.println(a.replace('e', 'u'));

 System.out.println(a.replace("ll", "lll"));

 a = " A B C \n ";

 System.out.println(a.trim());

 }

}

3. What are wrapper classes? Why should you need a wrapper class? [T 35.1 & 35.2] 3

4. What is *autoboxing* and *auto-unboxing*? State the advantages of using them. [T 35.3 & 35.4] 4

5. What is the *Collections Framework*? State the advantages of using collection classes. [T 35.9 & 35.10] 4

**Group – H (Data Types, Variables, Arrays and Control Statements) – Full Marks: 25 –
Time: 45 Minutes**

1. Identify errors in the following program, correct them and write the output. [E 3.1] 4

 class test {

 public static void main(String[] args) {

 byte a = 100;

 short b = a \* 3;

 long l = 2000;

 float k = 284.24;

 byte c = k;

 int m = a;

 double d = b;

 System.out.println(b);

 System.out.println(c);

 System.out.println(d);

 }

 }

2. Write a program in Java that will print the following output on the screen: [E 3.2] 3

0 0 0 0 0

0 0 1 2 3

0 1 3 5 7

0 2 5 8 11

3. Write down the output of the following sequence of code: [E 3.3] 4

for (int I = 0; I < 8; I++) {

 for (int J = 4 - (I % 4); J > 0; J--)

 System.out.print("");

 for (int J = 0; J < (I % 4) + 1; J++)

 System.out.print("X");

 System.out.println();

}

4. Consider the following Java program:

public class Main {

 public static void main(String[] args) {

 int i, j, k, a[];

 a = new int[5];

 for (k = 0; k < 5; k++) a[k] = 1;

 for (i = 1; i < 4; i++)

 for (j = i; j > 0; j--)

 a[j] += a[j-1];

 }

}

Generate the initial content of the array a (after the first loop) and then show the contents of it after each iteration (for each value of i) of the loop containing i.

Modify the program so that it displays the contents of a after each iteration. [E 3.4] 5

5. Write a program in Java to calculate the summation of all the numbers up to n. Your program should display the output according to the following example: 4

If n = 5, then the output will be:

+…..1

+…..2

+…..3

+…..4

+…..5

+…..15

6. What are the differences between the constants 7, 07, '\u0007', '7' and "7"? 2.5

7. Write a single Java statement to find the largest value of three integer variables a, b and c. [E 4.1] 2

8. What does the following statement do? 0.5

 **;**

**Solutions**

**Group H – 5:**

import java.util.Scanner;

public class test {

 public static void main(String[] args) {

 Scanner in = new Scanner(System.in);

 int n = in.nextInt();

 int sum = 0;

 for (int i = 1; i <= n; i++) {

 System.out.print("+");

 for (int j = 1; j <= n; j++) {

 System.out.print(".");

 }

 System.out.println(i);

 sum += i;

 }

 System.out.print("+");

 for (int j = 1; j <= n; j++) {

 System.out.print(".");

 }

 System.out.println(sum);

 }

}

**Group H – 6:**

|  |  |
| --- | --- |
| 7 | Decimal Integer Literal |
| 07 | Octal Integer Literal |
| '\u0007' | Unicode Character of Value 0007 |
| '7' | Character Literal |
| "7" | String Literal |

**Group H – 8:**

The statement does nothing. It is called a *null* or *empty statement*.