**Test 1**

1. if -3 will evaluate to True

Ans:- True

2. Given the nested if-else below, what will be the value x when the code executed successfully

x = 0

a = 5

b = 5

if a > 0:

    if b < 0:

        x = x + 5

    elif a > 5:

        x = x + 4

    else:

        x = x + 3

else:

    x = x + 2

print(x)

Ans:- 3

3. What is the output of the following nested loop?

for num in range(10, 14):

   for i in range(2, num):

       if num%i == 1:

          print(num)

          break

Ans:- Option 1: 10

       11

       12

       13

4. What is the output of the following loop

for l in 'Jhon':

   if l == 'o':

      pass

   print(l, end=", ")

 Ans:- J, h, o, n,

5. What is the value of x after the following nested for loop completes its execution

x = 0

for i in range(10):

  for j in range(-1, -10, -1):

    x += 1

    print(x)

Ans:- 90

6. Select which is true for for loop

Ans:-  Python’s for loop used to iterates over the items of list, tuple, dictionary, set, or string

7. What is the output of the following if statement

a, b = 12, 5

if a + b:

    print('True')

else:

  print('False')

Ans:-  True

8. Given the nested if-else structure below, what will be the value of x after code execution completes

x = 0

a = 0

b = -5

if a > 0:

    if b < 0:

        x = x + 5

    elif a > 5:

        x = x + 4

    else:

        x = x + 3

else:

    x = x + 2

print(x)

Ans:- 2

9. What is the output of the following for loop and  range() function

for num in range(-2,-5,-1):

    print(num, end=", ")

Ans:-  -2, -3, -4,

10. What is the value of the var after the for loop completes its execution

var = 10

for i in range(10):

    for j in range(2, 10, 1):

        if var % 2 == 0:

            continue

            var += 1

    var+=1

else:

    var+=1

print(var)

Ans:- 21

11. What is the output of the following nested loop

numbers = [10, 20]

items = ["Chair", "Table"]

for x in numbers:

  for y in items:

    print(x, y)

Ans:- 10 Chair

10 Table

20 Chair

20 Table

12. What is the output of the following range() function

for num in range(2,-5,-1):

    print(num, end=", ")

Ans:-  2, 1, 0, -1, -2, -3, -4

13. What is the value of x

x = 0

while (x < 100):

  x+=2

print(x)

Ans:- 100

**Test 2**

**Exercise 1: Print First 10 natural numbers using while loop**

**Expected output:**

1

2

3

4

5

6

7

8

9

10

Code:- x = 1

while x <= 10:

print(x)

x += 1

**Exercise 2: Print the following pattern**

Write a program to print the following number pattern using a loop.

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

**Exercise 3: Calculate the sum of all numbers from 1 to a given number**

Write a program to accept a number from a user and calculate the sum of all numbers from 1 to a given number

For example, if the user entered **10** the output should be **55** (1+2+3+4+5+6+7+8+9+10)

**Expected Output**:

Enter number 10

Sum is:  55

Code:-

s = 0

n = int(input("Enter number "))

for i in range(1, n + 1, 1):

s += i

print("\n")

print("Sum is: ", s)

**Exercise 4: Write a program to print multiplication table of a given number**

For example, num = 2 so the output should be

2

4

6

8

10

12

14

16

18

20

Code:- n = 2

for i in range(1, 11, 1):

product = n \* i

print(product)

### Exercise 5: Display numbers from a list using loop

Write a program to display only those numbers from a [list](https://pynative.com/python-lists/) that satisfy the following conditions

* The number must be divisible by five
* If the number is greater than 150, then skip it and move to the next number
* If the number is greater than 500, then stop the loop

**Given**:

numbers = [12, 75, 150, 180, 145, 525, 50]

**Expected output:**

75

150

145

Code:- numbers = [12, 75, 150, 180, 145, 525, 50]

for item in numbers:

if item > 500:

break

elif item > 150:

continue

elif item % 5 == 0:

print(item)

### Exercise 6: Count the total number of digits in a number

Write a program to count the total number of digits in a number using a while loop

For example, the number is **75869**, so the output should be **5**.

Code:- num = 75869

count = 0

while num != 0:

num = num // 10

count = count + 1

print("Total digits are:", count)

### Exercise 7: Print the following pattern

Write a program to use for loop to print the following reverse number pattern

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1

### Exercise 8: Print list in reverse order using a loop

**Given**:

list1 = [10, 20, 30, 40, 50]

**Expected output:**

50

40

30

20

10

Code:- list1 = [10, 20, 30, 40, 50]

size = len(list1) - 1

for i in range(size, -1, -1):

print(list1[i])

### Exercise 9: Display numbers from -10 to -1 using for loop

**Expected output:**

-10

-9

-8

-7

-6

-5

-4

-3

-2

-1

Code:- for num in range(-10, 0, 1):

print(num)

### Exercise 10: Use else block to display a message “Done” after successful execution of for loop

For example, the following loop will execute without any error.

**Given**:

for i in range(5):

    print(i)

**Expected output:**

0

1

2

3

4

Done!

Code:- for i in range(5):

print(i)

else:

print("Done!")

### Exercise 11: Write a program to display all prime numbers within a range

**Note**: A Prime Number is a number that cannot be made by multiplying other whole numbers. A prime number is a natural number greater than 1 that is not a product of two smaller natural numbers

**Examples**:

* 6 is not a prime mumber because it can be made by 2×3 = 6
* 37 is a prime number because no other whole numbers multiply together to make it.

**Given**:

# range

start = 25

end = 50

**Expected output:**

Prime numbers between 25 and 50 are:

29

31

37

41

43

47

### Code:- start = 25

### end = 50

### print("Prime numbers between", start, "and", end, "are:")

### for num in range(start, end + 1):

### if num > 1:

### for i in range(2, num):

### if (num % i) == 0:

### break

### else:

### print(num)

### Exercise 12: Display Fibonacci series up to 10 terms

The Fibonacci Sequence is a series of numbers. The next number is found by adding up the two numbers before it. The **first two numbers are 0 and 1**.

For example, 0, 1, 1, 2, 3, 5, 8, 13, 21. The next number in this series above is 13+21 = 34.

**Expected output:**

Fibonacci sequence:

0  1  1  2  3  5  8  13  21  34

### Code:-

### Exercise 13: Find the factorial of a given number

Write a program to use the loop to find the factorial of a given number.

The factorial (symbol: !) means to multiply all whole numbers from the chosen number down to 1.

**For example**: calculate the factorial of 5

5! = 5 × 4 × 3 × 2 × 1 = 120

**Expected output:**

120

### Code:- num = 5

### factorial = 1

### if num < 0:

### print("Factorial does not exist for negative numbers")

### elif num == 0:

### print("The factorial of 0 is 1")

### else:

### for i in range(1, num + 1):

### factorial = factorial \* i

### print("The factorial of", num, "is", factorial)

### Exercise 14: Reverse a given integer number

**Given**:

76542

**Expected output:**

24567

### Code:- num = 76542

### reverse\_number = 0

### print("Given Number ", num)

### while num > 0:

### reminder = num % 10

### reverse\_number = (reverse\_number \* 10) + reminder

### num = num // 10

### print("Revere Number ", reverse\_number)

### Exercise 15: Use a loop to display elements from a given list present at odd index positions

**Given:**

my\_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]

**Note**: list index always starts at 0

**Expected output:**

20 40 60 80 100

### Code:- my\_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]

### for i in my\_list[1::2]:

### print(i, end=" ")

### Exercise 16: Calculate the cube of all numbers from 1 to a given number

Write a program to rint the cube of all numbers from 1 to a given number

**Given**:

input\_number = 6

**Expected output:**

Current Number is : 1  and the cube is 1

Current Number is : 2  and the cube is 8

Current Number is : 3  and the cube is 27

Current Number is : 4  and the cube is 64

Current Number is : 5  and the cube is 125

Current Number is : 6  and the cube is 216

 Code:- input\_number = 6

for i in range(1, input\_number + 1):

print("Current Number is :", i, " and the cube is", (i \* i \* i))

### Exercise 17: Find the sum of the series upto n terms

Write a program to calculate the sum of series up to n term. For example, if n =5 the series will become 2 + 22 + 222 + 2222 + 22222 = 24690

**Given**:

# number of terms

n = 5

**Expected output:**

24690

Code:- n = 5

start = 2

sum\_seq = 0

for i in range(0, n):

print(start, end="+")

sum\_seq += start

start = start \* 10 + 2

print("\nSum of above series is:", sum\_seq)

### Exercise 18: Print the following pattern

Write a program to print the following start pattern using the for loop

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

### Code:-