1) Portability and security of Java as a result? 3 marks
   c) Bytecode is executed by JVM

2) Which of the following for loop declaration is not valid? 3 marks
   a) for (int i = 77; i >= 0; i / 7)
           As it's not changing the value of i in the loop

3) What is the initial quantity of the ArrayList list? 3 marks
   b) 10

4) Which of these have the highest precedence? 3 marks
   c) ()

5) What is the return type of a method that does not return any value? 3 marks
   c) void

6) What is the difference between continue and break statement? 5 marks
   Continue just ignore the rest of the loop and stay in the loop, while break will terminate the loop and kick the code out. So if we use continue in for loop, it will go to the next iteration but if we use break then it will just go out of the for loop.

7) Why are Strings in Java called Immutable? 5marks
   According to the javatpoint.com, "The String is immutable in Java because of the security, synchronization and concurrency, caching, and class loading."

8) What is the default switch case? Give an example.5 marks
   If no cases run in the switch then it will go to the last default one, like else in if…else if…else statements.

9) A developer imports a package "uofR.*, all classes in the package named university are loaded, but no classes from the sub-package are loaded. To load the classes from its sub-package (say "CS"), a developer has to import it explicitly as? 5 marks
   university.CS

10) Can we have two methods in a class with the same name? Explain? 5marks
   Yes we can have two methods with the same name, given if they have different parameters or different conditions or data type of the parameter or even the data type of the method name. It's called method overloading

Programming Question

1.
   1.1. **/**
   1.2.** *** Student Name: Nisarg Patel**

```
1.3.      * Class: CS 203
1.4.      * Program Question:
1.5.      Write two overloaded methods in a class named MaxOfArray that return the
          maximum number of an array with the
1.6.      following headers:
1.7.
1.8.      public static int average(int[] array)
1.9.      public static double average(double[] array)
1.10.
1.11.     Write a main method that prompts the user to enter ten double values,
          invokes this method, and displays the max
1.12.     value. Use CamelCase Notation for all identifiers in your program.
1.13.     ************************************************/
1.14.
1.15.     /*
1.16.     Doubt: What's the use of the int function
1.17.     as it will always go in double, isn't it?
1.18.     */
1.19.
1.20.     import java.util.Scanner;  // Import the Scanner class
1.21.
1.22.     public class Main {
1.23.       public static int average(int[] array)  {
1.24.
1.25.         int maxValue = array[0];
1.26.         for (int i = 0; i < array.length; i++)
1.27.           {
1.28.             if(maxValue < array[i])
1.29.               maxValue = array[i];
1.30.           }
1.31.
1.32.         return maxValue;
1.33.       };
1.34.
1.35.     public static double average(double[] array) {
1.36.
1.37.       double maxValue = array[0];
1.38.         for (int i = 0; i < array.length; i++)
1.39.           {
1.40.             if(maxValue < array[i])
1.41.               maxValue = array[i];
1.42.           }
1.43.
1.44.         return maxValue;
```

1.45.   };
1.46.
1.47.   public static void main(String[] args) {
1.48.
1.49.   Scanner myObj = new Scanner(System.in); // Create a Scanner object
1.50.
1.51.   //Asking the user for all the required input
1.52.   System.out.println("Enter the size of the A: ");
1.53.   int sizeA = myObj.nextInt(); // Read user input for size
1.54.
1.55.   //Creating the arrays
1.56.   double[] arrayA = new double[sizeA];
1.57.
1.58.   //Input for arrray A
1.59.   System.out.println("Enter the elements of the A: ");
1.60.   for (int i = 0; i < sizeA; i++)
1.61.   arrayA[i] = myObj.nextDouble(); // Read user input for size
1.62.
1.63.
1.64.   System.out.println("The max number from the given array is: " +
           average(arrayA) + "\n");
1.65.
1.66.   myObj.close();
1.67.   };
1.68.
1.69.   }

```java
1  /****************************************************
2   * Student Name: Nisarg Patel
3   * Class: CS 203
4   * Program Question:
5  Write two overloaded methods in a class named MaxOfArray
    that return the maximum number of an array with the
6  following headers:
7
8  public static int average(int[] array)
9  public static double average(double[] array)
10
11  Write a main method that prompts the user to enter ten
    double values, invokes this method, and displays the max
12  value. Use CamelCase Notation for all identifiers in your
    program.
13   ****************************************************/
14
15  /*
16  Doubt: What's the use of the int function
17  as it will always go in double, isn't it?
18  */
19
```

```
> sh -c javac -classpath .:target/dependency/* -d . $
(find . -type f -name '*.java')
> java -classpath .:target/dependency/* Main
Enter the size of the A:
6
Enter the elements of the A:
12
4
687
4
3
4
The max number from the given array is: 687.0

> []
```

2.

2.1.　/***

2.2.　 * Student Name: Nisarg Patel

2.3.　 * Class: CS 203

2.4.　 * Program Question:

2.5.　Write a program in java to ask a string of characters (minimum of 10 characters) from the user. The program goes

2.6.　ahead to capitalize on the first character and checks the number of vowels in the string and the total number of

2.7.　characters in the string.

2.8.　NB: Implement a method

2.9.　***/

2.10.

2.11.

2.12.　import java.util.Scanner; // Import the Scanner class

2.13.

2.14.　class Main {

2.15.　　public static void main(String[] args) {

2.16.

2.17.　　　System.out.println("Please enter the string (minimum it should be more than 10 character long): ");

2.18.　　　String str;

2.19.　　　Scanner myObj = new Scanner(System.in); // Create a Scanner object

2.20.　　　do {

2.21.　　　　str = myObj.nextLine();

2.22.

2.23.　　　　if (str.length() <= 10)

2.24.　　　　　System.out.println("Hello user, you have enter a string less than 10 character, Please enter again::");

2.25.　　　} while (str.length() <= 10);

2.26.

2.27.　　　// capitalize first letter

2.28.　　　str = str.substring(0, 1).toUpperCase() + str.substring(1);

2.29.

2.30.　　　int vowelcount = 0;

2.31.　　　int charactercount = 0;

2.32.　　　for (int i = 0; i < str.length(); i++) {

2.33.　　　　char test = str.charAt(i);

2.34.　　　　test = Character.toLowerCase(test);

2.35.　　　　if (test == 'a' || test == 'e' || test == 'i' || test == 'o' || test == 'u')

2.36.　　　　　vowelcount++;

2.37.

2.38.　　　　// To make the code not count the space as the character for the string

2.39.　　　　if (test != ' ')

2.40.   characactercount++;

2.41.   }

2.42.

2.43.   System.out.println("The string after capitalizing the first character is: " + str);

2.44.

2.45.   System.out.println("The number of vowels is: " + vowelcount);

2.46.   System.out.println("The number of characters is: " + charactercount);

2.47.

2.48.   myObj.close();

2.49.   }

2.50.   }

```java
/*************************************************
 * Student Name: Nisarg Patel
 * Class: CS 203
 * Program Question:
 Write a program in java to ask a string of characters
 (minimum of 10 characters) from the user. The program
 goes
 ahead to capitalize on the first character and checks the
 number of vowels in the string and the total number of
 characters in the string.
 NB: Implement a method
 *************************************************/


import java.util.Scanner; // Import the Scanner class

class Main {
  public static void main(String[] args) {

    System.out.println("Please enter the string (minimum
it should be more than 10 character long): ");
    String str;
```

```
> sh -c javac -classpath .:target/dependency/* -d . $
(find . -type f -name '*.java')
> java -classpath .:target/dependency/* Main
Please enter the string (minimum it should be more th
an 10 character long):
askAdhkjhh ajsdhk
The string after capitalizing the first character is:
 AskAdhkjhh ajsdhk
The number of vowels is: 3
The number of characters is: 16
>
```