3rd Semester B.Tech. Mid Term Examination 2021-22

OOP USING JAVA(BTCS-T-ES-005)

Duration: 01:30   Full Marks: 25

1 *Answer All*

a   Find the output of the following code: 1

```java
public class Test {
    static final int a=10;
    public static void main(String[] args) {
            int x = 20;
            System.out.println(x+a);
        }
}
```

b   Find the output of the following code: 1

```java
public class Array
{
    public static void main(String args[])
    {
      int a[ ][] = new int[5][];
      a[0] = new int[3];
      System.out.println(a.length + "  "+a[0].length);
    }
}
```

c   Which of the following option is correct with respect to "this" keyword in java?   1
i. refer to current class object.
ii. refer to static method of the class.
iii. refer to parent class object.
iv. refer to static variable of the class.

d   What will be output of the following code?   1

```java
class A
{
  protected void msg()
  {
    System.out.println("Hello java");
  }
}
public class Simple extends A
{
  void msg(){System.out.println("Hello java");}
}
class Test
{
  public static void main(String args[])
  {
    Simple obj=new Simple();
    obj.msg();
  }
}
```

e

What will be the output of the following program?　　　　　　1

```
class A
{
    A(){  System.out.println(" A class Const");  }
}
class B extends A
{
    B(){  System.out.println(" B class Const"); }
}
class C extends B
{
    C(){  System.out.println(" C class Const");  }
}
class Test
{
    public static void main( String args[])
    {
        C ob=new C( );
    }
}
```

f　What is the default behavior of the data members of an interface?　　1

2 *Answer All*

a　Write a java program to read an array of "n" integers using Scanner class and find the min and max value from the collection.　　3

b　Explain the use of static method with example.　　3

c　What will be the problem , when we have a class which is both abstract and final ? Justify your answer.　　3

3 *Answer any One*

a　Write a java program which has a class BankAccount having data members accountHolderName, acNum and acBalance. The class should also contain methods deposit(), withdrw() and display the account details. Use constructor to initialize the data members of the class.　　5

b　Design a class ComplexNum having data members real and img. The class should have a parameterized constructor to initialize its data members. It should also have methods displayCompNumber() to display the complex number (in the format 5+3i for example), addCompNumber() to add two Complex numbers. Test these methods by creating main method in another class.　　5

4 *Answer any One*

a　Define an abstract class named as Shape, having data members dimOne and dimTwo. Extend this class to create two concrete classes named as Rectangle and Triangle. Override the computeArea() method in the sub classes. Invoke the computeArea() method in the main method of another Driver class through an abstract class reference variable.　　5

b　Define a class Employee having basic data members empName, empID and empSal, with necessary member functions and constructors. Define a class Manager which is inherited from Employee class and having a data member bonus. Define the driver class that create object of the class Manager and access Manager details.　　5