Python basic question

1. What is Python, and why is it popular?
   Ans- Python is a versatile high level programming language known for its beginner
   friendly English like syntax that emphasises code readability and conciseness
   It is popular because its easy to use and has vast ecosystem of pre written code, tools and framework which save users time and efforts by allowing them to reuse existing code.

2. What is an interpreter in Python?
   Ans-A python interpreter is a program that converts Python code into machine readable code and run them and enabling you to execute python script and view results instantly. It acts as a bridge between the high-level python code you write and the low-level instructions that the computer can directly utilize.

3. What are pre-defined keywords in Python?
   Ans- pre-defined keywords are reserved words that hold the special meaning within the language. These keywords cannot be used as identifiers for variables, functions, classes or any other user defined entities.

4. Can keywords be used as variable names?
   Ans- No

5. What is mutability in Python?
   Ans- An object is considered as mutable if its state or value can be modified after it is created.

6. Why are lists mutable, but tuples are immutable?
   Ans- list can be modified after they created but tuples cannot be modified after they were created because this ensures data integrity as once a tuple is defined its element cannot be accidently or intensely changed.

7. What is the difference between “==” and “is” operators in Python?
   Ans- The == operator is used to compare the equality of objects. The is operator is used to check if different variables are pointing to the same object in the memory.

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8. What are logical operators in Python?
   Ans-Logical operators in Python are used to combine conditional statements, allowing you to evaluate multiple conditions and control the flow of your program. These operators return a Boolean value (True or False) based on the logic applied.
9. What is type casting in Python?
   Ans- Type Casting in Python refers to the process of converting one data type into another. This can be done either implicitly (automatically by Python) or explicitly (manually by the programmer). It is often used to ensure compatibility between different data types during operations.

10. What is the difference between implicit and explicit type casting?

Ans - Implicit Type Casting - This is an automatic type conversion performed by Python. It happens when Python converts a smaller or less precise data type into a larger or more precise data type to avoid data loss.

For ex-

```
a= 5

b= 3.5

c= a+b

print(c)

print(type(c))
```

output:

8.5

Float

Explicit Type Casting - This is a manual type conversion where the programmer explicitly specifies the desired data type using type conversion functions like int (), float (), str (), etc.

For ex-

```
a= "10"

b= 3

c=int(a)+b
```

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print(c)

print(type(c))

output:

13

Int

11. What is the purpose of conditional statements in Python?

Ans - Conditional statements in Python are used to control the flow of a program by executing specific blocks of code based on whether certain conditions are true or false. They allow programs to make decisions and behave differently in various situations.

12. How does the Elif statement work?

Ans-The Elif statement in Python allows you to check multiple conditions in a sequence, executing the block of code associated with the first true condition.

For ex-

```
temperature =30

if temperature >30:

    print("hot")

elif

    temperature <= 30:

    print("cold")
```

output- cold

13. What is the difference between for and while loops.

Ans - For Loop: Used to iterate over a sequence (like a list, tuple, string, or range) or any iterable object. It is ideal when the number of iterations is known beforehand.

For ex -

```
i=5

for i in range(5):
```

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print(i)

output – 0

1

2

3

4

While Loop: Used to repeatedly execute a block of code as long as a specified condition is `True`. It is better suited for scenarios where the number of iterations is not predetermined.

For ex - count = 0

```
while count < 5:
    print(count)
    count += 1
```

output – 1

2

3

4

1. Write a Python program to print "Hello, World".

Ans- print ("Hello World!")

Output- Hello World!

2. Write a Python program that displays your name and age.

Ans- Name="Priyanka"

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Age=28

print (Name,Age)

Output – Priyanka,28

3. Write code to print all the pre-defined keywords in Python using the keyword library.

Ans - help("keywords")

Output - Here is a list of the Python keywords. Enter any keyword to get more help.

False class from or

None continue global pass

True def if raise

and del import return

as elif in try

assert else is while

async except lambda with

await finally nonlocal yield

break for not

4. Write a program that checks if a given word is a Python keyword.

Ans -

5. Create a list and tuple in Python, and demonstrate how attempting to change an element works differently for each.

Ans- Creating a list

```
My_list = [1,2,3,4]
My_list[1] = 20
Print(my_list)
```

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Output = [1,20,3,4]

Creating a tuple

my_tuple = (1,2,3,4)

my_tuple(1) == 20

print(my_tuple)

output - TypeError: 'tuple' object is not callable.

6. **Write a function to demonstrate the behavior of mutable and immutable arguments.**

Ans –

7. **Write a program that performs basic arithmetic operations on two user-input numbers.**

Ans - num1 = int(input("enter first number"))
num2 = int(input("enter second number"))

Addition = num1 + num2
print(Addition)

substraction = num1 - num2
print(substraction)

multiplication = num1 * num2
print(multiplication)

division = num1 / num2
print(division)

output –
enter first number50
enter second number30
80
20
1500

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1.6666666666666667

```
a = 1
b = 3
print(a > 2 & b > 2)
```

output –
false

```
a = 1
b = 3
print(a > 2 or b > 2)
```

output – true

```
 a=false
print(not a)
```

output – True

11. Write a program that checks if a number is positive, negative, or zero.

Ans –

```
x = input("enter a number")
y = int(x)
if y > 0:
  print("number is positive")
elif y < 0:
  print("number is negative")
else:
  print("number is zero")
```

12. Write a for loop to print numbers from 1 to 10.

Ans – i = 1

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```
for i in range(100):
  print(i)
  i= i +1
```