1. (10 Points) What is the output of the following:

```java
int a = 5, b = a/2, c = a % 2;
float d = (float) (a/2.0);
System.out.println(    "a = " + a + " - " + "b = " + b + " - " +
                       "c = " + c + " - " + "d = " + d);
a = b;
b = c;
d = (float) (a*c/b);
System.out.println(    "a = " + a + " - " + "b = " + b + " - " +
                       "c = " + c + " - " + "d = " + d);
```

```
a = 5 - b = 2 - c = 1 - d = 2.5
a = 2 - b = 1 - c = 1 - d = 2.0
```

2. (10 Points) What is the output of the following:

```java
for ( int i = 1 ; i <= 13 ; i += 3 ) {
      System.out.print(i + " : " + i * 2 + " : " + i * 3 + " - ");
}
System.out.println();
System.out.println("No More!");
```

```
1 : 2 : 3 - 4 : 8 : 12 - 7 : 14 : 21 - 10 : 20 : 30 - 13 : 26 : 39 -
No More!
```

3. (10 Points) What is the output of the following:

```java
for (int i = 0 ; i <= 3 ; i++) {
      for (int j = 0 ; i <= 3 ; j++) {
            if (i == j) {
                  continue;
            } else if (i <= j) {
                  break;
            }
            System.out.println("i = " + i + " : " + "j = " + j);
      }
}
```

```
i = 1 : j = 0
i = 2 : j = 0
i = 2 : j = 1
i = 3 : j = 0
i = 3 : j = 1
i = 3 : j = 2
```

4. (10 Points) What is the output of the following:

```java
for (int i = 5; i >= 0; i--) {
    switch (i) {
        case 1:
            System.out.println(i + ":" + i*2);
        case 2:
            System.out.println(i + ":" + i*3);
            break;
        case 3:
            System.out.println(i + ":" + i*4);
        case 4:
            System.out.println(i + ":" + i*5);
            break;
        default:
            System.out.println(i + ":" + i*8);
            break;
    }
}
```

```
5:40
4:20
3:12
3:15
2:6
1:2
1:3
0:0
```

5. (20 Points) Write Java code to do the following (not the entire program):
   a. Add the even numbers from 2012 to 22012 inclusive and display the result.

```java
int sum = 0;
for ( int i = 2012 ; i <= 22012 ; i += 2 ) {
    sum += i;
}
System.out.println("The Sum = " + sum);
```

   b. Print the multiples of 8 from 8 to 1048568 inclusive.

```java
for (int i = 8 ; i <= 1048568 ; i += 8 ) {
    System.out.println(i);
}
```

6. (30 Points) Write a complete Java program that prompts the user for a number of video games bought in a store. Your program should then use a loop that asks for the price & quantity video game and print out a running total of the video games (that is, after asking for each price & quantity, print out the amount spent so far).

```java
import java.util.Scanner;

public class Question6 {

    public static void main(String[] args) {

        Scanner keyboard = new Scanner(System.in);

        System.out.println("How many games do you want to purchase?");
        int numGames = keyboard.nextInt();

        double total = 0;
        for (int i = 1 ; i <= numGames ; i++ ) {
            System.out.println("What is the cost of game " + i + "?");
            double gameCost = keyboard.nextDouble();
            System.out.println("How many games of game " + i + " do you want?");
            int gameCount = keyboard.nextInt();
            total = total + (double)(gameCost * gameCount);
            System.out.println("Your current Total = " + total);

        }
    }

}
```

7. (10 Points) The aim of the following program is to convert distances between miles and kilometers. Find all
    the errors in the program. (Hint: There are 10 errors).

```java
import java.util.Scanner;

public class ConvertDistance {
    public static void main(String[] args) {
        double k,m;

        Scanner keyboard = new Scanner(System.in);

        System.out.println("To convert from miles to kilometers:");
        System.out.println("Enter a distance followed by 'M' or 'm'");
        System.out.println("              or");
        System.out.println("To convert from kilometers to miles:");
        System.out.println("Enter a distance followed by 'K' or 'k'")

        String userInput = new String(keyboard.nextLine());
        userInput = userInput.toLowerCase();
        userInput = userInput.replaceAll(" ", "");

        if (userInput.indexOf("m") != -1) {
            userInput = userInput.replaceAll("m", "");
            m = Double.parseDouble(userInput);
            System.out.println(m);
            k = (m * 1.6);
            System.out.println(m + " miles is equal to " + k + " kilometers");
        } else if (userInput.indexOf("k") != -1) {
            userInput = userInput.replaceAll("k", "");
            k = Double.parseDouble(userInput);
            m = (k/1.6);
            System.out.println(k  " + " kilometers is equal to " + m + " miles");
        } else {
            System.out.println(Invalid input");
            System.exit(-1);
        } // end of if

        System.exit(0);
    }
}
```