1. What are the components of JAVA platform? Explain. Write a java program to illustrate the usage of conditional statements and looping statements.

Java platform :

It is a Software that help us to execute the applications written in java programming language. Java platform consists of a java compiler, set of libraries and execution engine.

The components of java platform are

1. Java language
2. The Java Development Kit (JDK)
3. The Java Runtime Environment (JRE)
4. The java compiler
5. The java virtual machine (JVM)
6. Garbage collector.

JVM + Library classes = JRE
JRE + Developer tools = JDK

1. Java language is a programming language the platform uses. It is an object-oriented programming language.
2. Java compiler :- It generates the class files from source code which contains byte code.

3. JVM :- Java virtual machine converts byte code into machine level. It provides for Garbage collector and other Libraries. It allows to create java program on one machine and run anywhere (WORA).

4. JRE :-

Java run enivomment executes programs of java. Combination of JVM and other classes is called JRE.

5. JDK :-

Java Development kit consists of JRE and other development tools like java compiler and other classes. JDK can be installed on system and java programs can be executed easily.

```
//Java program to illustrate the usage of conditional
//and looping statements
import Java.io.*;
Public class EvenOrOdd{
    Public static Void main(String[] Iargs){
        int n=1;
        System.out.println("Even numbers and oddnumbers
                between 1 to 5");
```

```
while (n<=5){          // Here while : is looping statement
    if(n%2==0){ // If-else is conditional statement
      System.out.println(n + " is even");
    }
    else {
      System.out.println(n + " is odd");
    }
    n++;
  }
 }
}
```

<u>output</u> :- Even numbers and odd numbers between 1 to 5

1 is odd
2 is even
3 is odd
4 is even
5 is odd

In this way, conditional statements like if, if-else, else-if, switch are used to test the conditions and looping statements like while, do, for, for each are used to repeat the condition as per the users necessity.

2) Write any six significant differences between procedure oriented programming and object oriented programming. Why JAVA is Robust programming language? Explain.

Procedural oriented Programming	object oriented programming.
① Here program is divided into Small parts called functions	① Program is divided into Small parts called objects.
② It follows top to down approach	② It follows bottom to top approach.
③ It is less Secure.	③ It provides more Security by datahiding.
④ There is no access Specifier.	④ There are access specifiers called private, public, protected.
⑤ Here overloading is not Possible. We can't give Same name to other function.	⑤ overloading is possible ~~here~~ in object oriented Programming language.
⑥ It is based on unreal world Eg:- C etc.	⑥ It deals with real world objects. Eg:- Python, Java etc

Java is robust language. As java is portable and can be implemented on various platforms it need to be robust. ~~To do so.~~ It is very particular about errors. So it concentrates on identifying errors i.e Error handling and also memory management.

As java is strictly typed language, it checks our code at both compile and run-time. Java has garbage collector and allocates / deallocates memory dynamically. So, it is said to robust language.

3) // ~~Prog~~ Program to compute parking charges in parking lot.

```
import java.io.*;
import java.util.Scanner;
Public class ParkingMain{
    Public static void main(String [Jargs){
        ParkingLot s = new, ParkingLot();
        S.input();
        S.calculate();
        S.display();
    }
}
```

```
Class ParkingLot {
    Private int Vno;
    Private int hours;
    Private double bill;
    Scanner scan = new Scanner(System.in);
    Public void input() {
        System.Out.println("Enter Vechile number :");
        Vno = scan.nextInt();
        System.out.Println("Enter number of hours the
                                Vehicle is Parked :");
        hours = Scan.nextInt();
    }
    Public void calculate() {
        if(hours<2){
            bill=3;
        }
        else{
            bill =3+((hours-2)*1.5);
        }
    }
    Public void display() {
        System.out.println("Vehicle number :"+Vno);
        System.Out.Println("Parking charges are :"+bill);
    }
}.
```

output :-

Enter Vehicle Number :

345

Enter number of hours the Vehicle is parked :

5

Vechile number : 345

Parking charges are 9.0 .

4) // Program to overload a function joystring()

```
import java.io.*;
Public class OverLoadingSample {
  Public static void main (String [] args) {
    OverLoading Sample = new OverLoading();
    Sample.joystring("TECHNALAGY", 'A', 'O');
    Sample.joystring("Cloud computing means internet
                        based computing");
    Sample.joystring("COMMON WEALTH", "GAMES");
  }
}.

Class OverLoading {
  Public Void joystring (String S, char ch1, Char ch2) {
    System.out.Println("output is " + S.replace(ch1, ch2));
}
```

```
Public Void joyString (String s) {
    System.out.println ("First Space is at index "
                        +s.indexOf(" "));
    System.out.Println ("Last Space is at index "+s.lastIndexof
                        (" "));
}
Public Void joystring (String s1, String s2) {
    System.out.println (s1+s2);
}
}
```

Output :-

Output is TECHNOLOGY

First space is at index 5

Last space is at index 36

COMMON WEALTH GAMES.

References :-

1Question :- https://www.softwaretestinghelp.com/java-components.

2Question :- 1. Geeks for Geeks.
2. Class Notebook.