Set-4

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

There are three main components of java language. They are,

Java Virtual Machine (JVM)

Java Runtime Environment (JRE)

Java Development Kit (JDK)

Java Virtual Machine :- Java applications are called WORA (Write once Run Anywhere) because of their ability to run a code on any platform, this is done only because of JVM. JVM is a java platform component that provides an enviroment for executing java programs. JVM interprets the byte code into machine code which is executed in the machine in which java program runs.

Java Runtime Environment :- The JRE software builds a runtime environment in which java programs can be executed. The JRE is the on disc system that takes your java code, combines it with the needed libraries and starts the JVM to execute it. The JRE contains libraries & software needed by your java programs to run. JRE is a part of JDK which is downloaded seperately.

Java Development Kit :- The JDK is a software development environment used to develop java applications and applets. It

contains JRE and several development tools, an interpreter/loader (Java), a compiler (javac), an archiver (jar), a documentation generator (javadoc) accompained with another tool.

JDK is combination of JRE and Development Tool.

Aim: To write a program to illustrate the usage of conditional statements and looping statements.

Program:

```
class Test {
    public static void main (String args[]){
        int i=0, j=9
        do{
            i++;
            if (j--<i++){
                break;
            }
        } while (i<5);
        System.out.println(i+" ");
    }
}
```

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Explanation: In the above program, we have to specially take care about the break statement. The execution of the program is going as usual as the control flow of do-while loop but whenever compiler encountered break statement its control comes out from the loop.

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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. In procedural programming, program is divided into small parts called functions.	In object oriented programming, program is divided into small parts called objects.
2. There is no access specifier in procedural programming.	Object oriented programming have access specifiers like private, public, protected etc.
3. Procedural programming follows top down approach.	Object oriented programming follows bottom up approach.
4. Adding new data and function is not easy.	Adding new data and function is easy.
5. Procedural programming doesnot have any proper way for hiding data so it is less secure.	Object oriented programming provides data hiding so it is more secure.
6. Procedural programming is based on unreal world.	Object oriented programming is based on real world.
Ex: C, FORTRAN, Pascal, Basic etc.,	Ex: C++, Java, Python, etc.

3. Define a class ParkingLot with the following description:

Instance variables/data members

int vno - To store the vehicle number

int hours - To store the numbers of hours the vehicle is parked in the parking lot

double bill - To store the bill amount.

Member methods:

void input() - To input and store vno and hours.

void calculate() - To compute the parking charge at the rate of Rs3 for the first hour or part thereof and Rs 150 for each additional hour or part thereof.

void display() - To display the detail.

Write a main method to create an object of the class and call the above methods.

Program:-

```
import java.util.Scanner;
public class ParkingLot{
    Scanner sc=new Scanner(System.in);
     int vno, hours;
     double bill;
      void input(){
          System.out.println("Enter vehicle number");
          vno=sc.nextInt();
          System.out.println("Enter number of hours vehicle is
                                                    parked");
          hours=sc.nextInt();
    }
```

```
void calculate()
{
 If (hours<=1)
      bill = hours *3;
 else if (hours>=1)
      bill = 3+(hours-1)*1.5;
 else
   System.out.println("wrong input");
}
 void display(){
     System.out.println("vehicle number is "+vno);
     System.out.println(" it is parked for "+hours+"hours");
     System.out.println(" total amount to be paid is Rs"+bill);
 }
 public static void main(string args[]){
      ParkingLot obj = new ParkingLot();
      Obj.input();
      Obj.calculate();
      Obj.display();
 }
}
```

Output :-

Enter vehicle number

56

Enter number of hours vehicle is parked

24

Vehicle number is 56

it is parked for 24 hours

total amount to be paid is Rs 37.5.

4. Design a class to overload a function Joystring( ) as follows.

(i) void Joystring (string s, char ch1, char ch2) with one string and two character arguments that replaces the character argument ch1 with the character argument ch2 in the given strings and prints the new string. Example: Input value of s = "JECHNALAGY".

ch1 = 'A'

ch2 = 'O'

Output: "TECHNOLOGY"

(ii) void Joystring (String s) with one string argument that prints the position of the first space and the last space of the given String s.

Ex: Input value of = "Cloud computing means Internet based computing".

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(iii) void Joystring (String s1, String s2) with two string arguments that combines the two strings with a space between them and prints the resultant string.

Ex: Input value of s1 = "COMMON WEALTH".

s2 = "GAMES".

Output: "COMMON WEALTH GAMES".

Program:-

```
import java.util.*;
class Overload{
        void Joystring(String s, char ch1, char ch2)
        {
            String str = s.replace(ch1, ch2);
```

```
        System.out.println(str);
    }
    void Joystring(String s)
    {
        int first = s.IndexOf(' ');
        System.out.println("First index:"+first);
        int last = s.lastIndexOf(' ');
        System.out.println("Last index:"+last);
    }
    void Joystring(String s1, String s2)
    {
        String s3 = " ";
        String str = s1.concat(s3).concat(s2);
        System.out.println(str);
    }
    public static void main(String args[]){
            Overload obj = new Overload();
            obj.Joystring("TECHNALAGY", 'A', 'O');
            obj.Joystring("Cloud computing means Internet based
                                                computing");
            obj.Joystring("COMMON WEALTH", "GAMES");
    }
}
```

Output:-

```
TECHNOLOGY
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COMMON WEALTH GAMES
```