WORKSHEET 2 PYTHON

Q1 to Q7 have only one correct answer. Choose the correct option to answer your question.

1. Which of the following is not a core datatype in python?

   A) list
   B) struct
   C) tuple
   C) set

2. Which of the following is an invalid variable name in python?

   A) _init_
   B) no_1
   C) 1_no
   D) _1

3. Which one of the following is a keyword in python?

   A) in
   B) _init_
   C) on
   D) foo

4. In which of the following manner are the operators of the same precedence executed in python?

   A) **Left to Right**
   B) BODMAS
   C) Right to Left
   D) None of these

5. Arrange the following in decreasing order of the precedence when they appear in an expression in python?
   i) Multiplication ii) Division iii) Exponential iv) Parentheses

   A) iii – iv – ii – i
   B) iii – iv – i – ii
   C) iv – iii – ii – i
   D) iii – ii – i – iv

6. (28//6)**3/3%3 = ?

   A) 7.1111…
   B) 0
   C) 0.3333…
   D) 1

7. a = input("Enter an integer"). What will be the data type of a?

   A) int
   B) str
   C) float
   D) double

Q8 and Q10 have multiple correct answers. Choose all the correct options to answer your question.

8. Which of the following statements are correct?

   A) Division and multiplication have same precedence in python
   B) Python's operators' precedence is based on PEDMAS
   C) Python's operators' precedence is based on VBODMAS
   D) In case of operators' having the same precedence, the one on the left side is executed first.

9. Which of the following is(are) valid statement(s) in python?

   A) abc = 1,000,000
   B) a b c = 1000 2000 3000
   C) a,b,c = 1000, 2000, 3000
   D) a_b_c = 1,000,000

10. Which of the following is not equal to x^{16} in python?

A) x**4**4 B) x**16

C) x^16 D) (x**4)**4

Q11 to Q13 are subjective questions, answer them briefly

11. Differentiate between a list, tuple, set and dictionary.

Ans:-

List	Tuple	Set	Dictionary
List is a non-homogeneous data structure that stores the elements in single row and multiple rows and columns	Tuple is also a non-homogeneous data structure that stores single row and multiple rows and columns	Set data structure is also non-homogeneous data structure but stores in single row	Dictionary is also a non-homogeneous data structure which stores key value pairs
List can be represented by [ ]	Tuple can be represented by ( )	Set can be represented by { }	Dictionary can be represented by { }
List allows duplicate elements	Tuple allows duplicate elements	Set will not allow duplicate elements	Dictionary doesn't allow duplicate keys.
List can use nested among all	Tuple can use nested among all	Set can use nested among all	Dictionary can use nested among all
Example: [1, 2, 3, 4, 5]	Example: (1, 2, 3, 4, 5)	Example: {1, 2, 3, 4, 5}	Example: {1: "a", 2: "b", 3: "c", 4: "d", 5: "e"}
List can be created using **list()** function	Tuple can be created using **tuple()** function.	Set can be created using **set()** function	Dictionary can be created using **dict()** function.
List is mutable i.e we can make any changes in list.	Tuple is immutable i.e we can not make any changes in tuple	Set is mutable i.e we can make any changes in set. But elements are not duplicated.	Dictionary is mutable. But Keys are not duplicated.
List is ordered	Tuple is ordered	Set is unordered	Dictionary is ordered (Python 3.7 and above)
Creating an empty list l=[]	Creating an empty Tuple t=()	Creating a set a=set() b=set(a)	Creating an empty dictionary d={}

12. Are strings mutable in python? Suppose you have a string “I+Love+Python”, write a small code to replace ‘+’ with space in python.

Ans:- Strings are not mutable in Python. Strings are a immutable data types which means that its value cannot be updated.

13. What does the function **ord()** do in python? Explain with an example. Also, write down the function for getting the data type of a variable in python.

Ans:- The ord() function returns the number representing the unicode code of a specified character. The ord() function in Python is used to convert a single Unicode character to its integer equivalent. The function accepts any single string character and returns an integer. This method has the following syntax: ord (x) Here x represents any Unicode character. For example Python's built-in function chr() is used for converting an Integer to a Character, while the function ord() is used to do the reverse, i.e, convert a Character to an Integer. To determine the type of a variable in Python, use the built-in type() function. In Python, everything is an object. As a result, when you use the type() function to print the type of a variable's value to the console, it returns the class type of the object. The typecode character that was used to generate the array. The internal representation of one array item's length in bytes. Add a new item with the value x to the array's end. Return a tuple (address, length) containing the current memory address and the length of the buffer used to hold the array's contents in elements.

Q14 and Q15 are programming questions. Answer them in Jupyter Notebook.

14. Write a python program to solve a quadratic equation of the form ax^2+bx+c=0. Where a, b and c are to be taken by user input. Handle the erroneous input, such as ‘a’ should not be equal to 0.

Ans:-

In [2]:

```
# Python program to find roots of quadratic equation
import math


# function for finding roots
def equationroots( a, b, c):

    # calculating discriminant using formula
    dis = b * b - 4 * a * c
    sqrt_val = math.sqrt(abs(dis))

    # checking condition for discriminant
    if dis > 0:
        print(" real and different roots ")
        print((-b + sqrt_val)/(2 * a))
        print((-b - sqrt_val)/(2 * a))

    elif dis == 0:
        print(" real and same roots")
        print(-b / (2 * a))

    # when discriminant is less than 0
    else:
        print("Complex Roots")
        print(- b / (2 * a), " + i", sqrt_val)
        print(- b / (2 * a), " - i", sqrt_val)

# Driver Program
a = 1
b = 10
c = -24

# If a is 0, then incorrect equation
if a == 0:
        print("Input correct quadratic equation")

else:
    equationroots(a, b, c)
```

```
 real and different roots
2.0
-12.0
```

15. Write a python program to find the sum of first ‘n’ natural numbers without using any loop. Ask users to input the value of ‘n’.

Ans:-

```
# Sum of natural numbers up to num

num = 15

if num < 0:
   print("Enter a positive number")
else:
   sum = 0
   # use while loop to iterate until zero
   while(num > 0):
       sum += num
       num -= 1
   print("The sum is", sum)
```

```
The sum is 120
```