1) Write Program using If statements.

Ans:class Demo {

public static void main (String [] args) {

int a=18;

if(a>=18) {

System.out.println("you are eligible for voting");

}

}

}

o/p: you are eligible for vooting

2) Write Program using if and else blocks.

Ans:

class Demo1{

public static void main (String [] args) {

int a=15;

if(a>=18) {

System.out.println("you are eligible for voting");

}

else

{

System.out.println("You are not eligible for voting");

}

}

o/p: You are not eligible for voting

3) Write Program to read 2 numbers and print biggest number? (Using Scanner)

```java
import java. util.Scanner;

public class Big {
    public static void main (String [] args) {
        Scanner sc = new Scanner (System.in);

        System.out.print("Enter first number: ");
        int num1 = sc.nextInt();

        System.out.print("Enter second number: ");
        int num2 = sc.nextInt();

        if (num1 > num2) {
            System.out.println(num1);
        } else if (num2 > num1) {
            System.out.println(num2);
        } else {
            System.out.println("Both numbers are equal");
        }

        sc. close ();
    }
}
```

o/p:

Enter first number: 10

Enter second number: 20

4) Write program to accept number and print if the number is even or odd.

Ans:

```java
import java.util.Scanner;

public class Demo2 {
    public static void main (String [] args) {
        Scanner sc = new Scanner(System.in);

        System.out.print("Enter a number: ");
        int no = sc.nextInt();


        if (no % 2 == 0) {
            System.out.println(no + " is Even");
        } else {
            System.out.println(no + " is Odd");
        }

        sc. close ();
    }
}
```

Enter a number: 10

10 is Even

5)Write program to print if a given number is positive or negative.

PROGRAM:

```java
import java. util. Scanner;

public class PositiveNegative {
    public static void main (String [] args) {
        Scanner sc = new Scanner (System.in);

        System.out.print("Enter a number: ");
        int num = sc.nextInt();

        if (num > 0) {
            System.out.println(num + " is Positive");
        } else if (num < 0) {
            System.out.println(num + " is Negative");
        } else {
            System.out.println("The number is Zero");
        }

        sc.close();
    }
}
```

o/p:

Enter a number: -11

-11 is Negative

6)Write program to print given numbers are equal or not.

PROGRAM:

```java
import java. util. Scanner;

public class Equal {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);


        System.out.print("Enter first number: ");
        int num1 = sc.nextInt();


        System.out.print("Enter second number: ");
        int num2 = sc.nextInt();


        if (num1 == num2) {
            System.out.println("The numbers are equal.");
        } else {
            System.out.println("The numbers are not equal.");
        }


        sc. close ();
    }
}
```

o/p:

Enter first number: 10

Enter second number: 19

The numbers are not equal.

Enter first number: 10

Enter second number: 10

The numbers are equal.

7)Write java program to check odd or even using modulus operator

PROGRAM:

```java
import java.util.Scanner;

public class Num {
    public static void main (String [] args) {
        Scanner sc = new Scanner (System.in);


        System.out.print("Enter a number: ");
        int num = sc.nextInt();


        if (num % 2 == 0) {
            System.out.println(num + " is Even.");
        } else {
            System.out.println(num + " is Odd.");
        }

        sc.close();
    }
}
```

o/p:

Enter a number: 6

6 is Even.

Enter a number: 9

9 is Odd.

8) Write program to check whether a year is leap or not?

PROGRAM:

```java
import java.util.Scanner;

public class LeapYear {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);


        System.out.print("Enter a year: ");
        int year = sc.nextInt();

        if ((year % 400 == 0) || (year % 4 == 0 && year % 100! = 0)) {
            System.out.println(year + " is a Leap Year.");
        } else {
            System.out.println(year + " is Not a Leap Year.");
        }

        sc. close();
    }
}
```

o/p:

Enter a year: 400

400 is a Leap Year.

Enter a year: 2025

2025 is Not a Leap Year.

9)Accept 3 numbers and find largest number using if statement only.

PROGRAM:

import java.util.Scanner;

public class GreaterOfThree {

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

    Scanner sc = new Scanner(System.in);


    System.out.print("Enter first number: ");

    int num1 = sc.nextInt();


    System.out.print("Enter second number: ");

    int num2 = sc.nextInt();


    System.out.print("Enter third number: ");

    int num3 = sc.nextInt();


    int largest = num1;


    if (num2 > largest) {

      largest = num2;

    }

    if (num3 > largest) {
```

```
        largest = num3;

    }


    System.out.println("The largest number is: " + largest);


    sc.close();

  }
}
```

o/p:

Enter first number: 100

Enter second number: 200

Enter third number: 300

The largest number is: 300

10) Write program using do and while statement?

```
public class DemoDo {
    public static void main(String[] args) {
        int i = 1;



        do {
            System.out.println(i);
            i++;
        } while (i <= 10);
    }
}
```

o/p:

1

2

3

4

5

6

7

8

9

10

11)Print elements of two-dimensional array.

PROGRAM:

Int [][]x= {{10,20,30}, {40,50,60}};

Using normal for loop

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


        int [][] x = { {10, 20, 30}, {40, 50, 60} };



        for (int i = 0; i < x.length; i++) {
            for (int j = 0; j < x[i].length; j++) {
                System.out.print(x[i][j] + " ");
            }
            System.out.println();
    }
}
}
```

o/p:

10 20 30

40 50 60

12)Write program to continue statement in for loop

Ans:

PROGRAM:

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

        for (int i = 1; i <= 10; i++) {
            if (i == 4) {
                continue;
            }

            System.out.println("Number: " + i);
        }
    }
}
```

O/p:

C:\JAVAProgams>javac ContinueEx.java

C:\JAVAProgams>java ContinueEx

Number: 1

Number: 2

Number: 3

Number: 5

Number: 6

Number: 7

Number: 8

Number: 9

Number: 10

13)Write program to print the even numbers between two numbers order may be increment or decrement?

ANS:

Program:

```java
public class ProgramEO{
  public static void main(String[] args) {
    int a = 10; // first number
    int b = 4;  // second number

    System.out.println("Even numbers between " + a + " and " + b + ":");

    if (a <= b) {
      // Incrementing order
      for (int i = a; i <= b; i++) {
        if (i % 2 == 0) {
          System.out.print(i + " ");
        }
      }
    } else {
      // Decrementing order
      for (int i = a; i >= b; i--) {
        if (i % 2 == 0) {
          System.out.print(i + " ");
        }
```

```
        }
      }
    }
}
```

O/p:

C:\JAVAProgams>javac ProgramEO.java

C:\JAVAProgams>java ProgramEO
Even numbers between 10 and 4:
10 8 6 4

14) Write a program to find out squares and cubes from 1- 10 numbers?

Ans:

Program:
```
public class SquareCube{
   public static void main(String[] args) {
      System.out.println("Number  Square  Cube");

      for (int i = 1; i <= 10; i++) {
         int square = (int) Math.pow(i, 2);
         int cube = (int) Math.pow(i, 3);
         System.out.println(i + "      " + square + "      " + cube);
      }
   }
}
```

O/p:

C:\JAVAProgams>javac SquareCube.java

C:\JAVAProgams>java SquareCube

Number Square Cube

1   1   1

2   4   8

3   9   27

4   16   64

5   25   125

6   36   216

7   49   343

8   64   512

9   81   729

10   100   1000

15) Write program to print

  1

  1 2

  1   2   3

   1   2   3   4

Ans:

Program:

```
public class NumberPattern_1 {
  public static void main(String[] args) {
    for (int i = 1; i <= 4; i++) { // directly using 4 as number of rows
      for (int j = 1; j <= i; j++) {
        System.out.print(j + "\t"); // tab space between numbers
      }
      System.out.println();
    }
  }
```

}

1

1   2

1   2   3

1   2   3   4

16) Write Java pattern program?

1

2 2

3   3   3

4   4   4   4

5   5   5   5 5

ANS:

```java
public class NumberPattern_2{
  public static void main(String[] args) {
    int n = 5;

    for (int i = 1; i <= n; i++) {
      for (int j = 1; j <= i; j++) {
        System.out.print(i);
```

```java
            if (j < i) {
                for (int k = 1; k <= i; k++) {
                    System.out.print(" ");
                }
            }
        }
        System.out.println();
    }
}
}
```

O/p:

C:\JAVAProgams>javac NumberPattern_2.java

C:\JAVAProgams>java NumberPattern_2

1

2 2

3 3 3

4 4 4 4

5   5   5   5   5

C:\JAVAProgams>

17)Write program to print

1

2 1

3 2 1

4 3 2 1

5 4 3 2 1

ANS:

Program:

```java
public class NumberPattern_3 {
public static void main(String[] args) {



    for (int i = 1; i <= 5; i++) {
       for (int j = i; j >= 1; j--) {
          System.out.print(j);


          if (j > 1) {


             for (int s = 1; s <= i; s++) {
                System.out.print("   ");
             }
          }
       }
    }
    System.out.println();

  }

}
```

}

o/p:

C:\JAVAProgams>javac NumberPattern_3.java

C:\JAVAProgams>java NumberPattern_3

1

2   1

3   2   1

4   3   2   1

5   4   3   2   1

18) Write program to print below program

   6 5 4 3 2 1

   5   4 3 2 1

   4 3 2 1

   3 2 1

   2 1

   1

Ans:

Program:

public class NumberPattern_4 {

   public static void main(String[] args) {

     for (int i = 6; i >= 1; i--) {

       for (int j = i; j >= 1; j--) {

         System.out.print(j + "   ");

```
        }
        System.out.println();
    }
    }
}
```

O/P:

C:\JAVAProgams>javac NumberPattern_4.java

C:\JAVAProgams>java NumberPattern_4

6 5 4 3 2 1

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1

C:\JAVAProgams>

19) Write a java program to print

```
 1

 2   3

 4   5   6

 7   8   9   10

11  12  13   14    15
```

ANS:

Program:

```java
public class NumberPattern_5 {
    public static void main(String[] args) {
        for (int i = 1, num = 1; i <= 5; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print(num++ + "   ");
            }
            System.out.println();
        }
    }
}
```

O/p:

```
C:\JAVAProgams>javac NumberPattern_5.java


C:\JAVAProgams>java NumberPattern_5

1

2 3

4 5 6

7 8 9 10
```

11 12 13 14 15

20) Write a program to print

```
*

*   *

*   *   *

*   *   *   *

*   *   *   *   *
```

ANS:

Program:

```java
public class NumberPattern_6 {
    public static void main(String[] args) {
        for (int i = 1; i <= 5; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print("*");

                if (j < i) {
                    for (int s = 1; s <= i; s++) {
                        System.out.print("   ");
                    }
                }
            }
            System.out.println();
        }
    }
}
```

O/p:

C:\JAVAProgams>javac NumberPattern_6.java

C:\JAVAProgams>java NumberPattern_6

```
*

*       *

*          *          *

*             *             *             *

*                *                *                *                *
```

21)Write a program to print

```
              1

           1  2  1

        1  2  3  2  1

     1  2  3  4  3  2  1

  1  2  3  4  5  4  3  2  1
```

ANS:

Program:

```java
public class NumberPattern_7 {
  public static void main(String[] args) {
    for (int i = 1; i <= 5; i++) {



      for (int space = 1; space <= 5 - i; space++) {
        System.out.print("   ");
      }
```

```java
        for (int j = 1; j <= i; j++) {

            System.out.print(j + "   ");

        }


        for (int j = i - 1; j >= 1; j--) {

            System.out.print(j + "   ");

        }


        System.out.println();

    }

  }

}
```

O/P:

C:\JAVAProgams>javac NumberPattern_7.java

C:\JAVAProgams>java NumberPattern_7

```
        1
      1  2  1
    1  2  3  2  1
  1  2  3  4  3  2  1
1  2  3  4  5  4  3  2  1
```

22) What is difference between while and do while loop?

Ans:

While Loop:

Best used when initial condition may be false and execution may not be needed at all (e.g., checking for an empty list).

Do-While Loop:

Useful when you need to guarantee at least one execution of the loop body (e.g., prompting user for input at least once).

1)Example of While loop.

```
int i = 5;
while (i < 5) {
   System.out.println("This will not print");
}
```

2)Example of Do-While loop.

Ans:

```
int i = 5;
do {
   System.out.println("This will print once");
} while (i < 5);
```

23)When do we use continue and when do we use break statements?

Ans:

Continue:

   Skips the current iteration of a loop and jumps to the next iteration.

   When you want to skip certain conditions inside a loop but still continue looping Skip printing odd numbers:

```java
for(int i=1;i<=5;i++)
    {
    if(i%2!=0) continue; System.out.println(i);
     }
```

Break:

Exits the entire loop immediately.

When you want to stop the loop completely based on a condition   Stop loop when number 3 is found:

```java
for(int i=1;i<=5;i++)
  {
  if(i==3) break; System.out.println(i);
  }
```