## 1. Difference between default, parameterized, and copy constructors.

Default constructor:-

The default constructor means it does not takes argument. When object is created it automatically called by the class object.

If you don't create constructor java create one default constructor of the class.

Example:- class Student {

   int id;

   String name;

   Student() {   // Default constructor

     id = 0;

     name = "Unknown";

   }

}

Parameterized constructor:-

The parameterized constructor means it required argument to get called from the class object.

It does got called automatically like default constructor.

Example:-

       class Student {

```
    int id;

    String name;

    Student(int i, String n) {   // Parameterized constructor

        id = i;

        name = n;

    }

}
```

Copy constructor:-

It is used to create a new object by copying the the values of an existing object of the same class.

```
class Student {

 int id ;

Student (int i )

{

 this.id = i ;

 }

Student (Student s)

 {

 id = s.id;

 }

}
```

## Q.2. What is the use of "this" keyword ?

The `this` keyword in Java is a reference variable that refers to the current object of the class.

The main purpose of `this` is to differentiate instance variables of a class from local variables or parameters when they have the same name and to refer to the current class object**.**

- `this` is implicitly available in all non-static methods and constructors.
- It always points to the current invoking object**.**
- It cannot be used inside a static context.
- It is automatically passed to non-static methods by the JVM

## Q. 3) What is the use of "super" keyword ?

The `super` keyword in Java is a reference variable used to refer to the immediate parent class object. It is mainly used in inheritance to access parent class members from a child class.

The primary purpose of `super` is to differentiate parent class members from child class members when both have the same name and to access parent class constructors, methods, and variables**.**

## Q. 4) What is a "static" keyword used for ?

The `static` keyword in Java is used to declare class-level members. A static member belongs to the class itself, not to any specific object of the class.

The main purpose of `static` is to share a single copy of data or behavior among all objects of a class and to allow access without creating an object.

**Q. 5) What are the static blocks and static methods ?**

A static block is a block of code declared using the `static` keyword. It is used to initialize static variables and is executed once when the class is loaded into memory.

- To perform initialization that cannot be handled by static variable assignment.
- To load resources such as database drivers.
- To perform one-time setup logic.

**Q. 6) Write a program to find sum of n natural numbers.**

```java
import java.util.Scanner;

public class NaturalNumber {

    public static void main(String[] args) {

        int n, sum = 0;

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter n: ");
        n = sc.nextInt();

        for (int i = 1; i <= n; i++) {
            sum = sum + i;
        }

        System.out.println("Sum = " + sum);
    }
}
```

**Output:-**

Enter n: 12

Sum = 78

## Q.7) Write a program to reverse a String.

```java
import java.util.Scanner;

public class StringReverse {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter a string: ");
        String str = sc.nextLine();

        String rev = "";

        for (int i = str.length() - 1; i >= 0; i--) {
            rev += str.charAt(i);
        }

        System.out.println("Reversed string: " + rev);
    }
}
```

**Output:-**

Enter a string:  chaitanya

Reversed string: aynatiahc

# Q. 8) Write a program to check if a String is palindrome.

```java
import java.util.Scanner;

public class Palindrome{

    public static void main(String[] args){
```

```
        int n,rev=0,temp;

        Scanner sc=new Scanner(System.in);

        System.out.println("Enter n value");
        n=sc.nextInt();

        temp=n;

        while(n>0){
            int rem=n%10;
            rev=rev*10+rem;
            n=n/10;
        }
        if(rev==temp){
            System.out.println("palindrome !!");
        }else{
            System.out.println("Not palindrome !!");
        }
    }
}
```

## Output:-

Enter n value

121

palindrome !!

## Q. 9) Write a program to count vowels and consonants in a String.

```
import java.util.Scanner;

public class VowelandConsonant{
    public static void main(String[] args){

        char ch;

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter the character :");
        ch = sc.next().charAt(0);

        if(ch>='a' && ch<='z'){
            if(ch == 'a'||ch == 'e' ||ch == 'i'||ch == 'o'||ch == 'u')
                System.out.println("The given character is vowel");
            else
```

```
            System.out.println("The given character is Consonant");
        }
        else
            System.out.println("The given character is not a lowercase
character");
    }
}
```

**Output:-**

Enter the character :

w

The given character is Consonant

## Q. 10) Write a program to count words in a sentence.

```
import java.util.Scanner;

public class CountWord {
    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter a string : ");

        String str = sc.nextLine();
        char[] ch = str.toCharArray();

        int count=0;

        for (int i = 0; i < ch.length; i++) {
            if (ch[i] != ' ')
                count++;
        }
        System.out.println("Total Characters : "+count);
    }
}
```

**Output:-**

Enter a string :

chai

Total Characters : 4