1. What are the Components of java platform? Explain. write a java program to illustrate the usage of Conditional statements & looping statements.

A. A platform is the hardware (or) Software Environment in which a program runs. The java platform in that it's a software-only platform that runs on top of other hard-ware platforms

The java platform has two Components

→ Java Virtual Machine (JVM)
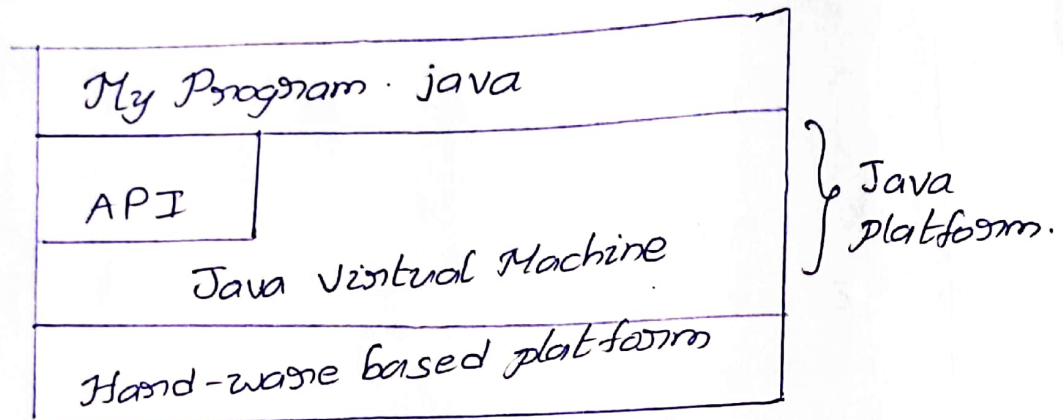
→ Java Application programming Interface (API).

1. JVM is an abstract machine. It is a Specification that provides runtime Environment. In which Java byte code can Executed.

Jvm is platform independent. The JVM performs following operation.

- Loads Code
- verifies code
- Executes code

It provides class loader, memory area, Execution Engine Etc..,

2) An API is a large collection of readymade software components that provides many useful capacities. It is grouped into libraries of related classes & interfaces. These libraries are known as packages.

```
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│ │   My Program . java             │ │ │
│ ┌────────┐────────────────────────┤ │ ⎬ Java
│ │  API   │                        │ │ │ platform.
│ └────────┘  Java Virtual Machine  │ │ │
│ ├─────────────────────────────────┤ │ │
│ │  Hard-ware based platform       │ │ ⎭
│ └─────────────────────────────────┘ │
└─────────────────────────────────────┘
```

The library contains components for rearranging Input, database programming & much more.

program displaying prime numbers -

```java
import Java.util.Scanner;
import java.Long.math;
public class Prime{
        public static void main (string[] args){
                Scanner sc= new Scanner(System.in);
                System.out.println(" Enter a number");
                int a= sc.next Int();
                for ( int i=1; i<a; i++){
                        if (i<=10){ // opening
                                int count=0.
```

```java
for (int j=1; j<=i; j++) {
    if ( i%j == 0)
        count ++;
}
    if (count == 2)
        System.out.print (i);

} // closing
else {
    if ( i%2!=0 && i%3!=0 && i%5!=0 &&
        i%7!=0 && i%11!=0 && i%13!=0 &&
        i%17!=0 && i%19!=0 &&
        i%(math.sqrt(i)!=0)
        System.out.print (i);

    }

    }

    }

}
```

Here for is called looping statement & if-else
called conditional statement.

2) Write any Six Significant differences between procedure oriented programming & object oriented programming? Why Java is Robust programming language? Explain.

A) → procedure oriented programming is structure oriented programming where a oop is object oriented.

→ In oop program is divided into objects where as in pop program is divided into functions.

→ oop follows bottom-up approach but pop follows Top-down approach.

→ In oop Inherience is allowed but pop inheritence is not allowed.

→ oop uses access specifiers where as pop doesn't we access specifiers.

→ In oop hiding the data is done by Encapsulation but in pop no data hiding takes place.

→ Examples of oop are C++, java where as Examples for pop are C, Pascal.

→ oop mainly focus on "data security" where as pop on "how to get the task done".

Robost means strong. Java is Robust because

→ It uses strong memory management.

→ There is lack of pointers that avoids Security problems.

→ There is automatic garbage collection in Java which runs on java virtual machine to get rid of objects which are not being used by Java application anymore.

→ There are Exception handling & type checking mechanism in java. all these points make java robust.

3) Define a class parkinglot with description

Instance variables / data members:

int vno: To store vehicle number,

int hours: To store hours of time parked in parking lot,

double bill - to same bill amount.

member methods:

void input() - To store vno & hours, void calculate() To compute parking charge at RS-3 for first hour & RS -1.50 for Each addition hour. void display() To display detail.

write a main method to create an object & calls above methods.

A)
```java
import java.util.Scanner;

class parkinglot {
    private int Vno;
    private int 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 hours for parking");
        hours = sc.nextInt();
    }
    public void calculate() {
        bill = hours > 1 ? 3 + (hours - 1) * 4.5 : 3;
    }
    public void display() {
        System.out.print("vehicle number is" Vno);
        System.out.print("vehicle is parked for"
                + hours + "hours");
        System.out.println("Amount paid is+"bill);
    }
}
```

```
public class Parkinglot Features {
    public static void main( String [] args) {
        parkinglot  obj = new Parkinglot();

        obj . input();
        obj . calculate();
        obj . display ();
    }
}
```

4. Design a class to overload Jay string ()

i, void Joystring (string s, char ch1, char ch2)
with one string & two characters that replaces
the character ch1 with ch2 & print new string.

Example -
S = "TECHNALAGY"
ch1 = 'A'
ch2 = 'O'
output = "TECHNOLOGY"

ii, void Joystring (string s) with one string prints
position of first space and last space in string.
Example-
S1 = "cloud computing means Internet based
computing".
first index = 5   Last index = 36.

iii) void Joystring (string S1, string S2) that combines two strings with space & print resultant string.

Example –

S1 = "Common wealth"

S2 = "GAMES".

output – "common wealth GAMES".

A) import java.util.*;

class override {

    public void Joystring (string s, char ch1, char ch2){

      string replaced = s.replace(ch1, ch2);

      System.out.println(replaced);

    }

    public void Joystring (string s) {

      Array list <Integer> arr = new ArrayList<Integer>();

      int curr index = 0;

      while (curr index != -1) {

        curr index = s.index of (" ", curr index + 1);

        arr.add (curr index);

      }

      System.out.println ("first index: " + arr.get(0));

      System.out.println (" last index: " + arr.get(arr.size()-2));

}

```java
public void Joystring (string S1, string S2) {
    S1 = S1. Concat (" ");
    S2 = S2. Concat (S2);
    System.out. println (S1);
}
}

public class Stringoverloading {
    public static void main (String [] args) {
        override obj = new overRide().

        obj . Joystring ("TECHNALAGY", 'A', 'o');

        obj . Joystring ("cloud Computing means
            Internet based Computing");

        obj . Joystring (" COMMON WEALTH", "GAMES");
    }
}
```