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 D) set

ANS: struct

2. Which of the following is an invalid variable name in python?
A) _init_ B) no_1
C) 1_no D) _1

ANS: 1_no

3. Which one of the following is a keyword in python?
A) in B) _init_
C) on D) foo

ANS: in

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

***ANS:* Left to Right**

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

***ANS:* iv - iii - i – ii**

(In the above question, the answer is: (iv - iii - i – ii) for the decreasing order of precedence. The options given did not match with the answer)

6. (28//6)**3/3%3 = ?
A) 7.1111… B) 0
C) 0.3333… D) 1

ANS: 7.1111….

7. a = input("Enter an integer"). What will be the data type of a?
A) int B) str
C) float D) double

ANS: str

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.

ANS : B , D

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

ANS: A, D

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

ANS: **A, C**

Q11 to Q13 are subjective questions, answer them briefly

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

S.No	List	Tuple	Set	Dictionary
1	Represented by [ ]	Represented by ( )	Represented by { }	Represented by {}with key and value pair
2	Allows duplicate items	Allows duplicate items	Does not allow duplicate elements	Does not allow duplicate elements
3	Ordered – Non homogeneous data types	Ordered –Non homogeneous data types	Unordered collection of datatypes	Unordered collection of datatypes
4	Mutable – list items can be changed after creating the list	Immutable—tuple items cannot be changed once created	Mutable	Mutable
5	E.g: list1=[1,2.5,'hi','python']	E.g: tuple1=(1,2,3,4,4)	E.g:{1,2,3,4}	E.g:{'A':1,'B':2,'C':3}

---

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: In python strings datatypes are immutable, which means that once the string is created, it cannot be updated or changed.

#Python program to replace ‘+’ with space in the following string “I+Love+Python”

```
str1="I+Love+Python"
#print(str1)
new_str=str1.replace("+"," ")
print(new_str)
```

OUTPUT:

```
I Love Python
```

---

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 a number representing a Unicode code of a specific character.
This function takes a unit-length text as an argument and returns the Unicode equivalent of the specified parameter.
Using ord() function for more than one character causes TypeError, this happens because the function accepts a single character as input. Hence to resolve this we can loop over each character in the string. Also an important point is the first 128 unicode points are same as ASCII values, which means that characters and the ASCII values will be equivalent to the same ASCII value.

Syntax: ord(character)

E.g: 1

```
#Converting Unicode to Int using ord()
s1=”g”
print(ord(s1))
```

E.g: 2

```
#converting Unicode to Int using ord()
str1=”hello”
for i in str1:
    print(ord(str1))
```

#function for getting the data type of a variable in python
Ans: type() is used to get the datatype of a variable in python, it is a built-in method.

E.g :

```
a=10
type(a)
```

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

Q14. 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.

```
#import the necessary libraries
from math import sqrt
#Take input from user for a,b and c (co-efficients)
a=float(input("Enter the value of a:"))
b=float(input("Enter the value of b:"))
c=float(input("Enter the value of c:"))
if a==0 or b==0 or c==0:
   print("Not a valid quadratic equation, please enter value greater than zero")
else:
   #Compute discriminant
   d=b**2-4*a*c
   sqrt_val=sqrt(abs(d))
   #checking the condition for d
   #when discriminant is positive
   if d>0:
      print("***Roots are real and different***")
      r1=-b+sqrt_val/2*a
      r2=-b-sqrt_val/2*a
      print("Root1=",r1)
      print("Root2=",r2)
   #when discriminant is equals to zero
   elif d==0:
      print("***Roots are real and same***")
      r=-b/(2*a)
      print("Root=",r)
   #when discriminant is negative
   else:
      print("***Roots are complex***")
      r=-b/(2*a)
      print("Root1=",r,"+i",sqrt_val)
      print("Root2=",r,"-i",sqrt_val)
print("----------THE END----------")
```

OUTPUT:

```
1) Enter the value of a:5
   Enter the value of b:0
   Enter the value of c:3
   Not a valid quadratic equation,please enter value greater than ze
   ro
   ----------THE END----------

2) Enter the value of a:-7
   Enter the value of b:5
   Enter the value of c:2
   ***Roots are real and different***
   Root1= -36.5
   Root2= 26.5
   ----------THE END----------
```

```
3) Enter the value of a:2
   Enter the value of b:5
   Enter the value of c:9
   ***Roots are complex***
   Root1= -1.25 +i 6.855654600401044
   Root2= -1.25 -i 6.855654600401044
   ----------THE END--------------------
```

Q15. 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’.

#Python program to find the sum of first ‘n’ natural numbers without using any loop. Ask users to input the value of ‘n’

```
def sumN(n):
   if n==1:
      return 1
   else:
      return n+sumN(n-1)

n=int(input("Enter any natural number: "))
if n<0:
   print("***Enter only positive natural numbers***")
elif n==0:
   print("***Enter values greater than zero***")
else:
   res=sumN(n)
   print("The sum of",n,"natural numbers is=",res)

print("The End")
```

OUTPUT:

```
1) Enter any natural number: 0
   ***Enter values greater than zero***
   The End

2) Enter any natural number: -6
   ***Enter only positive natural numbers***
   The End

3) Enter any natural number: 10
   The sum of 10 natural numbers is= 55
   The End
```