

St. Aloysius Sr.Sec.School, Cantt., Jabalpur

Class 12 (IP)

Unit 1 (week 2)

Dated : 05/4/2020

Solved and unsolved questions for you.

**OBJECTIVE TYPE QUESTIONS**

1. Fill in the blanks.

(a) ..... is the Python operator responsible for declaring variables.

(b) The built-in function randrange() belongs to ..... module.

(c) A ..... operator does not directly operate on data but produces a left-to-right evaluation of expression.

(d) median() method belongs to ..... module in Python.

(e) The reserved words in Python are called ..... and these cannot be used as names or identifiers

(f) An ..... is a symbol used to perform an action on some value.

(g) A file that contains a collection of related functions and other definitions is called .....

(h) The modules in Python have the ..... extension.

(i) A ..... is just a module that contains some useful definitions.

(j) Each object in Python has three key attributes—a ....., a ..... and an .....

(k) In Python, the non-zero value is treated as ..... and zero value is treated as .....

(l) Keys of a dictionary must be .....

(m) In ....., the adjoining values in a sequence are compared and exchanged repeatedly until the entire array is sorted.

(n) Logical operators are used to combine two or more ..... expressions.

(o) The ..... function returns the length of a specified list.

- Answers:**
- |                             |                 |               |
|-----------------------------|-----------------|---------------|
| (a) Assignment (=) operator | (b) random      | (c) comma (,) |
| (d) statistics              | (e) keywords    | (f) operator  |
| (g) module                  | (h) .py         | (i) library   |
| (j) type, value, id         | (k) true, false | (l) unique    |
| (m) Bubble sort             | (n) relational  | (o) len()     |

2. State whether the following statements are True or False.

- (a) The two statements `x = int(22.0/7)` and `x = int(22/7.0)` yield the same results.
- (b) The given statement: `x + 1 = x` is a valid statement.
- (c) List slice is a list in itself.
- (d) Relational operators return either true or false.
- (e) `break`, `continue`, `pass` are the three conditional statements.
- (f) The `%` (modulus) operator cannot be used with the float data type.
- (g) The `range()` function is used to specify the length of a for-in loop.
- (h) Assignment operator can be used in place of equality operator in the test condition.
  - (i) Comments in Python begin with a "\$" symbol.
  - (j) In `print()` function, if you use a concatenate operator (+) between two strings, both the strings are joined with a space in between them.
  - (k) If we execute Python code using prompt ">>>" then we call it an interactive interpreter.
  - (l) Lists are immutable while strings are mutable.
- (m) The keys of a dictionary must be of immutable types.
- (n) Lists and strings in Python support two-way indexing.
- (o) Tuples can be nested and can contain other compound objects like lists, dictionaries and other tuples.

Answers: (a) True      (b) False      (c) True      (d) True      (e) False      (f) True  
(g) True      (h) False      (i) False      (j) False      (k) True      (l) False  
(m) True      (n) True      (o) True

3. Multiple Choice Questions (MCQs)

- (a) Which of the following is not considered a valid identifier in Python?
  - (i) `two2`
  - (ii) `_main`
  - (iii) `hello_rsp1`
  - (iv) `2 hundred`
- (b) What will be the output of the following code— `print("100+200")`?
  - (i) `300`
  - (ii) `100200`
  - (iii) `100+200`
  - (iv) `200`

(d) pow() function belongs to which library?

- (i) math                      (ii) string                      (iii) random                      (iv) maths

(e) Which of the following statements converts a tuple into a list?

- (i) len(string)                      (ii) list(string)                      (iii) tup(list)                      (iv) dict(string)

(f) The statement: bval = str1 > str2 shall return ..... as the output if two strings str1 and str2 contains "Delhi" and "New Delhi".

- (i) True                      (ii) Delhi                      (iii) New Delhi                      (iv) False

(g) What will be the output generated by the following snippet?

```
a = [5,10,15,20,25]
k = 1
i = a[1] + 1
j = a[2] + 1
m = a[k+1]
print(i, j, m)
```

- (i) 11 15 16                      (ii) 11 16 15                      (iii) 11 15 15                      (iv) 16 11 15

(j) What is the output of the following?

```
d = {0: 'a', 1: 'b', 2: 'c'}
for i in d:
    print(i)
```

- (i) 0  
1  
2                      (ii) a  
b  
c                      (iii) 0  
a  
1  
b  
2  
c                      (iv) 2  
a  
2  
b  
2  
c

(k) What is the output of the following?

```
x = 123
for i in x:
    print(i)
```

- (i) 1 2 3                      (ii) 123                      (iii) error                      (iv) infinite loop

(l) Which arithmetic operators cannot be used with strings?

- (i) +                      (ii) \*                      (iii) -                      (iv) All of the above

(m) What will be the output when the following code is executed?

```
>>>str1="helloworld"
>>>str1[::-1]
```

- (i) dlrowolleh                      (ii) hello                      (iii) world                      (iv) helloworld

(n) What is the output of the following statement?

## SOLVED QUESTIONS

1. What is Python?

**Ans.** Python is a high-level, interpreted, dynamic, Object-Oriented Programming Language that supports GUI programming.

2. Why is Python interpreted?

**Ans.** Python is interpreted because the program is processed at runtime by the interpreter and we do not need to compile the program before executing it.

3. Who developed Python?

**Ans.** Python was developed by Guido van Rossum in the early nineties at the National Research Institute for Mathematics in the Netherlands.

4. Why is Python easy to learn?

**Ans.** Python has relatively few keywords, simple structure and a clearly defined syntax. This allows the student to understand and work easily in a relatively short period of time.

5. Write any one feature of Python library.

**Ans.** Python library is very portable and cross-platform compatible with UNIX, Windows and Macintosh.

6. Is Python a compiler language or an interpreter language? [HOTS]

**Ans.** The normal execution of Python program is interpreted. However, subsets of the language can be compiled.

7. State some distinguishable features of Python.

**Ans.** Python is a modern, powerful, interpreted language with objects, modules, exceptions (or interrupts) and automatic memory management.

**Salient Features of Python are:**

- **Simple and Easy:** Python is a simple language that is easy to learn.
- **Free/Open source:** Anybody can use Python without the need to purchase a licence.
- **High-level Language:** Being a high-level language, it can be easily understood by the user without the need to be concerned with low-level details.
- **Portable:** Python codes are machine and platform-independent.
- **Extensible and Embeddable:** Python programs support usage of C/C++ codes.
- **Standard Library:** Python standard library contains pre-written tools for programming.

8. Distinguish between Java and Python.

**Ans.** Java and Python can be distinguished on the following bases:

1. Python programs run slower than Java codes, but Python saves much time and space. Python programs are 3 to 5 times smaller than Java programs.

2. Python is a loosely-typed dynamic language because no time gets wasted in declaring variable types as in Java.
3. Python is easier to learn than Java.

9. What is the difference between interactive mode and script mode in Python?

**Ans.** In interactive mode, instructions are given in front of Python prompt (>>>) in Python Shell. Python carries out the given instructions and shows the result there itself.

In script mode, Python instructions are stored in a file, generally with .py extension, and executed together in one go as a unit. The saved instructions are known as Python script or Python program.

10. Differentiate between mutable and immutable objects in Python language with example.

**Ans.** Every variable in Python holds an instance of an object. There are two types of objects in Python, i.e., Mutable and Immutable objects. Whenever an object is instantiated, it is assigned a unique object id. The type of the object is defined at the runtime and it can't be changed afterwards.

However, its state can be changed if it is a mutable object.

For example, int, float, bool, string, unicode, tuple are immutable objects in Python. In simple words, an immutable object can't be changed after it is created. Lists, dictionaries and sets are mutable types.

11. What will be the value and its type for the given expression:

$3.25 + 4$ ?

**Ans.** >>>result = 3.25 + 4

>>>print(result, 'is', type(result))

7.25 is <class 'float'>

Its type is a float as integers are automatically converted into floats as necessary.

12. What will the following command display?

```
print("fractional string to int:", int("3.4"))
```

State the reason for getting the output and what is required to be done?

**Ans.** The above statement, upon execution, shall result in an error since Python int command cannot convert the string "3.4" into 3.4 as Python cannot perform two consecutive typecasts, therefore, you must convert it explicitly in code. This statement is to be modified such as:

`int(float("3.4"))` which shall generate the output as 3.

13. Consider the following statements in Python interpreter and describe the output/statement required:

(a) Print the message "Hello World".

(b) `a = 10`

`b = 12`

`c = a + b`

`print(c)`

(c) To retrieve the data type of the inputted string "Hello" stored inside the variable 'a'.

(d) To describe the data type of variable 'b'.

(e) To retrieve the address of variables a and b.

(f) State the output:

`d = b`

`d`

`b`

`id(d)`

`id(b)`

(g) `a = "Hello"`

`a * 10`

(h) To describe the data type of variable 'a'.

## UNSOLVED QUESTIONS

1. What are the advantages of Python programming language?
2. In how many different ways can you work in Python?
3. What are the advantages/disadvantages of working in interactive mode in Python?
4. Write Python statement for the following in interactive mode:
  - (a) To display sum of 3, 8.0, 6\*12
  - (b) To print sum of 16, 5.0, 44.0.
5. What are operators? Give examples of some unary and binary operators.
6. What is an expression and a statement?
7. What all components can a Python program contain?
8. What are variables? How are they important for a program?
9. Write the output of the following:

```
(i) for i in '123':  
    print("guru99", i, )  
(ii) for i in [100, 200, 300]:  
    print(i)  
(iii) for j in range(10, 6, -2):  
    print(j*2)  
(iv) for x in range(1, 6):  
    for y in range(1, x+1):  
        print(x, ' ', y)  
(v) for x in range(10, 20):  
    if (x == 15):  
        break  
    print(x)  
(vi) for x in range (10, 20):  
    if (x % 2 == 0) :  
        continue  
    print(x)
```

10. Write the output of the following program on execution if x = 50:

```
if x>10:  
    if x>25:  
        print("ok")  
    if x>60:  
        print("good")  
elif x>40:  
    print("average")  
else:  
    print("no output")
```

14. How many types of strings are supported in Python?

Ans. Python allows two string types:

1. Single line Strings—Strings that are terminated in a single line.
2. Multi-line Strings—Strings storing multiple lines of text.

15. Convert the following for loop into while loop:

```
for k in range(10, 20, 5):  
    print(k)
```

Ans. k=10

```
while(k<20):  
    print(k)  
    k+=5
```

16. Find errors in the following code (if any) and correct the code by rewriting it and u corrections:

```
x= int("Enter value for x:"))  
for in range[0, 11]:  
    if x = y  
        print x+y  
    else:
```

**Do not worry for the question sequence.**

**As few questions are not included purposely which are not appropriate for you now.**

**\*\*\*\*\*end\*\*\*\*\***