

Assignment-1

Batch DS2311

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```
1. def func(a, b):  
    return b if a == 0 else func(b % a, a)  
    print(func(30, 75))
```

Answer-

First call: func(30,75)

- a is not 0, so it goes to the else part of the line.
- It does some math: $b \% a$ will give remainder when you divide 75 by 30, which is 15. So, now it becomes `func(15, 30)`.

Now, it calls itself with the new numbers func(15, 30)

- Again, a is not 0, so it does the math: $30 \% 15$ is 0. Now, it becomes `func(0, 15)`.

It calls itself again with the new numbers func(0, 15)

- This time a is 0, so it doesn't go to the else part. It just returns the value of b, which is 15.

```
2. numbers = (4, 7, 19, 2, 89, 45, 72, 22)  
    sorted_numbers = sorted(numbers)  
    even = lambda a: a % 2 == 0  
    even_numbers = filter(even, sorted_numbers)  
    print(type(even_numbers))
```

Answer-

- It has a list of numbers: (4, 7, 19, 2, 89, 45, 72, 22).
- It sorts these numbers in order.
- It then finds and keeps only the even numbers from the sorted list.
- Finally, it prints the type of the result, which is `<class 'filter'>`

3. As what datatype are the *args stored, when passed into

Answer-

The *args parameter stores the arguments as a tuple.

```
4. set1 = {14, 3, 55}  
    set2 = {82, 49, 62}  
    set3={99,22,17}
```

```
print(len(set1 + set2 + set3))
```

Answer

- You cannot directly use the + operator to concatenate sets or give len function more than one argument. So, it will give error, instead can use union function and store it new variable and that can be used in len().

```
df = set1.union(set2, set3)
print(len(df))
```

5. **What keyword is used in Python to raise exceptions?**

Answer -

- You can use the raise keyword to tell the user that there's a problem in the code without throwing an error.

6. **Which of the following modules need to be imported to handle date time computations in Python?**

Answer -

- Import datetime is used for working with dates and times, including date, time, datetime, timedelta.

7. **What will be the output of the following code snippet?**

```
print(4**3 + (7 + 5)**(1 + 1))
```

Answer –

Exponentiation (43):**

- Calculate 4 to the power of 3, which is 64.

Parentheses ((7 + 5)(1 + 1)):**

- Inside the parentheses, evaluate 1 + 1, which is 2.
- Then, calculate 7 + 5, which is 12.
- Finally, raise 12 to the power of 2, resulting in 144.

Addition (43 + (7 + 5)**(1 + 1)):**

- Add the results from the two previous steps: 64 + 144.

Result:

- The result is 208.

8. **Which of the following functions converts date to corresponding time in Python?**

Answer-

a) strptime

9. **The python tuple is _____ in nature.**

Answer-

Immutable in nature

10. The ___ is a built-in function that returns a range object that consists series of integer numbers, which we can iterate using a for loop.

Answer-

The range() function can take one, two, or three arguments to specify the start, stop, and step values.

11. Amongst which of the following is a function which does not have any name?

Answer-

Lambda function

12. The module Pickle is used to ___.

Answer-

The correct answer is C. The pickle module in Python is used for serializing (converting objects into a byte stream) and deserializing (reconstructing objects from a byte stream).

13. Amongst which of the following is / are the method of convert Python objects for writing data in a binary file?

Answer-

A dump() method.

14. Amongst which of the following is / are the method used to unpickling data from a binary file?

Answer-

A load () method

15. A text file contains only textual information consisting of ___.

Answer-

A text file can contain a combination of alphabets, numbers, and special symbols. Therefore, the correct answer is D.

16. Which Python code could replace the ellipsis (...) below to get the following output? (Select all that apply.)

Answer-

Both a and b are correct answer.

a)for ship, captain in captains.items():

print (ship, captain)

b)for ship in captains:

print(ship, captains[ship])

17. Which of the following lines of code will create an empty dictionary named captains?

Answer-

Captains = {}, by default empty curly braces means dictionary

18. Now you have your empty dictionary named captains. It's time to add some data! Specifically, you want to add the key-value pairs "Enterprise": "Picard", "Voyager": "Janeway", and "Defiant": "Sisko". Which of the following code snippets will successfully add these key-value pairs to the existing captains dictionary?

Answer-

Both b and c can get the key value pairs.

b) captains["Enterprise"] = "Picard"

captains["Voyager"] = "Janeway"

captains["Defiant"] = "Sisko"

c) captains = {

"Enterprise": "Picard",

"Voyager": "Janeway",

"Defiant": "Sisko",

}

19. You're really building out the Federation Starfleet now! Here's what you have: captains = { "Enterprise": "Picard", "Voyager": "Janeway", "Defiant": "Sisko", "Discovery": "unknown",

}Now, say you want to display the ship and captain names contained in the dictionary, but you also want to provide some additional context. How could you do it?

Answer-

b) for ship, captain in captains.items():

```
print(f"The {ship} is captained by {captain}.")
```

20. You've created a dictionary, added data, checked for the existence of keys, and iterated over it with a for loop. Now you're ready to delete a key from this dictionary: captains = { "Enterprise": "Picard", "Voyager": "Janeway", "Defiant": "Sisko", "Discovery": "unknown", } What statement will remove the entry for the key "Discovery"?

Answer-

d) Del captains["Discovery"]