GIFT UNIVERSITY

GUJRANWALA

(Chartered by the Govt. of the Punjab, Recognized by HEC)

EXA-115

School of Engineering and Applied Sciences

Introduction to Programming (CS-124)

Midterm Examination [PRACTICAL]
Spring 2021

Instructor: Komal Arif

Time: 90 Minutes   **Total Marks: 30**

Candidate Name: _____   **Candidate Roll No:** _____

Section: _____

Instructions to Candidates:
- Do not create Zip folder. Submit separate notepad files.
- Copied code will give you straight zero marks.
- Late Submission will give straight zero marks.
- Only few minutes of Late Submissions will give you 50% marks.
- Indentation and appropriate comments are necessary in each program.

Write your name and ID in the comments at the top of every .java file

Question: 1   **PROGRAM NAME: AverageOfEvens.java**

(15 Marks)

IMPORTANT NOTE: A PENALTY OF 50% MARKS IS APPLIED IF THE CODE DOES NOT COMPILE SUCCESSFULLY!

Write a program that uses while loops and perform the following steps:

1) Prompt the user to input two integers: **start** and **end** (**start** must be less than **end**).
2) Output the average of the even numbers between **start** and **end**.

Sample Output: (between 5 and 15, it becomes 6+8+10+12+14 = 50)

```
Enter starting number: 5
Enter Ending Number: 15


Sum of evens is: 50
Average of evens is: 10
```

Sample Output with Error Message:

```
Enter starting number: 15
Enter Ending Number: 5


Invalid Input, starting number must be less than ending number.
```

Solutions:

```java
//Name:  ABC        ID:          123
import java.util.Scanner;
public class AverageOfEvens{

  public static void main(String[] args) {

    Scanner read = new Scanner(System.in);
    System.out.print("Enter the Starting Number:   ");
    int start = read.nextInt();
    start = start+1;                     //as question asked about the number between
    //start and end. It means start and end will not be included.
    System.out.print("Enter the Ending Number:   ");
    int end = read.nextInt();
    int evenSum = 0, count = 0;
```

```java
          if (start >= end) {
             System.out.println("Invalid Input. starting Number must be less than
             the ending Number.");

          }//if
          else {
                  while (start < end) {
                                 if (start % 2 == 0) {
                                         evenSum += start;
                                 count++;
                           }//if

                           start++;

                  }//while

             System.out.println("Sum of Evens is: " + evenSum);
             System.out.println("Average of Evens is: " + (evenSum / count));
          }//else

   }//main
}//class
```

Question: 2   PROGRAM NAME: Reverse.java

(10 Marks)

IMPORTANT NOTE: A PENALTY OF 50% MARKS IS APPLIED IF THE CODE DOES NOT COMPILE SUCCESSFULLY!

Ask user to enter a three digit int number. Print the given number in reverse. The int value must be non-negative.

(**Note: The n%10 gives the right digit while division, e.g. n/10, gives the remaining digits except last one**.)

Sample program:

```
Enter a three-digit number: 753

Reverse of number is: 357
```

Solutions:

```
//Name:  ABC      ID:       123
```

```java
import java.util.Scanner;

public class Reverse{

    public static void main(String[] args) {

        Scanner read = new Scanner(System.in);

        System.out.print("Enter a three-digit Number:   ");

        int number = read.nextInt();

        if(number<0){

            System.out.println("Invalid Number. Number must be positive Integer");

        }//if

        else{

            int lastDigit  = number%10;

            int remainingNum = number/10;

            int secLastDigit = remainingNum%10;

            remainingNum = remainingNum/10;

            System.out.println("Reverse of number is: "+
            lastDigit+secLastDigit+remainingNum);

        }//else

    }//main

}//class
```

Question: 3   **PROGRAM NAME: Vowel.java**

(5 Marks)

IMPORTANT NOTE: A PENALTY OF 50% MARKS IS APPLIED IF THE CODE DOES NOT COMPILE SUCCESSFULLY!

Write a program that performs the following steps:

1) Write a loop that asks User to enter characters for 5 times. After every input, Loop should tell whether that character is vowel or not.

Sample program:

```
Enter a character: c
Character is not Vowel.

Enter a character: o
Character is Vowel.

Enter a character: i
Character is Vowel.

Enter a character: z
Character is not Vowel.

Enter a character: A
Character is Vowel.
```

Solution:

```java
//Name:  ABC      ID:        123

import java.util.Scanner;

public class Vowel{

    public static void main(String[] args) {

        Scanner read = new Scanner(System.in);

        char c;

        int count = 1;

        while(count<=5){

            System.out.print("Enter a Character: ");

            c = read.next().charAt(0);
```

```java
        if(c=='a'||c=='e'||c=='i'||c=='o'||c=='u'||c=='A'||c=='E'||c=='I'||c==
        'O'||c=='U'){

        System.out.println("Character is Vowel.\n");

        }//if

        else{

                System.out.println("Character is not Vowel\n");

        }//else

        count++;

    }//while

    }//main

}//class
```

End of Paper.