



Time Allotted : 3 Hours

Full Marks : 70

The Figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following :

[1 x 10 = 10]

- (I) Which method is called internally by the Thread start() method?
- (II) What is the abbreviation of AWT?
- (III) What is Java Platform?
- (IV) What is the objective of inheritance?
- (V) What will be the output?

```
public class Test {  
    public static void main(String[] args) {  
        int x=7;  
        System.out.println("result = "+ ++x *x++);  
        System.out.println("result = "+ x+++x);  
    } //end of main  
} //end of class
```

- (VI) Which package provides many event classes and Listener interfaces for event handling?
- (VII) Consider the following code:
public static final void f1(){}
public final static void f2(){}
Which one is the valid declaration?
- (VIII) Is it possible to override a static method?
- (IX) What is the default priority of Java Thread?
- (X) By which method You can set or change the text in a Label?
- (XI) What happens if we try to execute the following code?

```
public class Test {  
    public static void main(String[] args) {  
        int x =7;  
        int y =3;  
        switch(x&y){  
            case 1: System.out.println("1"); break;  
            case 2: System.out.println("2"); break;  
            case 3: System.out.println("3"); break;  
        } //end of switch  
    } //end of main  
} //end of class
```

- (XII) Whether the following code throws an error or not

```
public class Base {  
    public void f1(){  
        System.out.println("Base :f1()");  
    }  
}  
  
public class Child extends Base{  
    public void f1() throws NullPointerException{  
        System.out.println("Child: f1()");  
    }  
}
```

Group-B (Short Answer Type Question)

Answer any three of the following :

[5 x 3 = 15]

2. Write a JAVA program that creates a class Student. The class has two attributes roll (String data type) and name (String Data type). Both attributes are private data. Define the parameterized constructor of the class and also non parameterized constructor.
Now create an object of the student class from the main function that resides in the test class. [5]
3. What is the interface? Illustrate the use of the interface with an example. [5]
4. What is the difference between the synchronized block and synchronized method? [5]
5. What is an adapter class in Java? [5]
6. Suppose you have an application where there is an interface Two having a function named func1 and two child classes Test1 and Test2 implement func1. But at the runtime, it was identified that func1 causes a fatal exception. Now add a method func2 in the interface without affecting the implementation of the child class. Give a solution with an example. [5]

Group-C (Long Answer Type Question)

Answer any three of the following :

[15 x 3 = 45]

7. (a) Is it possible to access the nonstatic variables from the static method of the class? [2]
(b) What are the features of the static function? [5]
(c) What are the components of the JVM? [3]
(d) Define an array that contains the string information. Sort the array and print the sorted information. [5]
8. (a) Consider the following code [4]

```
public class Test {
    public static void main(String[] args) {
        int rowNO =3;
        for (int row =0; row<rowNO;row++){
            for(int col =0;col<=row;col++){
                System.out.print((col+1)+ " ");
            }
            System.out.println(" ");
        }
    }
}
//end of main
//end of class
```

What will be the output of the code?
- (b) Discuss Applet life cycle. [6]
(c) Explain overloading of constructor with example. [5]
9. (a) Write a Java Application that creates a student class [5]
Student Name (dtype: String): stName_
Student Roll (dtype: integer type): stRoll_
Marks obtained by Student (dtype: integer type):stMarks_
Use of the concept of constructor overloading define the constructors. Create two students s1 and s2 using the parameterized constructor from the main function that resides into Test class.
(b) Write a Display method that prints the name, roll, and marks of the s1 and s2. Show the calling of the display method from the main function. [5]
(c) Write a function that compares the two student's marks and supports the following line in the main function. [5]
Student tmp = S1.FindHighest(S2);
10. Write a JAVA code that creates a Frame and the Frame contains the two text Fields and a button. The name Button is ADD. When you click the ADD button the value at the two text fields is added and the result is shown in the third text field. [15]
11. Write a JAVA application that creates two threads AOne and ATwo. Both threads access a common instance variable which is initialized by 5. The Aone thread increments the value of x and ATwo thread decrements the value of x. The application is capable to overcome the race condition. Write the application in such a manner that it prevents the creation of an orphan thread. [15]