

1. What are literals ? How many types of literals are available in Python ?
2. How many types of integer literals are allowed in Python ? How are they written ?
3. Why are characters \, ', " and tab typed using escape sequences ?
4. Which escape sequences represent the newline character and backspace character ? An escape sequence represents how many characters ?
5. What are string-literals in Python ? How many ways, can you create String literals in Python ? Are there any differences in them ?
6. What is meant by a floating-point literal in Python ? How many ways can a floating literal be represented into ?
7. Write the following real constants into exponent form :
23.197, 7.214, 0.00005, 0.319
8. Write the following real constants into fractional form :
0.13E04, 0.417E-04, 0.4E-5,
.12E02, 12.E02
9. What are the two Boolean literals in Python ?
10. Name some built-in literals of Python.
11. Out of the following literals, determine their type whether decimal / octal / hexadecimal integer literal or a floating point literal in fractional or exponent form or string literal or other ?
123, 0o124, 0xABC, 'abc', "ABC",
12.34, 0.3E-01, "'ftghjkl'",
None, True, False
12. What kind of program elements are the following ?
'a', 4.38925, "a", "main" ?
13. What will var1 and var2 store with statements : var1 = 2,121E2 and var2 = 0.2,121E2 ? What are the types of values stored in var1 and var2 ?

Start a Python IDE of your choice and do as directed.

```
>>>❖<<<
```

7.3.4 Operators

Operators are tokens that trigger some computation when applied to variables and other objects in an expression. Variables and objects to which the computation is applied, are called **operands**. So, an operator requires some *operands* to work upon.

The following list gives a brief description of the operators and their functions / operators, in details, will be covered in next chapter – *Data Handling*.

OPERATORS
Operators are tokens that trigger some computation action when applied to variables and other objects in an expression.

Unary Operators

Unary operators are those operators that require one operand to operate upon. Following are some unary operators :

- + Unary plus
- Unary minus
- ~ Bitwise complement
- not logical negation

Binary Operators

Binary operators are those operators that require two operands to operate upon. Following are some binary operators :

Arithmetic operators

- + Addition
- * Multiplication
- % Remainder/ Modulus
- ** exponent (raise to power)
- // Floor division
- Subtraction
- / Division

Bitwise operators

- & Bitwise AND
- ^ Bitwise exclusive OR (XOR)
- | Bitwise OR

Shift operators

- << shift left
- >> shift right

Identity operators

- is is the identity same ?
- is not is the identity not same ?

Relational operators

<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to
==	Equal to
!=	Not equal to

Assignment operators

=	Assignment
/=	Assign quotient
+=	Assign sum
*=	Assign product
%=	Assign remainder
-=	Assign difference
**=	Assign Exponent
//=	Assign Floor division

Logical operators

and	Logical AND
or	Logical OR

Membership operators

in	whether variable in sequence
not in	whether variable not in sequence

More about these operators you will learn in the due course. Giving descriptions and examples is not feasible and possible right here at the moment.

7.3.5 Punctuators

Punctuators are symbols that are used in programming languages to organize sentence structures, and indicate the rhythm and emphasis of expressions, statements, and program structure.

Most common punctuators of Python programming language are :

' " # \ () [] { } @ , : . ` =

The usage of these punctuators will be discussed when the need arises along with normal topic discussions.

PUNCTUATORS

Punctuators are symbols that are used in programming languages to organize programming-sentence structures, and indicate the rhythm and emphasis of expressions, statements, and program structure.

LET US REVISE

- ❖ A token is the smallest individual unit in a program.
- ❖ Python provides following tokens : keywords, identifiers (names), Values (literals), punctuators, operators and comments.
- ❖ A keyword is a reserved word carrying special meaning and purpose.
- ❖ Identifiers are the user-defined names for different parts of the program.
- ❖ In Python, an identifier may contain **letters** (a-z, A-Z), **digits** (0-9) and a symbol underscore (_). However, an identifier must begin with a letter or underscore ; all letters/digits in an identifier are significant.
- ❖ Literals are the fixed values.
- ❖ Python allows following literals : string literal, numeric (integer, floating-point literals, Boolean literals, special literal None and literal collections).
- ❖ Operators are tokens that trigger some computation / action when applied to variables and other objects in an expression.
- ❖ Punctuators are symbols used to organize programming-sentence structures and indicate the rhythm and emphasis of