

Assignment

Type A : Short Answer Questions/Conceptual Questions

1. What is the internal structure of Python strings ?
2. Write a Python script that traverses through an input string and prints its characters in different lines – two characters per line.
3. Discuss the utility and significance of Lists, briefly.
4. What do you understand by mutability ? What does "in place" task mean ?
5. Start with the list [8, 9, 10]. Do the following :

(a) Set the second entry (index 1) to 17	(b) Add 4, 5 and 6 to the end of the list
(c) Remove the first entry from the list	(d) Sort the list
(e) Double the list	(f) Insert 25 at index 3
6. What's `a[1:1]` if `a` is a string of at least two characters ? And what if string is shorter ?
7. What are the two ways to add something to a list ? How are they different ?
8. What are the two ways to remove something from a list? How are they different ?
9. What is the difference between a list and a tuple ?
10. In the Python shell, do the following :
 - (i) Define a variable named `states` that is an empty list.
 - (ii) Add 'Delhi' to the list.
 - (iii) Now add 'Punjab' to the end of the list.
 - (iv) Define a variable `states2` that is initialized with 'Rajasthan', 'Gujrat', and 'Kerala'.
 - (v) Add 'Odisha' to the beginning of the list.
 - (vi) Add 'Tripura' so that it is the third state in the list.
 - (vii) Add 'Haryana' to the list so that it appears before 'Gujrat'. Do this as if you DO NOT KNOW where 'Gujrat' is in the list.
 Hint. See what `states2.index("Rajasthan")` does. What can you conclude about what `listname.index(item)` does ?
 - (viii) Remove the 5th state from the list and print that state's name.
11. Discuss the utility and significance of Tuples, briefly.
12. If `a` is (1, 2, 3)
 - (a) what is the difference (if any) between `a * 3` and `(a, a, a)` ?
 - (b) is `a * 3` equivalent to `a + a + a` ?
 - (c) what is the meaning of `a[1:1]` ?
 - (d) what's the difference between `a[1:2]` and `a[1:1]` ?
13. What is the difference between (30) and (30,)?
14. Why is a dictionary termed as an unordered collection of objects ?
15. What type of objects can be used as keys in dictionaries ?
16. Though tuples are immutable type, yet they cannot always be used as keys in a dictionary. What is the condition to use tuples as a key in a dictionary ?
17. Dictionary is a mutable type, which means you can modify its contents ? What all is modifiable in a dictionary ? Can you modify the keys of a dictionary ?
18. How is `del D` and `del D[<key>]` different from one another if `D` is a dictionary ?

19. Create a dictionary named D with three entries, for keys 'a', 'b' and 'c'. What happens if you try to index a nonexistent key (D['d'])? What does Python do if you try to assign to a nonexistent key d (e.g., D['d'] = 'spam')?
20. What is sorting? Name some popular sorting techniques.
21. Discuss Bubble sort and Insertion sort techniques.

Type B : Application Based Questions

1. What will be the output produced by following code fragments?

(a) `y = str(123)`

`x = "hello" * 3`

`print(x, y)`

`x = "hello" + "world"`

`y = len(x)`

`print(y, x)`

(b) `x = "hello" + \`

`"to Python" + \`

`"world"`

`for char in x:`

`y = char`

`print(y, ':', end = " ")`

(c)

`x = "hello world"`

`print(x[:2], x[:-2], x[-2:])`

`print(x[6], x[2:4])`

`print(x[2:-3], x[-4:-2])`

2. Write a short Python code segment that adds up the lengths of all the words in a list and then prints the average (mean) length.
3. Predict the output of the following code snippet?

`a = [1, 2, 3, 4, 5]`

`print(a[3:0:-1])`

4. Predict the output of the following code snippet?

(a) `arr = [1, 2, 3, 4, 5, 6]`

`for i in range(1, 6):`

`arr[i - 1] = arr[i]`

`for i in range(0, 6):`

`print(arr[i], end = " ")`

(b) `Numbers = [9, 18, 27, 36]`

`for Num in Numbers:`

`for N in range(1, Num%8):`

`print(N, "#", end = " ")`

`print()`

5. Find the errors. State reasons.

(a) `t = (1, "a", 9.2)`

`t[0] = 6`

(b) `t = [1, "a", 9.2]`

`t[0] = 6`

(c) `t = [1, "a", 9.2]`

`t[4] = 6`

(d) `t = 'hello'`

`t[0] = "H"`

(e) `for Name in [Amar, Shveta, Parag]`

`IF Name[0] = 'S':`

`print(Name)`

[CBSE D 2016]

6. Assuming words is a valid list of words, the program below tries to print the list in reverse. Does it have an error? If so, why? (Hint. There are two problems with the code.)

```
for i in range(len(words), 0, -1):
    print(words[i], end = ' ')
```

[CBSE D 2016]

7. What would be the output of following code if `ntpl = ("Hello", "Nita", "How's", "life ?")` ?

```
(a, b, c, d) = ntpl
print("a is:", a)
print("b is:", b)
print("c is:", c)
print("d is:", d)
ntpl = (a, b, c, d)
print(ntpl[0][0]+ntpl[1][1], ntpl[1])
```

8. What will be the output of the following code ?

```
tuple_a = 'a', 'b'
tuple_b = ('a', 'b')
print (tuple_a == tuple_b)
```

(a) 0 (b) 1 (c) False (d) True

9. What will be the output of the following code snippet ?

```
rec = {"Name": "Python", "Age": "20", "Addr": "NJ", "Country": "USA"}
id1 = id(rec)
del rec
rec = {"Name": "Python", "Age": "20", "Addr": "NJ", "Country": "USA"}
id2 = id(rec)
print(id1 == id2)
```

(a) True (b) False (c) 1 (d) Exception

10. What will be the output of the following code snippet ?

```
my_dict = {}
my_dict[(1,2,4)] = 8
my_dict[(4,2,1)] = 10
my_dict[(1,2)] = 12
sum = 0
for k in my_dict:
    sum += my_dict[k]
print (sum)
print(my_dict)
```

11. Write a method in python to display the elements of list thrice if it is a number and display the element terminated with '#' if it is not a number. [CISE D 2015]

For example, if the content of list is as follows :

```
List = ['41', 'DROND', 'GIRIRAJ', '13', 'ZARA']
```

The output should be

414141

DROND#

GIRIRAJ#

131313

ZARA#