Candidate Seat no…….

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

Third Semester of B. Tech (CE/CSE) Examination

Nov 2019

CE251/241 Java Programming

Date: 06.11.2019, Wednesday **Time: 10.00 a.m. To 01.00 p.m.** **Maximum Marks: 70**

Instructions:

1. The question paper comprises two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.

SECTION – I

Q - 1 **Answer the following questions.**

A. Define Constructor. In the statement: Student s1; Is Student object declared or created? **[01]**

B. State whether each of the following is true or false. If false, explain why. **[02]**

a) If a class contains only private data fields and no setter methods, is the class immutable?

b) A class with all private data fields and no mutators(getter) is immutable.

C. What is output of following code? **[02]**

```
public class Main{
      public static void main(String[] args) {
      Main objM=new Main(n);
}
      static int i = 5;
      static int n;
      int j = 7;       int k;
      public Main(int m) {
            System.out.println(i + ", " + j + ", " + k + ", " + n + ", " + m);
      }
      { j = 70;n=0;}
     static { i = 50; n=20;}
}
```

D. What are wrapper classes? Illustrate them with a suitable example. **[03]**

E Differentiate between Interface and abstract class. When Interface is preferred over abstract class? **[03]**

Q – 2.A What is thread? What are the advantages of thread-based multitasking as compared to process-based multitasking? Draw a life cycle of thread. **[04]**

Q – 2.B **Answer the following questions [Any Two].** **[08]**

A. How does String class differ from StringBuffer class? Discuss with example.

B. Discuss various forms of inheritance with examples.

C. Explain various interfaces used in Collection framework

Q - 3 Answer the following questions. [Any Two]. **[12]**

A. Write fork join code to sum all the numbers from a range.

B. A CHARUSAT University awards some grace marks to students who participate in the national games. Therefore, total marks awarded= Exam_Marks + Sprots_Grace_Marks. If total marks scored are greater than maximum marks, then final marks awarded will be equal to the maximum marks. An OO-based implementation will contain a class called Results, which extends a class called Exam, which itself extends a class called Student. I will also contain an interface called Sports, which is implemented by the Results class. The Results class will be responsible for computing the final marks scored by the students. Write a Java program along with an interactive driver class.

C. Write a Java code for the given input and output:
Input: Get 3 strings in 3 lines as input
Hello
Hi
Good Morning
Output:
1. In the 1st string, replace the vowels with “
2. In the 2nd string, replace the consonants with *
3. In the third string, convert the lowercase letters to upper case.
4. Then concatenate the three words and print them by overriding toString() method.

SECTION – II

Q - 4 Answer the following questions.

A. What is difference between List<? extends T> and List <? super T> ? **[01]**

B. **1.** The following code will cause StackOverflowException: True or False **[02]**

```
void recursiveMe(){
        recursiveMe();
 }
```

2. Suppose we have the following code, so stringA.equals(stringB) returns the same result as stringA==stringB: True or False.

```
String stringA=”A”;
String stringB=stringA;
```

C. Can we keep the statements after finally block If the control is returning from the finally block itself? If yes/no , justify your answer. **[02]**

D. 1. Which of these array declaration statements are not legal? **[02]**

(Choose Two Answers)

(a) int[] i[] = { { 1, 2 }, { 1 }, {}, { 1, 2, 3 } };
(b) int i[] = new int[2] {1, 2};
(c) int i[][] = new int[][] { {1, 2, 3}, {4, 5, 6} };
(d) int i[][] = { { 1, 2 }, new int[2] };
(e) int i[4] = { 1, 2, 3, 4 };

2. Which statements are true? **(Choose Three Answers)**

a) The expression (1 + 2 + "3") evaluates to the string "33".
b) The expression ("1" + 2 + 3) evaluates to the string "15".
c) The expression (4 + 1.0f) evaluates to the float value 5.0f.
d) The expression (10/9) evaluates to the int value 1.
e) The expression ('a' + 1) evaluates to the char value 'b'.

E. What will be the result of compiling and running the following programs? **[04]**

1. Given the class

```
public class ArgsTest {
public static void main(String[] args) {
System.out.println(args[0] + " " + args[args.length-1]);
}}
```

What would be the result of executing the following command line?

java ArgsTest Java is platform independent language

2. Given the class

```
public class NewClass {
  public static void main(String[] args) {
       Integer num1 = 100;
       Integer num2 = 100;
       Integer num3 = 500;
       Integer num4 = 500;
       if(num1==num2){
       System.out.println("num1 == num2");
      }else{
              System.out.println("num1 != num2");
     }if(num3 == num4){
         System.out.println("num3 == num4");
       }else{
         System.out.println("num3 != num4");
       }
 }
 }
```

Q – 5.A Explain Exception handling in JAVA. Write an application that generates custom exception if any value entered from command line arguments is greater than 100. **[06]**

Q – 5.B Write a java code to Counting number of lines, words, characters and paragraphs in a text file. **[06]**

OR

Q – 5.A Write a program that counts the occurrences of words in a text and displays the words and their occurrences in alphabetical order of the words. Using Map and Set Classes. **[06]**

Q – 5.B Write an interactive program that identifies duplicate elements in a one-dimensional array. The program asks for the size of the array, and the elements of the array. Duplicate, which are the elements having the same value as another element in the array, are removed. The remaining elements of the array are then display on the output screen. **[06]**

Q – 6. Answer the following. [Attempt any Three] **[12]**

A. What is stream? What are the similarities and differences between byte stream and character stream?

B. Write a short note on NIO Buffer.

C. What is Polymorphism? What are the two types of Polymorphism in Java and also give example for each?

D. What Is a Functional Interface? What Are the Rules of Defining a Functional Interface? What is the difference between a normal and functional interface in Java?