## Assignment Part-1

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

Ans: Python is a general-purpose language, which means it’s designed to be used in range of applications including data science, software and web development, automation, and generally getting stuff done and high level language because it’s easy for humans to understand.

Q2. Why is Python called a dynamically typed language?

Ans: Python don’t have any problem even if we don’t declare the type of variable. It states the kind of variable in the runtime of the program. Python also takes cares of the memory management which is crucial in programming. So, python is a dynamically typed language.

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

Ans: Pros: Cons:

1. Easy to learn and use 1.Low speed
2. Improved productivity 2.Inefficient memory consumption
3. Interpreted Language 3.Weak in mobile devices
4. Open Source 4.Difficult to access database
5. Easily portable 5.Prone to cause runtime errors
6. Massive libraries
7. Easy to integrate

Q4. In what all domains can we use Python?

Ans: Some of domains are stated below where we can use python:

1. Machine learning/artificial intelligence
2. Desktop GUI
3. Data analytics and data visualization
4. Web development
5. Game development
6. Mobile app development
7. Embedded systems

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

Ans: Variable is a symbolic name that is a reference or pointer to an object. Once an object is assigned to a variable, you can refer to the object by that name.

Example: a = 5 (where = is the assignment operator 5 is value and a = 5, whole is simple variable declaration & assignment.

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

Ans: Input () function first takes the input from user and converts it into a string. The type of the returned object always will be <type’str’>. It does not evaluate the expression it just returns the complete statement as string. For example, python provides a built-in function called input which takes the input from user.

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

Ans: String is the default data type of the value that has been taken as an input using input() function.

Q8. What is type casting?

Ans : The conversion of one data type into the other data type is known as type casting. Like int(), float(),str() etc.

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

Ans: Yes, we can take more than one input from the user using single input() function. With the help of the split()function, we can collect multiple inputs in python from the user and assign all the inputs to the variables.

Var1,var2 =input(“type what type of input we want to collect from the user”).split(“/”for / separated input.

Q10. What are keywords?

Ans: `Keywords have specific meanings and restrictions around how they should be used. Some example of keywords in python are true, false, and, or, not,if, elif, else.

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

Ans: we cannot use keywords as a variable. Keywords are some predefined and reserved words in python that have special meanings. And keywords are used to define the syntax of coding.

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

Ans: Indentation refers to the spaces at the beginning of a code line.

Example: if 5 > 2:

Print(“five is greater than two!”)

Q13. How can we throw some output in Python?

Ans: First need to assign some value to variable than using the print() function we can throw output in python.

Example - int\_var = 10

print("Value of int\_var = ",int\_var," - Result Done !!")

Q14. What are operators in Python?

Ans: Operators are used to perform operations on variables and values.

Example: in the example below, we use the + operator to add together two values: print (10+5)

Some operators are Arithmetic operators, assignment operators, comparison operators, logical operators.

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

Ans: / operator we use for Float data type which contains some decimal value and // we use for integer data type which does not contains any decimal value.

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

```

iNeuroniNeuroniNeuroniNeuron

```

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

Ans: num = 29

num = int (input(":"))

if (num% 2) ==0:

print("the number is even")

else:

print("the provided number is odd")

Input in terminal

:29

the provided number is odd

Q18. What are Boolean operator?

Ans: Boolean operators are the simple words (and, or, not or and not) used as conjunctions to combine or exclude keywords in a search, resulting in more focused and productive results.

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 : true, true, true

```

Q20. What are conditional statements in Python?

Ans: A conditional statement is used to handle conditions in program. These statements guide the program while making decisions based on the conditions. Three conditional statements are 1-id statement 2- if else statement 3- if-elif-else ladder.

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

Ans: 'if', 'elif' and 'else' keywords are the conditional statements which helps to take the decisions by performing the comparison.

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".

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: # sum of addtional of all number ([12, 75, 150, 180, 145, 525, 50])

print("addition of 12+75+150+180+145+525+50",12+75+150+180+145+525+50)

Displays in terminal:

addition of 12+75+150+180+145+525+50 1137

[Done] exited with code=0 in 0.025 seconds

```

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("50:"))

b = int(input("20:"))

c = int(input("30:"))

largest = 0

if a>b and a>c:

largest = a

if b>a and b>c:

largest = b

if c>a and c> b:

largest =c

print(largest,"is the largest of the three numbers.")

output in tertmial

50:

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: my\_list = [12, 75, 150, 180, 145, 525, 50]

if any(item / 5 for item in my\_list):

print("there is an number divisible by five")

elif(item > 150 for item in my\_list):

print(" there is an item greater than 150")

elif(item>500 for item in my\_list):

print(" there is an item greater than 500")

else:

print("Bye")

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

Ans : Strings in Python can be created using single quotes or double quotes or even triple quotes.

str1 = "iNeuron"

print(str1)

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

Ans : You can access the characters in a string by referring to its index number inside square brackets [].elements in an ordered set of data can be accessed directly using the numeric index or key value

Str7 =”Prashant”

print(str7[0])

print(str7[1])

print(str7[2])

print(str7[3])

print(str7[4])

print(str7[5])

print(str7[6])

print(str7[7])

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

string = "Big Data iNeuron"

desired\_output = "iNeuron"

Ans: string = "Big Data iNeuron"

last\_word = string.split(" ")[-1]

print(last\_word)

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

string = "Big Data iNeuron"

desired\_output = "norueNi"

Ans : string = "Big Data iNeuron"

last\_word = string.split(" ")[-1]

print(last\_word)

s = last\_word

rev\_last\_word = s[::-1]

print(rev\_last\_word)

Q30. Resverse the string given in the above question.

Ans : string = "Big Data iNeuron"

last\_word = string.split(" ")[-1]

print(last\_word)

s = last\_word

rev\_last\_word = s[::-1]

print(rev\_last\_word)

Q31. How can you delete entire string at once?

Ans : K = "bad"

test\_list = ["bad", "GeeksforGeeks", "bad", "is", "best", "bad"]

# Printing

print("Original list is : " + str(test\_list))

K = "bad"

# using remove() to

# Remove K String from String List

while(K in test\_list):

test\_list.remove(K)

# Printing modified list

print("Modified list is : " + str(test\_list))

Q32. What is escape sequence?

Ans : An escape sequence is a special character used in the form of backslash(\) followed by a character that is required. These characters are used to represent whitespace.Whitespace gives characters like space, tab, formfeed, vertical tab.

Q33. How can you print the below string?

'iNeuron's Big Data Course'

Ans: str1 = "'iNeuron's Big Data Course'"

print(str1)

Q34. What is a list in Python?

Q35. How can you create a list in Python?

Ans : list1 = [1,2,3,4]

print(list1)

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

Ans : We can access the contents of a list using the list index

list1 = [1,2,3,4]

print(list1[3])

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

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

Ans : list = [1,2,3,"Hi",[45,54, "iNeuron"], "Big Data"]

print(list[4][2])

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

Ans :

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

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

Ans: list1 = ["Welcome", "to", "Data", "course"]

list1.insert(2,"Big")

print(list1)

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

Ans : A tuple is a collection which is ordered and unchangeable. Tuple are used to store multiple items in a single variable.

The primary difference between tuples and lists is that tuples are immutable as opposed to lists which are mutable.

Q41. How can you create a tuple in Python?

Ans :A tuple is created by placing all the items (elements) inside parentheses (), separated by commas.

Example: tuple = (1,2,3)

print(tuple )

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

Ans: Since tuple is immutable, I cannot add my name. Exam is given below:

tuple1 = ()

print(type(tuple1))

tuple1.append("Prashant")

print(tuple1)

output in terminal : AttributeError: 'tuple' object has no attribute 'append'

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

Ans: Two tuples cannot be appended due to their immutable or unchangeable property.

However it can be used to combine tuples to form a new tuple, though it cannot modify an exiting tuple.

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

Q45. What are sets in Python?

Ans: Sets are used to store multiple items in a single variable. A set is a collection which is unordered, all with different qualities and usage.

Q46. How can you create a set?

Ans :A set is created by placing all the items(elements)inside curly braces{},separated by comma, or by using the built-in set() function. Example is given below:

set = {"prashant","Vinod"}

print(set)

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

Ans : set = {"prashant","Vinod"}

print(set)

set.add("iNeuron")

print(set)

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

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

Ans : add () is quicker than update (). Only immutable parameters are accepted by add (). In contrast, accepts iterable sequences. add () only takes one parameter, whereas update () can take multiple sequences.

Q50. What is clear() in sets?

Ans: The clear() method removes all elements in a set. Syntax - set.clear()

Q51. What is frozen set?

Ans: Frozen set is just an**immutable version of a Python set object.**

Q52. How is frozen set different from set?

Ans: While elements of a set can be modified at any time, elements of the frozen set remain the same after creation. Due to this, frozen sets can be used as keys in Dictionary or as elements of another set.

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

Ans : The Union() is a method in Python that returns a new set which contains distinct items from all the set. Syntax: union set = set1.union(set2)

set\_a = {1,2,3,4,5,6}

set\_b = {3,6,8,9,10}

print(set\_a | set\_b)

other example set1 ={1,2,6,5,4,7}

set2 ={3,4,5,6,7,8}

set = set1.union(set2)

print(set)

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

Ans : Python set intersection () methodreturns a new set with an element that is common to all set The intersection of two given sets is the largest set, which contains all the elements that are common to both sets.

s1 = {1, 2, 3}

s2 = {2, 3}

print(s1.intersection(s2))

Q55. What is dictionary ibn Python?

Ans: In Python, dictionaries are mutable data structures that allow you to store key-value pairs. Dictionary can be created using the dict () constructor or curly braces' {}'. Once you have created a dictionary, you can add, remove, or update elements using the methods dict.update (), dict.pop (), and dict.popitem ().

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

Ans: It is an unordered collection of data values, used to store data values like a map, which, unlike other Data Types that hold only a single value as an element

Q57. How can we delare a dictionary in Python?

Ans : dict1 = {}

print(type(dict1))

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: Adding an item to the dictionary is done by using a new index key and assigning a value to it:

thisdict = {  
  "brand": "Ford",  
  "model": "Mustang",  
  "year": 1964  
}  
thisdict["color"] = "red"  
print(thisdict)

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

Ans: dict2 = {}

dict2['name'] = 'Prashant'

dict2['age'] = 22

dict2['skills'] = ['Python', 'Java']

dict2['states\_visited'] = ('UP', 'Goa')

dict2[45] = 'Random Key'

dict2['other\_details'] = {'color' : 'Black', 'nationality' : 'Indian'}

print(dict2)

print(dict2['name'])

print(type(dict2))

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

Ans: A dictionary can contain another dictionary, which in turn can contain another dictionary inside of it and so on. If this nesting of dictionary even occurs for one time then we say that the dictionary is nested.

d = { 'title': 'nested dict',

'lang': {'name':'python', 'version': '3.+'}}

print(d)

print(type(d))

title = d['title']

lang = d['lang']

print('title,lang')

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

Ans : Get() function returns a value for the given key. If key is not available then returns default value None.

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

Ans : In Python Dictionary, items() method is used to return the list with all dictionary keys with values.

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

Ans : The pop method will remove an item from a given index of the list and returns the removed item. So, in the end, the pop() method will be like a list without the element that was popped.

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

Ans: The popitem() function is used to remove the last item from a specified dictionary.

Example: x = {"Date": "02", "Day": "Thu", "Month": "Dec", "Year": "2021"}

print(x)

x.popitem()

print(x)

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

Ans: The keys() function in Python returns the list of all keys of a specified dictionary as a view object.

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

Ans : The values() method returns a view object. The view object contains the values of the dictionary, as a list.

Q68. What are loops in Python?

Ans: A concept in Python programming package that allows repetition of certain steps, or printing or execution of the similar set of steps repetitively, based on the keyword that facilitates such functionality being used, and that steps specified under the keyword automatically indent accordingly is known as loops in python.

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

Ans : In Python, there are three types of loops to handle the looping requirement:

1.If and elif

2. For loop

3. While loop

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

Ans: The main difference between for loop and while loop is that in for loop the number of iterations to be done is already known. And is used to obtain a certain result. whereas in while loop the command runs until a certain condition is reached and the statement is proved to be false.

Q71. What is the use of continue statement?

Ans: The continue statement is used inside loops. When a continue statement is encountered inside a loop, control jumps to the beginning of the loop for next iteration, skipping the execution of statements inside the body of loop for the current iteration.

Q72. What is the use of break statement?

Ans: The break statement is used to terminate the loop or statement in which it is present. After that, the control will pass to the statements that are present after the break statement, if available. If the break statement is present in the nested loop, then it terminates only those loops which contains break statement.

Q73. What is the use of pass statement?

Ans: As the name suggests pass statement simply does nothing. The pass statement in Python is used when a statement is required syntactically but you do not want any command or code to execute. It is like null operation, as nothing will happen is it is executed. Pass statement can also be used for writing empty loops. Pass is also used for empty control statement, function and classes.

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

Ans : The range() function returns a sequence of numbers, starting from 0 by default, and increments by 1 (by default), and stops before a specified number.

Q75. How can you loop over a dictionary?

Ans : We can loop through a dictionary by using a for loop.

When looping through a dictionary, the return value are the keys of the dictionary, but there are methods to return the values as well.

**Coding problems**

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

Ans :

def factorial(n):

if n==0 or n==1:

return 1

result = 1

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

result = result \*num

return result

x = 6

ans = factorial(x)

print("factorial of number",x,"=",ans)

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

Ans : P = 300

R = 1

T = 4

Simple\_interest = (P \* R \* T) / 100

print("The simple interest is:", Simple\_interest)

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

Ans: #Python program to compute compound interest

p = float(input("Enter the principal amount : "))

t = float(input("Enter the number of years : "))

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

#compute compound interest

ci = p \* (pow((1 + r / 100), t))

#print

print("Compound interest : {}".format(ci)) Q79. Write a Python program to check if a number is prime or not.

Q80. Write a Python program to check Armstrong Number.

Ans : def Armstrong(n,o):

sum = 0

temp = n

while temp > 0:

digit = temp % 10

sum += digit \*\* o

temp = temp//10

if n == sum:

print(n,"is an Armstrong number")

else:

print(n,"is not an Armstrong number")

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

Ans : #recursive approach

def Fibonacci(n):

if n<0:

print("Fibbonacci can't be computed")

# First Fibonacci number

elif n==1:

return 0

# Second Fibonacci number

elif n==2:

return 1

else:

return Fibonacci(n-1)+Fibonacci(n-2)

# main

n=10

print(Fibonacci(n))

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

Ans: list = []

n = int(input("Enter the number of elements in list:"))

for x in range(0, n):

element = input("Enter element:")

list.append(element)

print("Your current list is:", list)

temp = list[0]

list[0] = list[n-1]

list[n-1] = temp

print("New list is:", list)

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

Ans : # Python Program to Swap Two Elements in a List using Function

NumList = []

#how many elements in list

Number = int(input("How many elements in list :- "))

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

value = int(input("Please enter the Value of %d Element :- " %i))

NumList.append(value)

#print list before swapping

print("\nList before swapping of elements :-\n",NumList)

#take position to swap

position1 = int(input("Enter the position 1 of element, which you want to swap :- "))

position2 = int(input("Enter the position 1 of element, which you want to swap :- "))

# Swap function

def swapPositions(list, pos1, pos2):

list[pos1], list[pos2] = list[pos2], list[pos1]

return list

print("List after swapping of elements :-\n",swapPositions(NumList, position1-1, position2-1))

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

Ans : def largest\_ele(l,n):

s=[]

for i in range(n):

s.append(max(l)) #append max of list in a new list

l.remove(max(l)) #remove max of list from the list

print('by largest\_ele function: ',s)

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

Ans : a=[]

n= int(input("Enter the number of elements in list:"))

for x in range(0,n):

element=int(input("Enter element" + str(x+1) + ":"))

a.append(element)

b=[sum(a[0:x+1]) for x in range(0,len(a))]

print("The original list is: ",a)

print("The new list is: ",b)

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

Ans : my\_string=input("Prashant:")

if(my\_string==my\_string[::-1]):

print("The string is a palindrome")

else:

print("The string isn't a palindrome")

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

Ans : myStr = input('Enter the string : ')

i = int(input('Enter the index of character to be removed : '))

resStr = ""

for index in range(len(myStr)):

if index != i:

resStr = resStr + myStr[index]

# Printing all strings...

print ("Entered string : " + myStr)

print ("String formed by removing i'th character : " + resStr)

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

Ans : def check(str1, sstr):

if (str1.find(sstr) == -1):

print(sstr,"IS NOT PRESENT IN THE GIVEN STRING")

else:

print(sstr,"IS PRESENT IN THE GIVEN STRING")

# Driver code

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

sstr=input("Enter Substring ::>")

check(str1, sstr)

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

Ans: myStr = input('Enter the string : ')

k = int(input('Enter k (value for accepting string) : '))

largerStrings = []

# Finding words with length greater than k

words = myStr.split(" ")

for word in words:

if len(word) > k:

largerStrings.append(word)

# printing values

print("All words which are greater than given length ", k, "are ", largerStrings)

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

Ans : my\_dict = {'hi' : [5,3,8, 0],

'there' : [22, 51, 63, 77],

'how' : [7, 0, 22],

'are' : [12, 11, 45],

'you' : [56, 31, 89, 90]}

print("The dictionary is : ")

print(my\_dict)

my\_result = list(sorted({elem for val in my\_dict.values() for elem in val}))

print("The unique values are : ")

print(my\_result)

Q91. Write a Python program to merge two dictionary.

Ans : fruits = {"apple": 2, "orange" : 3, "tangerine": 5}

dry\_fruits = {"cashew": 3, "almond": 4, "pistachio": 6}

## combining two dictionaries

new\_dictionary = {\*\*dry\_fruits, \*\*fruits}

print(new\_dictionary)

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 : lang\_dictionary = {}

lang\_tuples= [('Sachin', 10), ('MSD', 7), ('Kohli', 18), ('Rohit', 45)]

#converting a list of the tuple to the dictionary

for lang,value in lang\_tuples:

#list of tuples to the dictionary

lang\_dictionary.setdefault(lang, []).append(value)

print(lang\_dictionary)

print(type(lang\_dictionary))

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 : def cubeoflist(li):

# list of tuples

result=[(num, num\*\*3) for num in list]

return result

# initialise list

list = [9, 5, 6]

# print the result

print(cubeoflist(list))

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)]

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)]

Q96. Write a python program to print below pattern.

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

Ans : n = 5

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

# internal loop run for i times

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

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

print()

Q97. Write a python program to print below pattern.

\*

\*\*

\*\*\*

\*\*\*\*.

Ans: size = 4

for i in range(size):

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

print(" ", end="")

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

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

print()

Q98. Write a python program to print below pattern.

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

Ans :

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 : size = 5

for i in range(size):

for j in range(i+1):

print(j+1, end="")

print()

Q100. Write a python program to print below pattern.

A

B B

C C C

D D D D

E E E E E