Assignment -1

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

A1) Python is considered as High-level programming language which means it can be understood by humans and is easily interpreted. High-level languages are closer to English. Python's syntax is designed to be easy to read and understand resulting in fewer coding steps for developers as compared to other languages. Python due to its simplicity is used in various application such as data science, web and software development, automation etc and hence its called as general purpose language.

Q2) Why Python is called dynamically typed language?

A2) In other languages such as Java we have to declare the datatype of variables before using them or assigning them any value. On the other hand, we do not have to declare the datatype of variable in Python, it decides the datatype at runtime. Hence, Python is dynamically typed language.

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

A3) Pros:

a) Simple and easy to learn
b) Easy to code
c) Object-Oriented
d) Extensive libraries
e) Automatic memory management

Cons:

a) Not suitable for mobile
b) Since Python is dynamic, shows more error at runtime
c) Python is slow
d) Has limitations with database access
e) Python consumes more memory

Q4) In what all domains we can use Python?

A4)

a) Data Science
b) Automation
c) Application Development
d) Artificial Intelligence and Machine Learning
e) Desktop GUI
f) Game Development

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

A5) Variables, in simple terms we can say that they are memory locations. Variables are containers for storing data values.

Python has no command for declaring a variable. A variable is created when we assign a value to it.

Eg: 1. x = 10 (type is integer)

2. y = “Data” (type is String)

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

A6) We can take input from the user using **input()** function.

Eg: name = input(“Enter name =”)

print(“Name is ”, name)

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

A7) String is the default datatype of the value that has been taken input using input() function.

Q8) What is type casting?

A8) The conversion of one datatype to another datatype is called as type casting.

Eg:

```
x = 10

y = float (x)

print (“The casted value is:”, y)
```

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

A9) Yes, we can take more than one input from the user using single input() function. We can do it by using split() method.

Eg:

```
a, b, c = input("Enter three values: ").split()
print("Enter Your First Name: ", a)
print("Enter Your Last Name: ", b)
print("Enter Your Class: ", c)
```

Q10) What are keywords?

A10) Python has a set of keywords that are reserved words that cannot be used as variable names, function names, or any other identifiers. Eg: True, False, and, if, for, else etc.

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

A11) No, we cannot use keywords as variable because keywords are predefined and have specific functions assigned to them. If we forcefully use keywords for variable it will throw an error.

Q12) What is indentation? What’s the use of indentation in Python?

A12) Indentation refers to the spaces that are used in the beginning of a statement. By default python puts 4 spaces but it can be changed accordingly.
Eg:

```
if(condition):
    Statement
```

If (condition):

Statement 1

Statement 2

Q13) How can we throw some output in Python?

A13) We can thro output using print() function.

Eg:

Print(“Hello World”)

Q14) What are operators in Python?

A14) Operators can be defined as a symbol which is responsible for a particular operation between two operands.

a) Numerical Operators in Python

(+) for addition

(-) for subtraction

(*) for multiplication
(/) for float division
(//) for integer division
(**) for power calculation
(%) for modulus

```
x = 3
y = 5
print("Addition of x + y = ", x+y)
print("Subtraction of x - y = ", x-y)
print("Multiplication of x * y = ", x*y)
print("Float Division of x / y = ", x/y)
print("Integer Division of x // y = ", x//y)
print("Modulus of x % y = ", x%y)
print("Power of y on x i.e; x ** y = ", x**y)
```

b) Concat operator for string

name = “James”+ “ ” + “Bond”

print (“Full Name = ”, name)

c) Assignment operators

= , x = 5
+= , x += 5 -> x = x + 5
-= , x -= 5 -> x = x - 5
*= , x *= 5 -> x = x * 5
/= , x /= 5 -> x = x / 5
//= , x //= 5 -> x = x // 5
%= , x %= 5 -> x = x % 5

d) Comparison Operator

==, Equals to condition. x==y

!= , Not Equals to condition , x != y
> , Greater than condition , x > y
< , Less than condition , x < y
>= , Greater than and Equals to condition , x >= y

<= , Less than and Equals to condition , x <= y

e) Logical Operators – Logical operators in Python will check for expression results.

and -> Returns true if both statements are true
or -> Returns true if one of statements are true
not -> Reverse the result, returns false if the result is true

m = 10
n = 8

```
print("m>10 and n<10 Result " , m>10 and n<10) # False and True ->
False
print("m>20 or n<10 Result " , m>10 or n<10) # False or True ->
print("not(m>20 and n<10) Result " , not(m>10 and n<10))
# not(False and True) -> not(False) -> True
```

Q15) What is the difference between / and // operators?

A15) / operator is for float division

// operator is for integer division

Q16) Write a code to give the following output

iNeuroniNeuroniNeuroniNeuron

A16) name = “iNeuron”*4

print(“Result is ”, name)

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

A17) number = input (“Enter any number”)

if (number%2)==0:

print(“The entered number is even !!”)

else:

print (“The entered number is odd !!”)

Q18) What are Boolean Operators?

A18) Boolean operators gives output as True and False depending on the condition. They only have 2 output.

For example, 1==1 is True whereas 2<1 is False.

Q19) What will the output of the following?

```
1 or 0

0 and 0

True and False and True

1 or 0 or 0
```

A19) 1 (True)

0 (False)

False

1 (True)

Q20) What are conditional statements in Python?

A20) Conditional statements in Python are used to handle conditions.

Eg:

<u>If- else</u>

```
x = 10
Y = 5
if x==y:
   print("Yes, X is Equals to Y !!")
else:
   print("No, X is not Equals to Y !!")
```

<u>Nested if-else</u>

```
Marks = 54

If marks >=90:
print(“Grade A+”)
```

```
elif marks >=80 and marks <90:
print(“Grade A”)

elif marks >=70 and marks <80:
print(“Grade B+”)

elif marks >=60 and marks <70:
print(“Grade B”)

else:
print(“Grade C”)
```

Q21) What is use of ‘if’, ‘elif’ and ‘else’ keywords?

A21) if, elif and else, all are conditional statements which are used in a program when we have multiple conditions and accordingly we can use them.

Eg:

If- else

```
x = 10
Y = 5
if x==y:
   print("Yes, X is Equals to Y !!")
else:
   print("No, X is not Equals to Y !!")
```

Nested if-else

```
Marks = 54

If marks >=90:
print(“Grade A+”)

elif marks >=80 and marks <90:
print(“Grade A”)

elif marks >=70 and marks <80:
```

```
print(“Grade B+”)

elif marks >=60 and marks <70:
print(“Grade B”)

else:
print(“Grade C”)
```

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".

A22)
```
age = input(“Enter your age”)

if age >18:
print (“You can vote”)

else:
print(“You 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]
```

A23)
```
numbers = [12,75,150,180,145,525,50]

sum = 0
for val in numbers:
if (val%2)==0:
sum = sum+val
print(sum)
```

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

A24)

```
n1 = int(input(“Enter first number: ”))
```

```
n2 = int(input(“Enter second number: ”))
n3 = int(input(“Enter third number: ”))

if (n1>n2) and (n1>n3):
largest = n1

elif (n2>n1) and (n2>n3):
largest = n2

else:
largest = n3

print(“The largest number 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]
```