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# RV COLLEGE OF ENGINEERING®

**(An Autonomous Institution affiliated to VTU)**

**IV Semester B. E. Fast Track Examinations Oct-2020**

## Computer Science and Engineering

## OBJECT ORIENTED PROGRAMMING USING JAVA

***Time: 03 Hours*** ***Maximum Marks: 100***

***Instructions to candidates:***

1. Answer all questions from Part A. Part A questions should be answered in first three pages of the answer book only.
2. Answer FIVE full questions from Part B.In Part B question number 2, 7 and 8 are compulsory. Answer any one full question from 3 and 4 & one full question from 5 and 6

### PART A

| | | | |
|---|---|---|---|
| 1 | 1.1 | List and explain any four features of JAVA | 02 |
| | 1.2 | The minor elements of object model are _____, _____ and _____. | 02 |
| | 1.3 | List all four kinds of abstractions found in object oriented Programming. | 02 |
| | 1.4 | _____ concerned with the requirements for developing an object-oriented model of an application domain. | 01 |
| | 1.5 | What is the output of the following program?<br>*public class Test*<br>{<br>*private String function()*<br>{<br>*return("Good Morning");*<br>}<br>*public final static String function(int data)*<br>{<br>*return("good Evening");*<br>}<br>*public static void main(String[] args)*<br>{<br>*Test obj = new Test();*<br>*System.out.println(obj.function());*<br>}<br>} | 02 |
| | 1.6 | *class Test implement Runnable*<br>{<br>*public void run()*<br>{<br>*System.out.println("Run");*<br>}<br>} | |

```
class Myclass
{
    public static void main(String[] args )
    {
        Thread t1 = new Thread();
        t1.start();
        System.out.println("Main");
     }
}
```

02

1.7 What is the output of the following program?

```
public class Gfg
{
    public static void main (String[] args)
    {
        Integer a = 128, b = 128;
        System.out.println(a == b);
        Integer c = 100, d = 100;
        System.out.println(c == d);
    }
}
```

02

1.8 What is the output of the following program?

```
public class Test
{
    public static void main(String[] args)
    {
        int i = 0;
        for(System.out.println("Hello"); i < 1; i++)
        System.out.println("Welcome to RVCE");
    }
}
```

02

1.9 What is the output of the following program?

```
public class Test
{
   public static void main(String[] args)
   {
      int temp = 9;
      int data = 8;
      System.out.println(temp & data);
    }
}
```

01

1.10 What is the output of the following program?

```
class Increment
{
    public static void main(String args[])
    {
        int k = 4;
        System.out.print(++k) ++*10);
        System.out.print("\t" + k);
    }
}
```

02

1.11 To create a *GUI* using JavaFX, _____ class must be extended 01

1.12 List the three main components of JavaFX application. 01

**PART B**

| | | | |
|---|---|---|---|
| 2 | a | Describe the major elements of the object model with appropriate examples. | 06 |
| | b | Differentiate between Structured Analysis and Object Oriented Analysis. | 05 |
| | c | Identify and explain different stages involved in Object Oriented Design phase. | 05 |
| | | | |
| 3 | a | List and explain different types of exceptions in *JAVA* with appropriate examples. | 06 |
| | b | Discuss the advantages of *JAVA* package. Does importing a package also import the sub packages? Justify | 05 |
| | c | With suitable example explain the following in *JAVA*:<br>i) for-each loop<br>ii) Signed and Unsigned right shift operators. | 05 |
| | | **OR** | |
| 4 | a | Differentiate between method overloading and method overriding in *JAVA* with code snippets. | 06 |
| | b | Write a *JAVA* program to implement a Class Rectangle that calculates the area of a Rectangle using two variables length and breadth. Implement a Subclass that extends the Rectangle class and defines a height variable to calculate the volume of the Cuboid. Display area and volume. | 06 |
| | c | How to handle multiple exceptions in *JAVA*. | 04 |
| | | | |
| 5 | a | Explain two ways of creating thread in *JAVA* with example code. | 06 |
| | b | Write a Java program using generic functional interface<br>i) to compute a factorial of a number taking it as input parameter to the function<br>ii) to reverse a string taking it as input parameter to the function | 06 |
| | c | Write a Java program to add all the elements of an arraylist to another arraylist by using addAll() method. | 04 |
| | | **OR** | |
| 6 | a | Describe the different states of a Thread. Illustrate its different operations involved in switching from one state to another. | 06 |
| | b | Discuss different types of method references related to lambda expression. | 06 |
| | c | Explain following two legacy classes of Java's collection frame work:<br>i) Vector<br>ii) Stack. | 04 |
| | | | |

| | | | |
|---|---|---|---|
| 7 | a | Write a Java program to create JavaFx RadioButton control, add it to the stage and launch the application as given in the diagram shown in fig 7a:<br>  <br><br>Fig 7a | 08 |
| | b | Write a Java program using regular expression that ends with at least two digits. | 08 |
| | | | |
| 8 | a | Describe the various steps involved in the process of connecting to a database and executing a query using *JDBC* with suitable code snippets. | 08 |
| | b | List and describe five types of *JSP* tags available in Java. | 08 |