## Assignment Part-1

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

* Python is called general purpose because it is applied to real world class problems and called high-level because it’s easy for humans to understand

Q2. Why is Python called a dynamically typed language?

* It doesn’t know the type of variable until the code is run. So, type of the variable is determined at runtime
* Also, variables can be used without declaring them explicitly

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

* Simple and Easy
* Easy to learn
* Easy to code
* Readable
* Object-oriented and procedure-oriented
* Free and Open Source
* Less Coding
* Portable
* Interpreted
* Extensive Libraries
* Automatic memory management - Python supports automatic memory management which means, the memory is cleared and released automatically. We do not have to worry about clearing the memory.
* Enterprise Application integration because it works on different platforms like Raspberry Pi, Linux, Windows, Mac, etc. This makes python as a portable language and cross platform language.

 Disadvantages -

* Speed limitations – Python execution results are a bit slow as the code executed line by line.
* Large memory consumption – Python is not suitable to use under the limited memory restrictions. Python structures need more memory space.
* Not suitable for Mobile – Python is designed as server-side scripting language and very rarely used at the client-side. And, also very rarely used in mobile based applications.
* Design restrictions – Python is “dynamic-typed” language as it does not require a variable to be declared before using it. The programmer job is easier with this however it may cause run time errors due to invalid data movements.
* Weak database access layers – Database layers are less comparative when compared with standard database layers ODBC and JDBC.
* Error detection codes – Python executed through an interpreter instead of a compiler. So, the errors and bug cannot be detected during the program execution. Developer should have code an exception handling for catching the errors.
* Difficult to test – All the errors are caught during the runtime including syntax errors. We need to clear up all the errors to get the output. So testing is a bit difficult in Python specially when integrated with other systems.

Q4. In what all domains can we use Python?

* Machine Learning / Artificial Intelligence
* Web Development
* Desktop GUI
* Data Analyis and Data Visualization
* Game development
* Embedded systems
* Mobile App Development

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

* A symbolic name to an object or to the memory location which is storing some value

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

* Using the input() function

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

* string

Q8. What is type casting?

* Conversion of one data type to other data type in order for the operation to be successful

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

* We cannot take directly but we can decide on delimiter and use split function with input to separate the input values.

Q10. What are keywords?

* Special reserved words that have specific purpose and can’t be used for user defined purposes

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

* raise is a keyword in Python which is used to force a specific exception to occur.
* The syntax is **raise NameError(“name error”) / raise userdefinedException**
* If we try to declare a variable like **raise=’abcd’**, then python interpreter throws an syntax error because right after raise, python interpreter expects an exception name but not assignment operator

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

* Indentation means adding spaces at the beginning of a line of code
* It helps us to define the scope of block of code in Python

Q13. How can we throw some output in Python?

* We can use print function to write on console
* Using open() function and write mode to write to file

Q14. What are operators in Python?

* Operators define the type of operation to be performed between two operand
* +,-,==,\* etc

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

* It returns the quotient after dividing the first operand by the second operand. It can return decimal values
* It gives the floor value of the quotient produced by dividing the two operands.

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

```

iNeuroniNeuroniNeuroniNeuron

```

**var='iNeuron'\*4**

**print(var)**

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

num=int(input("ENter number:"))

print('even' if num%2==0 else 'odd')

Q18. What are boolean operator?

* The logical operators and, or and not are also referred to as boolean operators. While and as well as or operator needs two operands, which may evaluate to true or false, not operator needs one operand evaluating to true or false.
* Boolean and operator returns true if both operands return true.
* Boolean or operators retruns true if atleast one of the operands return true

Q19. What will the output of the following?

```

1 or 0

0 and 0

True and False and True

1 or 0 or 0

```

**1**

**0**

**False**

**1**

Q20. What are conditional statements in Python?

* It is used for decision making and executes certain block of code whenever a condition is satisfied
* We have if, if..else, if..elif..else, Nested if etc

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

* It is used for decision making and executes certain block of code whenever a condition is satisfied
* Traversal starts from beginning of the conditional statement and if any condition is satisfied, that specific block of code will be executed and the comes out of conditional construct

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".

age=int(input("Enter 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]

```

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

even = [num for num in numbers if num%2==0]

print(even)

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

num1=int(input("Enter num 1:"))

num2=int(input("Enter num 2:"))

num3=int(input("Enter num 3:"))

if (num1 >= num2) and (num1 >= num3):

 largest = num1

elif (num2 >= num1) and (num2 >= num3):

 largest = num2

else:

 largest = num3

print("The largest number between",num1,",",num2,"and",num3,"is",largest)

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]

```

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

for num in numbers:

    if num%5 ==0 :

        if num > 150 & num < 500:

            continue

        if num > 500:

            break

        print(num)