**Python Mega Assignment:**

Q1. Why do we call Python as a general purpose and high-level programming language?

Ans: Python is a general purpose language because it can be used in various domains like web applications, big data applications etc.

It is a high level language that makes it easy to learn. Python doesn’t require us to understand the details of the computer, in order to develop programs efficiently.

Q2. Why is Python called a dynamically typed language?

Ans: Python is dynamically type language because the type of the variable is determined only during the runtime.

Q3. List some pros and cons of Python programming language?

Ans:

Pros:

* Beginner friendly
* Flexible and extensible
* Extensive libraries
* Highly scalable
* Portable

Cons:

* Issues with design
* Slower than other compiled language
* Not 100% secure
* Memory consumption is more compared to other high language programming.

Q4. In what all domains can we use Python?

Ans:

* Web applications
* Banking
* Testing
* Big data applications
* Automation

Q5. What are variable and how can we declare them?

Ans: Variable is a name assigned to a particular value. It will allocate the memory for the value.

Eg. Result = 10

Q6. How can we take an input from the user in Python?

Ans: We can take input from the user using input() function.

Eg: val = input(“Enter the value:”)

Q7. What is the default datatype of the value that has been taken as an input using input() function?

Ans: Default input datatype is string. If we want to convert to other datatype, we have to use type casting.

Eg. Val = int(input(“Enter the value:”))

Q8. What is type casting?

Ans: Type casting is converting the datatype of a variable from one datatype to other.

Q9. Can we take more than one input from the user using single input() function? If yes, how? If no, why?

Ans: No we cannot use multiple values using single input function but we can use multiple input functions to get multiple values for the variables.

Q10. What are keywords?

Ans: keywords are special reserved words that have specific meanings and purposes and can’t be used for anything but those specific purposes.

Q11. Can we use keywords as a variable? Support your answer with reason.

Ans: No we cannot use keywords for a variable because it will have specific meanings in python.

Q12. What is indentation? What's the use of indentaion in Python?

Ans: Indentation is the alignment of the statements within any loops.

Eg: if (a<b):

Print(a)

Else:

Print(b)

Q13. How can we throw some output in Python?

Ans: we can throw output using print() function.

Q14. What are operators in Python?

Ans: Operators are used to perform some mathematical or logical operations.

* Arithmetic operators
* Comparison operators
* Logical operators
* Bitwise operations
* Assignment operators

Q15. What is difference between / and // operators?

Ans: / is used to give the output in decimal format

// is used to give the output in int format. It will give the quotient as output and it will ignore the remainder.

Q16. Write a code that gives following as an output.

INeuroniNeuroniNeuroniNeuron

Ans: print("iNeuron"\*4)

Q17. Write a code to take a number as an input from the user and check if the number is odd or even.

Ans:

usr\_inp = int(input("Enter the number:"))

if usr\_inp % 2 == 0:

print(usr\_inp, " is an even number")

else:

print(usr\_inp, " is an odd number" )

Q18. What are boolean operator?

Ans: Boolean operators are true and false. It can be assigned to a variable.

Q19. What will the output of the following?

1 or 0  
  
0 and 0  
  
True and False and True  
  
1 or 0 or 0

Ans:

1

0

False

1

Q20. What are conditional statements in Python?

Ans: Conditional statements are used to execute one or more statements using some conditions. Eg: if – else.

Q21. What is use of 'if', 'elif' and 'else' keywords?

Ans: If else is used to do some comparions and based on that comparion, we will display the output.

Q22. Write a code to take the age of person as an input and if age >= 18 display "I can vote". If age is < 18 display "I can't vote".

Ans:

age = int(input("Enter the age:"))

if age > 18:

print("I can vote")

else:

print("I can't vote")

Q23. Write a code that displays the sum of all the even numbers from the given list.

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

Ans:

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

sum = 0

for i in numbers:

if i%2 == 0:

sum = sum+i

print(sum)

Q24. Write a code to take 3 numbers as an input from the user and display the greatest no as output.

Ans:

a = int(input("Enter the first number:"))

b = int(input("Enter the first number:"))

c = int(input("Enter the first number:"))

if (a > b) and (a>c):

print("The largest number is ", a)

elif (b> c):

print("The largest number is ", b)

else:

print("The largest number is ", c)

Q25. Write a program to display only those numbers from a list 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

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

Ans:

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

for i in numbers:

if i %5 == 0:

if i > 150:

continue

elif i > 500:

break

else:

print(i)

Q26. What is a string? How can we declare string in Python?

String is an immutable datatype in python. It does not support item assignment.

str1 = "ineuron"

print(type(str1))

Q27. How can we access the string using its index?

str1 = "ineuron"

print(str1[2])

Q28. Write a code to get the desired output of the following

string = "Big Data iNeuron"  
desired\_output = "iNeuron"  
Ans:

string = "Big Data iNeuron"

print(string[-7::1])

Q29. Write a code to get the desired output of the following

string = "Big Data iNeuron"  
desired\_output = "norueNi"  
Ans:

print(string[-1:-8:-1])

Q30. Reverse the string given in the above question.

string = "Big Data iNeuron"

str2 = string[::-1]

print(str2)

Q31. How can you delete entire string at once?

string = "Big Data iNeuron"

print(string)

del string

print(string)

Q32. What is escape sequence?

An escape sequence is a sequence of characters that, when used inside a character or string, does not represent itself but is converted into another character or series of characters.

Eg: \n, \t, \’, \” etc.

Q33. How can you print the below string?

'iNeuron's Big Data Course'

string = 'iNeuron\'s Big Data Course'

print(string)

Q34. What is a list in Python?

List is a mutable datatype in python. It is used to store multiple items in a single variable.

Q35. How can you create a list in Python?

lst = [1, 2.9, 'ineuron', 8+2j, [1,2,3], ('a','b','c'), {'Marks': 100}]

print(lst)

Q36. How can we access the elements in a list?

lst = [1, 2.9, 'ineuron', 8+2j, [1,2,3], ('a','b','c'), {'Marks': 100}]

for i in lst:

print(i)

print(lst[4])

Q37. Write a code to access the word "iNeuron" from the given list.

lst = [1,2,3,"Hi",[45,54, "iNeuron"], "Big Data"]

print(lst[4][2])

Q38. Take a list as an input from the user and find the length of the list.

usr\_inp = eval(input('Enter the list:'))

print("The length of the list is :", len(usr\_inp))

Q39. Add the word "Big" in the 3rd index of the given list.

lst = ["Welcome", "to", "Data", "course"]

lst = ["Welcome", "to", "Data", "course"]

lst1 = lst[:2] + ["big"] +lst[-2:]

print(lst1)

Q40. What is a tuple? How is it different from list?

A tuple is an immutable object and does not support item assignment.

List is a mutable object and it supports item assignment.

Q41. How can you create a tuple in Python?

tup = (1, 2.0, 'ineuron')

print(type(tup))

Q42. Create a tuple and try to add your name in the tuple. Are you able to do it? Support your answer with reason.

No we cannot add in tuple since it does not support item assignment.

Q43. Can two tuple be appended. If yes, write a code for it. If not, why?

We can use concatenation to join two tuples but we cannot append any data to the existing tuple.

t1 = (1, 2.0, 'ineuron')

t2 = (4,5)

print(t1 + t2)

Q44. Take a tuple as an input and print the count of elements in it.

t1 = (1, 2.0, 'ineuron')

print(len(t1))

Q45. What are sets in Python?

Sets are unordered collection datatype which is mutable , iterable. It will remove duplicate values.

Q46. How can you create a set?

s1 = {1,2,3}

print(type(s1))

Q47. Create a set and add "iNeuron" in your set.

s1 = {1,2,3}

s1.add('ineuron')

print(s1)

Q48. Try to add multiple values using add() function.

s1 = {1,2,3}

s1.add('ineuron', 'Big data')

print(s1)

It will throw an error since add() will take only one argument at a time.

Q49. How is update() different from add()?

s1 = {1,2,3, 'ineuron'}

s2 = {'bigdata', 'course'}

s1.update(s2)

print(s1)

Add() is used to add a single value to the set whereas update() is used to add a different set to the existing set.

Q50. What is clear() in sets?

It will remove all the elements in a set.

s1 = {1,2,3, 'ineuron'}

s2 = {'bigdata', 'course'}

s1.update(s2)

print(s1)

s1.clear()

print(s1)

Q51. What is frozen set?

Ans: Frozen set is an immutable, unordered data type in python. It does not support item assignment. It is used to retrieve the key values of a dictionary. It does not contain duplicate values.

Q52. How is frozen set different from set?

Ans: Set is mutable object and we can use add(), remove() functions to modify the set values. It FrozenSet is an immutable object and it does not support item assignment.

Q53. What is union() in sets? Explain via code.

Ans: Union() is used to return new set with the distinct values from all the sets which are included in union().

a = {1,2,3,4,5}

b = {2,5,8,9}

c = {4,0,2,7}

print(a.union(b,c))

Q54. What is intersection() in sets? Explain via code.

Ans: intersection() is used to return the common values from all the sets.

a = {1,2,3,4,5}

b = {2,5,8,9}

c = {4,0,2,7}

print(a.intersection(b,c))

Q55. What is dictionary ibn Python?

Ans: Dictionary in python will be having the data in the form of key, value pairs. It is mutable object.

Q56. How is dictionary different from all other data structures.

Ans: Dictionary will store the data in the form of key,value pairs while other data structures will store the values.

Q57. How can we delare a dictionary in Python?

Ans: dict1= {‘subjects’: ‘Maths’, ‘Marks’: 100}

Q58. What will the output of the following?

var = {}  
print(type(var))

Ans: <class 'dict'>

Q59. How can we add an element in a dictionary?

Ans: we can add the elements in dictionary by assigning the values to the new keys which need to be added to the existing dictionary.

Eg: dict1 = {'Subjects': 'Maths', 'Marks':100}

dict1['year'] = 2023

print(dict1)

Q60. Create a dictionary and access all the values in that dictionary.

Ans:

dict1 = {'Subjects': 'Maths', 'Marks':100}

for i in dict1:

print("The keys are:", i)

print("The Values are:", dict1[i])

Q61. Create a nested dictionary and access all the element in the inner dictionary.

dict1 = {'Subjects': {'Maths': 90, 'Science':98, 'English':89}, 'year':2023}

# print(dict1['Subjects']['Science'])

for i in dict1:

for j in dict1[i]:

print("The keys in j:", j)

print("The values in j:", dict1[i][j])

Q62. What is the use of get() function?

Get() is used to retrieve the values of a specific key.

dict1 = {'Subjects': 'Maths', 'Marks':100}

print(dict1.get('Marks'))

Q63. What is the use of items() function?

Items() are used to retrieve the key value pairs of the dictionary in the list of tuples format.

dict1 = {'Subjects': 'Maths', 'Marks':100}

print(dict1.items())

Q64. What is the use of pop() function?

Pop() is used to remove the value from the dictionary.

dict1 = {'Subjects': 'Maths', 'Marks':100}

print(dict1.pop('Subjects'))

print(dict1)

Q65. What is the use of popitems() function?

Popitem() will remove the last element from the dictionary.

dict1 = {'Subjects': 'Maths', 'Marks':100}

print(dict1.popitem())

print(dict1)

Q66. What is the use of keys() function?

Keys() is used to retrieve the keys of the dictionary.

dict1 = {'Subjects': 'Maths', 'Marks':100}

print(dict1.keys())

Q67. What is the use of values() function?

Values() is used to retrieve the values of the dictionary.

dict1 = {'Subjects': 'Maths', 'Marks':100}

print(dict1.values())

Q68. What are loops in Python?

Loops are used to iterate each and every object in the datatype and will do some processing.

Q69. How many type of loop are there in Python?

3 types. Do while, while, for loops.

Q70. What is the difference between for and while loops?

While loop: If we are sure about the iteration value, we will go with the while loop.

For loop: If we know the iteration value (till which value we need to do processing), we will go with for loop.

Q71. What is the use of continue statement?

Continue statement is used to skip the current value for checking the condition and it will to the next value.

Q72. What is the use of break statement?

Break statement is used to come out of the specific loop and will go to the outer loop.

Q73. What is the use of pass statement?

Pass statement is a placeholder for future code. If we want to run empty code without any error, we can use pass.

Q74. What is the use of range() function?

Range function will have three values. First value is the starting value. Second one is the end value. Third one is the step.

Q75. How can you loop over a dictionary?

dict1 = {'Subjects': {'Maths': 90, 'Science':98, 'English':89}, 'year':2023}

# print(dict1['Subjects']['Science'])

for i in dict1:

for j in dict1[i]:

print("The keys in j:", j)

print("The values in j:", dict1[i][j])

Q76. Write a Python program to find the factorial of a given number.

Ans:

def fact(num):

if num==1 or num==0:

return 1

else:

res = 1

while num > 0:

res = res\*num

num -=1

return res

usr\_inp = int(input("Enter the factorial number:"))

fact\_res = fact(usr\_inp)

print("The factorial of ", usr\_inp, "is ",fact\_res)

Q77. Write a Python program to calculate the simple interest. Formula to calculate simple interest is SI = (P*R*T)/100

Ans:

def simple\_int(p,r,t):

res = (p\*r\*t)/100

return res

prin=int(input("Enter the value of p:"))

rate=int(input("Enter the value of r:"))

time=int(input("Enter the value of t:"))

simp\_res=simple\_int(prin,rate,time)

print("The simple interest is :", simp\_res)

Q78. Write a Python program to calculate the compound interest. Formula of compound interest is A = P(1+ R/100)^t.

Ans:

def comp\_int(p,r,t):

res = p\*(1+(r/100))\*\*t

# p\*(1+r/100)^t

return res

prin=float(input("Enter the value of p:"))

rate=float(input("Enter the value of r:"))

time=float(input("Enter the value of t:"))

result = comp\_int(prin,rate,time)

print("The compound interest is :", result)

Q79. Write a Python program to check if a number is prime or not.

Ans:

def prime(num):

lst1= []

if num == 1:

print("It is not a prime number")

else:

for i in range(2, num):

if num%i == 0:

lst1.append(i)

if len(lst1)!=0:

print("It is not a prime number")

else:

print("It is a prime number")

usr\_inp = int(input("Enter the number:"))

prime(usr\_inp)

Q80. Write a Python program to check Armstrong Number.

Ans:

def arm\_num\_cnt(num):

count = 1

while num >= 10:

count = count +1

num = num//10

return count

def armstrong(num, cnt):

num3=num

num2 = num

summ=0

if num3<10:

val=num3%1

res=val\*\*cnt

summ = summ+res

num3 = num3//1

summ=summ+(num3\*\*cnt)

if num3==10:

summ=1

while num3>10:

val=num3%10

res=val\*\*cnt

summ = summ+res

num3 = num3//10

summ=summ+(num3\*\*cnt)

if num2 == summ:

print("It is an armstrong number")

else:

print("It is not an armstrong number")

usr\_inp = int(input("Enter the number:"))

cnt = arm\_num\_cnt(usr\_inp)

armstrong(usr\_inp, cnt)

Q81. Write a Python program to find the n-th Fibonacci Number.

Ans:

def fibon(num):

lst1 = []

for i in range(0, num+1):

if len(lst1)==0:

lst1.append(0)

elif len(lst1)==1:

lst1.append(1)

else:

x = lst1[-1]

y = lst1[-2]

summ = x+y

lst1.append(summ)

return lst1

usr\_inp = int(input("Enter the number:"))

fib = fibon(usr\_inp)

print("The fibonaaci series:", fib)

Q82. Write a Python program to interchange the first and last element in a list.

Ans:

def interchange(lst1):

if len(lst1) == 0:

lst1.append(0)

print(lst1)

else:

temp = lst1[0]

lst1[0] = lst1[-1]

lst1[-1]= temp

print(lst1)

usr\_inp = eval(input("Enter the list of numbers:"))

interchange(usr\_inp)

Q83. Write a Python program to swap two elements in a list.

Ans:

def swap(lst1, a,b):

temp = lst1[a]

lst1[a] = lst1[b]

lst1[b] = temp

return lst1

usr\_inp = eval(input("Enter the list:"))

user\_inp\_a= int(input("Enter the number:"))

user\_inp\_b= int(input("Enter the number:"))

swap\_output = swap(usr\_inp, user\_inp\_a, user\_inp\_b)

print(swap\_output)

Q84. Write a Python program to find N largest element from a list.

Ans:

lst1 = [2,5,9,10,3,6]

for i in range(0, len(lst1)):

if i != len(lst1)-1:

if lst1[i] < lst1[i+1]:

lst1[i] = lst1[i]

lst1[i+1]= lst1[i+1]

else:

temp = lst1[i]

lst1[i] = lst1[i+1]

lst1[i+1] = temp

print(lst1)

Q85. Write a Python program to find cumulative sum of a list.

Ans:

usr\_inp = eval(input("Enter the list:"))

summ = 0

for i in usr\_inp:

summ = summ + i

print("The sum of the numbers in the list", summ)

Q86. Write a Python program to check if a string is palindrome or not.

Ans:

def palindrome(str1):

str2 = str1[-1::-1]

if str1.lower() == str2.lower():

print(str1, " is a palindrome")

else:

print(str1, " is not a palindrome")

palindrome("Madam")

Q87. Write a Python program to remove i'th element from a string.

Ans:

str1 = eval(input("Enter the string:"))

i = eval(input("Enter the letter to be removed"))

lst1 = []

for j in str1:

if j.lower() != i.lower():

lst1.append(j)

str2 = ''.join(lst1)

print(str2)

Q88. Write a Python program to check if a substring is present in a given string.

Ans:

str2 = eval(input("Enter the string: "))

sub = eval(input("Enter the substring: "))

str1 = str2.split()

if sub in str1:

print("present")

else:

print("not present")

Q89. Write a Python program to find words which are greater than given length k.

Ans:

str1 = "This is an example program for python"

str2 = str1.split()

print(str2)

count = 0

for i in str2:

for j in i:

count = count + 1

if count >= 4:

print(i)

count = 0

Q90. Write a Python program to extract unquire dictionary values.

Ans:

dict1 = {'A' : [1, 3, 5, 4], 'B' : [4, 6, 8, 10], 'C' : [6, 12, 4 ,8], 'D' : [5, 7, 2]}

dict2 = dict1.values()

res = []

for i in dict2:

for j in i:

if j in res:

continue

else:

res.append(j)

print(res)

Q91. Write a Python program to merge two dictionary.

Ans:

dict1 = eval(input('Enter the dictionary\_1:'))

dict2 = eval(input('Enter the dictionary\_2:'))

for i in dict2.keys():

dict1[i] = dict2[i]

print(dict1)

Q92. Write a Python program to convert a list of tuples into dictionary.

Input : [('Sachin', 10), ('MSD', 7), ('Kohli', 18), ('Rohit', 45)]  
Output : {'Sachin': 10, 'MSD': 7, 'Kohli': 18, 'Rohit': 45}

Ans:

tup = [('Sachin', 10), ('MSD', 7), ('Kohli', 18), ('Rohit', 45)]

dict1 = {}

for i in tup:

dict1[i[0]] = i[1]

print(dict1)

Q93. Write a Python program to create a list of tuples from given list having number and its cube in each tuple.

Input: list = [9, 5, 6]  
Output: [(9, 729), (5, 125), (6, 216)]

Ans:

lst1 = [9, 5, 6]

lst2 = []

for i in lst1:

lst2.append((i, i\*\*3))

print(lst2)

Q94. Write a Python program to get all combinations of 2 tuples.

Input : test\_tuple1 = (7, 2), test\_tuple2 = (7, 8)  
Output : [(7, 7), (7, 8), (2, 7), (2, 8), (7, 7), (7, 2), (8, 7), (8, 2)]

Ans:

tuple1 = (7, 2)

tuple2 = (7, 8)

# [(7, 7), (7, 8), (2, 7), (2, 8), (7, 7), (7, 2), (8, 7), (8, 2)]

res = []

for i in tuple1:

for j in tuple2:

res.append((i,j))

for i in tuple2:

for j in tuple1:

res.append((i,j))

print(res)

Q95. Write a Python program to sort a list of tuples by second item.

Input : [('for', 24), ('Geeks', 8), ('Geeks', 30)]   
Output : [('Geeks', 8), ('for', 24), ('Geeks', 30)]

Ans:

lst1 = [('for', 24), ('Geeks', 8), ('Geeks', 30)]

lst2 = []

while lst1:

min = lst1[0]

for i in lst1:

if i[1] < min[1]:

min = i

lst2.append(min)

lst1.remove(min)

print(lst2)

Q96. Write a python program to print below pattern.

\*   
\* \*   
\* \* \*   
\* \* \* \*   
\* \* \* \* \*   
Ans:

s = '\*'

for i in range(0, 5):

for j in range(0, i+1):

print(s, end = ' ')

print('\n')

Q97. Write a python program to print below pattern.

\*  
 \*\*  
 \*\*\*  
 \*\*\*\*  
\*\*\*\*\*  
Ans:

def pattern():

for i in range(1, 5):

for j in range(5, 0, -1):

if j>i:

print(" ", end= ' ')

else:

print('\*', end= ' ')

print('\n')

pattern()

Q98. Write a python program to print below pattern.

\*   
 \* \*   
 \* \* \*   
 \* \* \* \*   
\* \* \* \* \*   
Ans:

size = 5

m = (2 \* size) - 2

for i in range(0, size):

for j in range(0, m):

print(end=" ")

# decrementing m after each loop

m = m - 1

for j in range(0, i + 1):

print("\* ", end=' ')

print(" ")

Q99. Write a python program to print below pattern.

1   
1 2   
1 2 3   
1 2 3 4   
1 2 3 4 5

Ans:

def pattern():

for i in range(1, 5):

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

print(j, end= ' ')

print('\n')

pattern()

Q100. Write a python program to print below pattern.

A   
B B   
C C C   
D D D D   
E E E E E

Ans:

lst1 = ['A','B','C','D','E']

def pattern():

for i in range(0, 5):

val = lst1[i]

for j in range(0, i+1):

print(val, end= ' ')

print('\n')

pattern()