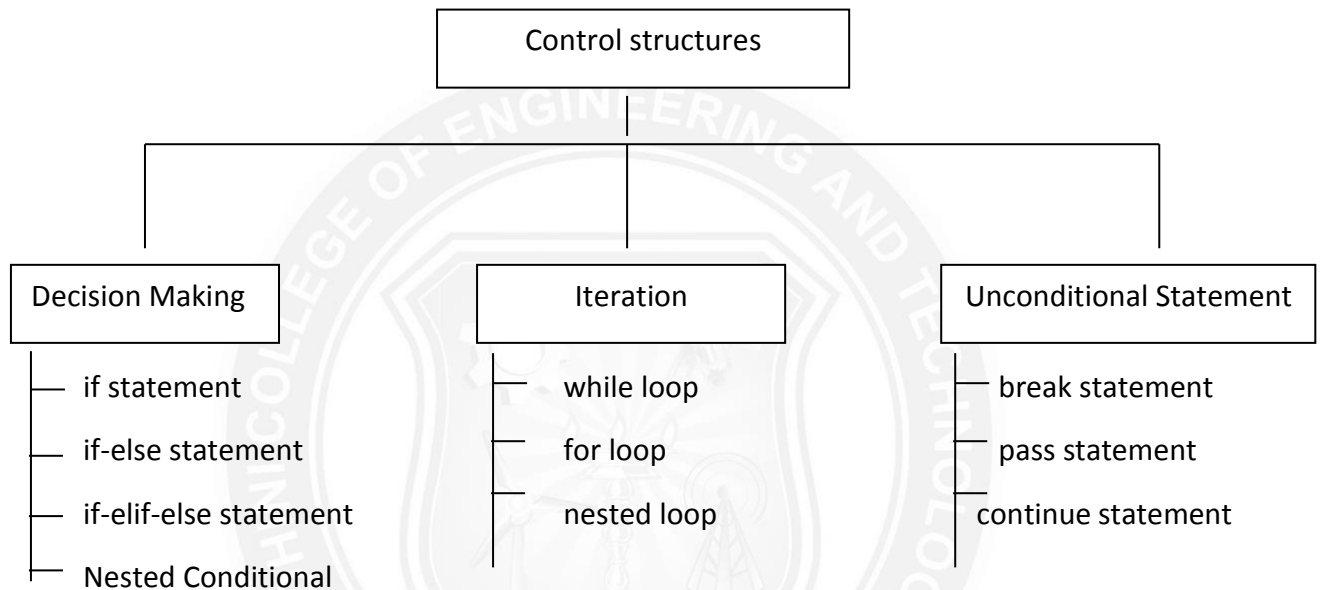**UNIT III (GE8151 PROBLEM SOLVING AND PYTHON PROGRAMMING)**

3.2. Conditional (if), alternative (if-else), chained conditional (if-elif-else)

CONTROL STRUCTURES

Decision Making (or) Conditionals (or) Branching

The execution of the program depends upon the condition. The sequence of the control flow differs from the normal program. The decision making statements evaluate the conditions and produce True or False as outcome.

Types of conditional Statement

1. if statement
2. if-else statement
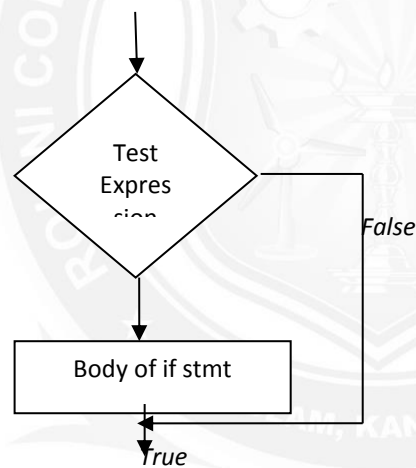3. if-elif-else statement
4. Nested Conditional

1.if statement(conditional)

If statement contains a logical expression using which data is compared and a decision is made based on the result of comparison.

Syntax

```
if <expression>:

        true statements
```

Flow Chart

Example:

a=10

if a==10:

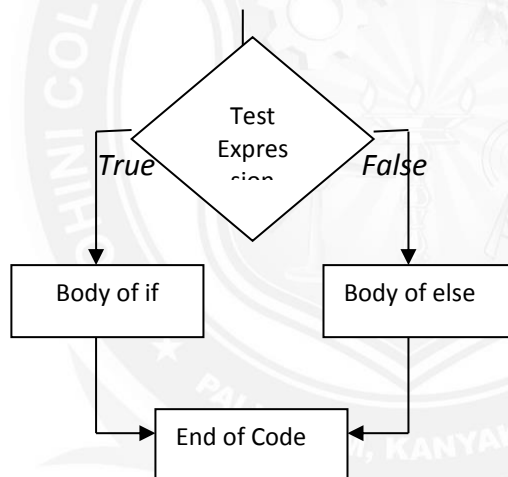   print("a is equal to 10")

Result:

a is equal to 10

2. Alternative execution (if… else)

The second form of if statement is "alternative execution" in which there are two possibilities and the condition determines which block of statement executes.

Syntax

```
if  <testexpression>:
            <body_1>
      else:
```

If the testexpression evaluates to true then <body_1>statements are executed else <body_2> statements are executed.

Flow Chart

Example:

a=10

if a==10:

    print("a is equal to 10")

  else:

    print("a is not equal to 10")

Result

a is equal to 10
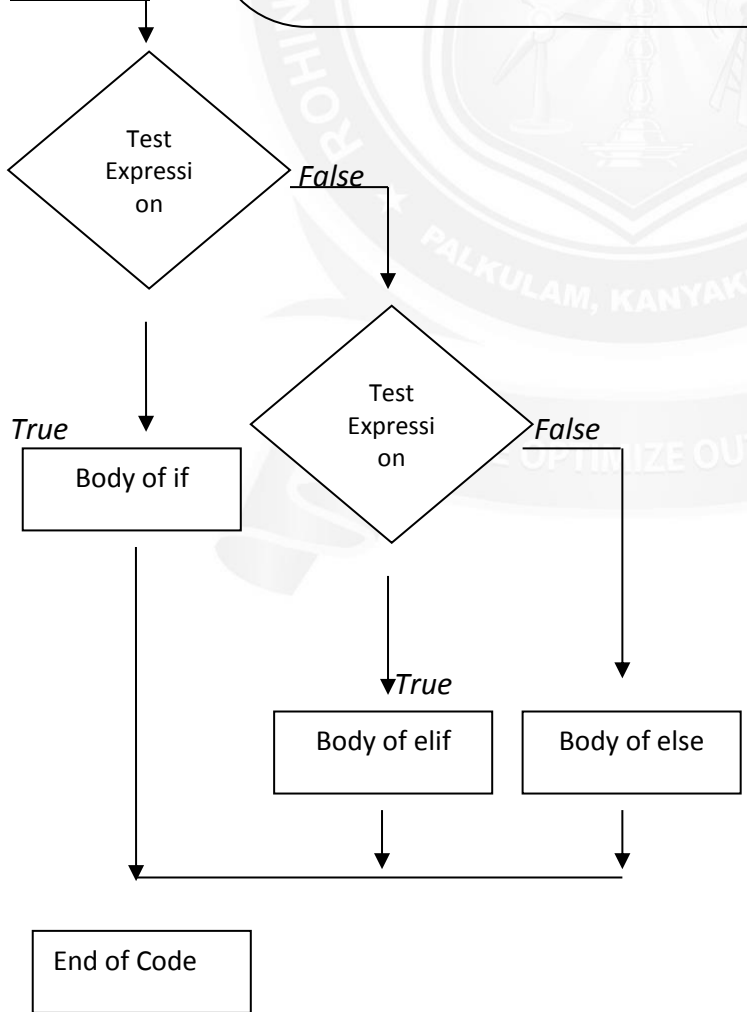
3.elif else Statement(chained conditionals)

The elif statement or chained conditional allows you to check multiple expressions for true and execute a block of code as soon as one of the conditions evaluates to true. The elif statement has more than one statements and there is only one if condition.

Syntax

```
if <test_expression_1>:

 <body1>

  elif <test_expression_2>:

  <body2>

   elif <test_expression_3>:

  <body3>
```

Flow Chart

Example:

a=9

if a==10:

print("a is equal to 10")

   elif a<10:

      print("a is lesser than 10")

  elif a>10:

      print("a is greater than 10")

  else

      print("a is not equal to 10")
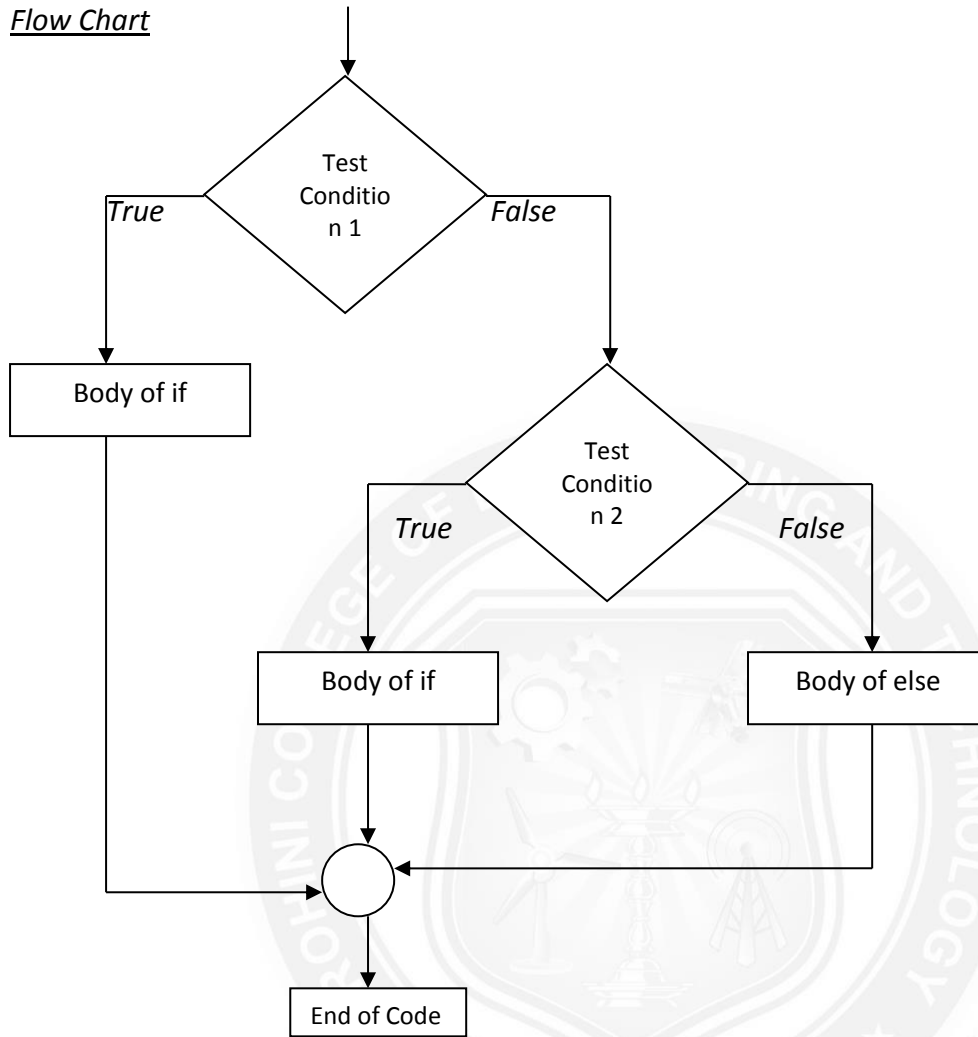
Result:

a is lesser than 10

4. Nested Conditionals (or) Nested if-else

      One conditional can also be nested with another condition.(ie) we can have if...elif....else statement inside another if ...elif...else statements.

Syntax

```
if expression 1:
        true statements
    else:
        if expression 2:
                true statements
        else:
                false statement
```

Flow Chart

Example:

num = float(input("Enter a number: "))

if num >= 0:

    if num == 0:

        print("Zero")

    else:

        print("Positive number")

else:

    print("Negative number")

Result:

Enter a number:50

Positive number