Sample Final Exam

1. Show the output of the program below in the grid provided:

```
public class Exam1Grid {
   public static void main (String [] args)
   {
      double rrrr = 4.09275;
      int iiii = (int)rrrr * 100;
      System.out.printf("%22s\n", "Here they are");
      System.out.printf("%14s%8s\n", "rrrr", "iiii");
      System.out.printf("%14.3f%8d\n", rrrr, iiii);
      System.out.printf("%14.7f%8d\n", rrrr, iiii);
      System.out.printf("%7s%7.2f%8s%7d\n", "rrrr", rrrr, "iiii", iiii);
   }
}
```

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

2. The code below is supposed the compute the sum and average of a series of numbers entered by the user. Correct the code so that it actually works as advertised:

```
import java.util.*;
public class Q2
{
   public static void main (String [] args)
   {
      Scanner kb = new Scanner(System.in);
      int sum;
      double average;
      int count;
      int num;
      String flag = "n";
      while (!flag.equals("y") && !flag.equals("Y")
          System.out.print("Enter a number: ");
          num = kb.nextInt();
          sum = num;
          count = count + num;
          System.out.print("Enter y to quit, n to continue: ");
          flag = kb.next();
       average = (double)(sum/num);
   }
}
```

3. Show the output of the following program:

```
public class Exam2Q {
    public static void main (String [] args) {
        int [] theNums = new int[10];
        for (int x=0; x<theNums.length; x++){
             theNums[x] = x * 3;
        }
        for (int y=theNums.length-1; y>0; y=y-2){
                  System.out.println(theNums[y]);
        }
    }
}
```

4. Trace the following set of loops and show the output in the space provided:

```
public class NestLoopQ {
    public static void main (String [] args) {
        for (int x=0; x<5; x++) {
             for(int y=0; y<=x; y++) {
               System.out.print(".");
             }
             for(int z=x; z<5; z++) {
               System.out.print(": ");  // note the space
             }
             System.out.println();
        }
    }
}
```

x	y	z	output

5. Explain what is wrong with each marked line of code (A – E) in the class below. Look at each line individually (as if the previous errors hadn't occurred, and the code was OK up to this point):

```
import java.util.*;

public class BadCode
{
    int x;
    public BadCode(int y)
    {
        y = x;  // A
    }
    public int getX()
    {
        return x;
    }
    public void setX(int y)
    {
        x=y;
    }
    public static void main (String [] args)
    {
        Scanner kb = new Scanner (System.in);
        BadCode bc = new BadCode("test"); // B
        System.out.print("Enter a test value: ");
        bc = kb.nextInt();                // C
        System.out.print("Enter another test value: ");
        int i = kb.nextInt();
        bc.getX() = i;                    // D
        System.out.println("The value is " + bc.setX(i));  // E
    }
}
```

A.

B.

C.

D.

E.

6. Write a Java class called WordGame that contains the following:
   - instance variable words, an array of 100 String values; instance variable wordIndex, an int value
   - a constructor that reads a list of words from a file into the array (assume there are 100 words in the file); the name of the file should be passed to the constructor as a String argument and wordIndex should be assigned a value between 0 and 99
   - a method called pickWord that generates a random index, assigns it to wordIndex, and returns the word from the array at that index
   - a method called scramble that copies the letters in the word at wordIndex into a new String in random order and returns that String
   - a method called guess that takes a String argument and returns a boolean value: true if the argument matches the original picked word, false if it doesn't

   DO NOT WRITE A MAIN METHOD.