19BQ1A05F6
CSE-C
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JAVA ASSIGNMENT - 1

SET-4

1. What are the Components of JAVA platform? Explain. Write java program to illustrate the usage of Conditional statements and looping statements.

Ans: Platform: A platform is the hardware or software environment in which a progeam runs.

Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms.

The Java platform has two components.

(i) The Java Virtual Machine

(ii) The Java Application Progeamming Interface (API)

JAVA Virtual Machine: (JVM) It is a virtual machine that enables a computer to run Java progeams as well as progeams written in other languages that are also compiled to Java bytecode. The JVM is detailed by a specification that formally describes what is required in a JVM implementation. Having a specification ensures interopeability of Java progeams across different implementations so that progeam authors using the JAVA Development kit (JDK).

The Designer of JVM is Sun Microsystems and introduced in 1994 having version of 14.0.1. It contains 32-bits. The JVM reference implementation is developed by the Open JDK project as open source code and includes a JIT compiler called Hotspot. Commericially supported Java releases available from Oracle Corporation are based on the open JDK runtime. Eclipse Open Ja is another open source JVM for open JDK.

The JAVA Application programming Interface (API):

An application programming interface (API), in the context of Java, is a collection of prewritten packages, classes, and interfaces with their respective methods, fields and constructors.

In Java, most basic programming tasks are performed by the API's classes and packages, which are helpful in minimizing the number of lines written within pieces of code.

→ Program using both conditional and looping statements:

```
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 + " " + j);
    }
}
```

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Explanation: Here we specifically used break statement. Execution of the program is going as usual as the control flow of do-while loop but whenever compiler runs break statement it 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.

Ans:-

Procedural oriented programming	object Oriented Programming.
1) In procedural programming, program is divided into small parts called functions	1) In object oriented programming, program is divided into small parts called objects.
2) There is no access specifier	2) It have access specifiers like private, public, protected etc.
3) Adding new data and function is not easy	3) Adding new data and function is easy.
4) In procedural programming overloading is not possible.	4) overloading is possible
5) Function is more important than data.	5) Data is more important than function.
6) It doesn't have any proper way for hiding data so it is less secure.	6) It provides data hiding so it is more secure.
Examples: C, FORTRAN, Pascal, Basic etc	Examples: C++, Java, python etc.

Robust means strong. Java is robust because
(i) It uses strong memory management.
(ii) There is a lack of pointers that avoids security problems.
(iii) There is automatic garbage collection in java which runs on the Java virtual Machine to get rid of objects which are not being used by a Java application.
(iv) There are exception handling and the type checking mechanism in Java.

All these points make Java robust.

(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 number 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 Rs.3 for the first hour or part thereof, and Rs. 1.50 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.

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Program:

```
import java.util.*;
class ParkingLot
{
    private int vno, hours;
    double bill;
    public void input()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("enter vehicle Number");
        vno = sc.nextInt();
        System.out.println("Enter Number of thours");
        hours = sc.nextInt();
}
public void calculate()
{
    if (hours<=1)
    bill=hours * 3;
    else
    bill = 3+(hours-1)* 1.5;
}
public static void Main()
{
    ParkingLot p= new ParkingLot();
    p.input();
    p.calculate();
    p.display();
}
}
```

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 string S and prints the new string

Example:

Input value of S = "TECHNALAGIY"

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.

Example:

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 then prints the resultant string.

Example:

Input value of S1 = "COMMON WEALTH"

S2 = "GAMES"

output = "COMMON WEALTH GAMES"

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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");
}
}
```