Due: Tue 23:50

Name: _____ Student ID: _____ Class: _____

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1. Answer the questions regarding the following program

```
public class Test01 {
  public static void main(String [] args) {
    Point01 p = new Point01();
    System.out.println(p);
  }
}
public class Point01 {
  private double x,y;
  Point01() {
  }
}
```

   (a) Execute the following command and submit the output

```
javac Test01.java
java Test01
```

   (b) Execute the following command and explain the error briefly

```
del Point01.class
java Test01
```

2. Answer the following questions

   (a) Execute the following program and explain the cause of the exception briefly.

```
public class Test02 {
  public static void main(String[] args) {
    int[] ary = new int [] {1,2,3,4};
    try {
      System.out.println(sum(ary,5));
    }
    catch (Exception ex) {
      ex.printStackTrace();
    }
  }
  static int sum(int [] ary, int nelem) {
    int res = 0;
    for (int i = 0; i < nelem; i++) {
      res += ary[i];
    }
    return res;
  }
}
```

(b) The following program displays the same information as above. Explain the pros and cons of the two methods briefly.

```
public class Test03 {
  public static void main(String[] args) {
    int[] ary = new int [] {1,2,3,4};
    try {
      System.out.println(sum(ary,5));
    }
    catch (Exception ex) {
      System.out.println("\n" + ex.getMessage());
      System.out.println("\n" + ex.toString());
      System.out.println("\nTrace Info");
      StackTraceElement [] tr = ex.getStackTrace();
      for(int i = 0; i < tr.length;i++) {
        System.out.print("method " + tr[i].getMethodName());
        System.out.print("(" + tr[i].getClassName() + ":");
        System.out.println(tr[i].getLineNumber() + ")");
```

```
        }
      }
    }
    static int sum(int [] ary, int nelem) {
      int res = 0;
      for (int i = 0; i < nelem; i++) {
        res += ary[i];
      }
      return res;
    }
  }
```

3. Execute the following program and submit the output

```
public class Test04 {
  public static void main(String [] args) {
    try {
      double a = getCircleArea(-1);
      System.out.println("Area = " + a);
    }
    catch (Exception ex) {
      System.out.println(ex);
    }
    finally {
      System.out.println("end");
    }
  }
  static double getCircleArea(double r) throws Exception {
    if (r < 0) {
      throw new InvalidRadius04(r);
    }
    return r*r*Math.PI;
  }
}
public class InvalidRadius04 extends Exception {
  private double r;
```

```
  InvalidRadius04(double r) {
    super("Radius = " + r);
    this.r = r;
  }
  public double getRadius() { return r; }
}
```

4. Execute the following program and submit the output

```
public class Test05 {
  public static void main(String [] args) throws java.io.IOException {
    java.io.File file = new java.io.File("tmp05.txt");
    System.out.println(file.exists());
    java.io.PrintWriter output = new java.io.PrintWriter(file);
    output.println("123");
    output.println(456);
    output.close();
    System.out.println(file.exists());
    System.out.println(file.length());
  }
}
```

5. Execute the following program and submit the output

```
import java.util.Scanner;
public class Test06 {
  public static void main(String [] args) {
    String address = "http://www.korea.ac.kr";
    try {
      java.net.URL url = new java.net.URL(address);
      Scanner input = new Scanner(url.openStream());
      while(input.hasNext()) {
        String line = input.nextLine();
        System.out.println(line);
      }
    }
```

```
      catch (java.net.MalformedURLException ex) {
        System.out.println("Invalid URL");
      }
      catch (java.io.IOException ex) {
        System.out.println("I/O error");
      }
    }
  }
```

6. Compile the following program and submit the error message.

```
  public class Test07 {
    public static void main(String [] args) {
      Abst07 x = new Abst07();
    }
  }

  public abstract class Abst07 {
    public Abst07() {
    }
  }
```

7. The following program is composed of the following three files `Test08.java`, `Point08.java`, and `Geom08.java`. Execute the following program and submit the output.

```
// Test08.java
  public class Test08 {
    public static void main(String [] args) {
      Point08 p = new Point08();
      p.move(3,3);
      System.out.println(p);
    }
  }
// Point08.java
  public class Point08 implements Geom08 {
    private double x,y;
```

```
    @Override
    public void move(double dx, double dy) {
      x += dx;
      y += dy;
    }
    @Override
    public String toString() {
      return "(" + x + "," + y + ")";
    }
  }
// Geom08.java
  public interface Geom08 {
    public abstract void move(double x, double y);
  }
```