Unit 3

CONTROL FLOW, FUNCTIONS

1. Write a Python program to accept two numbers, multiply them and print the result. **(AU Jan 2018, R2017)**

Program:

```
num1 = input('Enter first number: ')
num2 = input('Enter second number: ')

# Add two numbers
sum = float(num1) + float(num2)

#multiply two numbers
mul = float(num1) * float(num2)

print('The sum = ',sum)
print('The multiplication = ',mul)
```

Output:

```
Enter first number: 6
Enter second number: 7
The sum = 13.0
The multiplication = 42.0
```

2. Write a Python program to accept two numbers find the greatest and print the result. **(AU Jan 2018, R2017)**

Program:

```
print("Enter two numbers: ")
num1 = int(input('Enter first number: '))
num2 = int(input('Enter second number: '))
if num1 > num2:
   largest = num1
else:
   largest = num2
```

```
print("Largest of entered two numbers is", largest,"\n")
```

Output:

```
Enter two numbers:
Enter first number: 89
Enter second number: 45
Largest of entered two numbers is 89
```

3. What is a bool.

A bool is a boolean value that is either true or false.

4. What are the various types of Python operators?

1. Arithmetic operators
2. Relational operators
3. Logical operators
5. Bitwise operators
6. Assignment operators
7. Special operators
   a. Identity operators
   b. Membership operators

5. What is floor division or truncating division? Give example.

Floor division or Truncating division:

- It is denoted by a double slash, //, providing a truncated result based on the type of operands applied to.
- When both operands are integer values, the result is a truncated integer referred to as integer division.
- **Example:** 7 // 5 = 1.
- When atleast one of the operands is a float type, the result is a truncated floating point. Example: 7 // 5.0 = 1.0 and 7.0 // 5.0 becomes 1.0.

6. What are the identity operators used in Python?

- **is** and **is not** are the identity operators in Python.

- They are used to check if two values (or variables) are located on the same part of the memory.
- Two variables that are equal does not imply that they are identical.

The identity operators in Python are,

Operator	Meaning	Example
is	True if the operands are identical (refer to the same object)	x is True
is not	True if the operands are not identical (do not refer to the same object)	x is not true

7. What are the membership operators used in Python?

- in and not in are the membership operators in Python. They are used to test whether a value or variable is found in a sequence (string, list, tuple, set and dictionary).
- In a dictionary they test for presence of key, not the value.

The membership operators in Python are,

Operator	Meaning	Example
in	True if value / variable is found in the sequence	5 in x
not in	True if value / variable is not found in the sequence	2 not in x

8. What is meant by typecasting? Given an example.

Typecasting is a way to convert a variable from one data type to another data type.

Example:

```
x = 10
y = 6
print x / y
```

The above example produces the result 1 instead of 1.666, because the division operator "/" works as integer division if both inputs are integers. Therefore, x/y

returns 1. If you give a floating point number type cast with 'float' if an answer other than a whole number is desired: float(x)/y returns 1.66666666667.

9. Differentiate break and continue.

Break:

The break statement terminate the loop containing it and the control of the program goes to the statement immediately after the body of the loop.

Continue:

The continue statement is used to skip the rest of the code inside a loop for the current iteration only. Loop does not terminate but continues on with the next iteration.

10. What is local and global scope?

- A local variable that is only accessible within a given function, Such variables are said to have local scope.
- A global variable is a variable that is defined outside of any function definition. Such variables are said to have global scope.

11. Define composition.

Composition is the ability to make small building blocks (variables, expressions, and statements) and compose them.

12. Define recursion.

- A function that calls itself is recursive, the process of executing it is called recursion.
- Recursion can be used to solve the problems that can be expressed in terms of similar problems of smaller size.

13. What is a string? How is it accessed?

A string is a sequence of characters. A string can be accessed by the characters one at a time with the bracket operator.

Example:

```
>>> fruit = 'banner'
```

```
>>> letter = fruit[i]
>>> letter
    'a'
```

14. What is a slice? Give example.

A segment of a string is called a slice. The operator [n:m] returns the part of the string from the "m-eth" character, including the first but excluding the first but excluding the last.

Selecting a slice is similar to selecting a character.

Example:

```
>>> a = 'Python Programming'
>>> a[0:5]
    'Pytho'
```

15. What is split function? Give example.

The split function strip leading or trailing white space from a string.

Example:

```
>>> s = 'python programming'
>>> s.split()
    ['python', 'programming']
```

ANNA UNIVERSITY 16 MARK QUESTIONS WITH ANSWERS

1. Appraise with an example nested if and elif header in Python (6)
(AU Jan 2018, R2017)

Refer Page No.: 152

2. Explain with an example while loop, break statement and continue statement in Python. (10)
(AU Jan 2018, R2017)

Refer Page No.: 153, 158, 160

3. Write a Python program to find the factorial of given number without recursion and with recursion. (8)

(AU Jan 2018, R2017)

Finding factorial of a number without recursion.

Program:

```
n = int(input("Enter a number: "))
fact = 1
for i in range(1, n):
    fact = fact * i
print("Factorial of", n, "is", fact, "\n")
```

Output:

```
>>>
Enter a number: 5
Factorial of 6 is 120
```

Finding factorial of a number using recursion

Program:

```
def fact(n):
    if n = = 1:
       return n
    else:
          return n * fact( n – 1)
num = int(input("Enter a number: "))
print("The factorial of",num,"is",fact(num))
```

Output:

```
>>>
    Enter a number: 5
    The factorial of 5 is 120
```

4. Write a Python program to generate first 'N' Fibonacci numbers. (8)
(AU Jan 2018, R2017)

Refer Page No.: 210

5. What are the different operators available in Python. Explain with examples.

Refer Page No.: 137 to 139

6. Explain different data types in Python with examples.

Refer Page No.: 94

7. Describe the statements for decision making and looping.

Refer Page No.: 147

8. Explain the following conditional statements?

i) if (conditional)
ii) if-else.(alternative)
iii) if-elif-else (chained conditional).

Refer Page No.: 147 to 152

9. Briefly explain fruitful functions in python.

Refer Page No.: 163

10. Briefly explain local and global scope.

Refer Page No.: 166

11. Write a program to find the square root of a number using Newton's method.

Refer Page No.: 185

12. Write a Python program to find GCD of two numbers.

Refer Page No.: 172

13. Write a Python program to find sum of array of numbers.

Refer Page No.: 187

14. Write a Python program to perform linear search and binary search.

Refer Page No.: 187 & 189