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MCQ

1) What will be the output of the following code snippet?

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

- a) 10
- b) 20
- c) 15
- d) 0

Solution

C) 15

The code defines a recursive function `func` that takes two parameters, `a` and `b`. It calculates the greatest common divisor (GCD) of `a` and `b` using the Euclidean algorithm. Then the function return (GCD) 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))
```

- a) Int
- b) Filter
- c) List
- d) Tuple

Solution

B) Filter

3) As what datatype are the `*args` stored, when passed into a) Tuple b) List c) Dictionary d) none

Solution

A) Tuple

When using `*args`, the arguments are stored as a tuple.

```
4) set1 = {14, 3, 55}  
set2 = {82, 49, 62}  
set3={99,22,17}  
print(len(set1 + set2 + set3))
```

- a) 105
- b) 270
- c) 0

d) Error

Solution

D) Error

Attempting to use the + operator on sets will result in a TypeError.

5) What keyword is used in Python to raise exceptions? a) raise b) try c) goto d) except

Solution

A) Raise

The raise keyword is used to explicitly raise an exception.

Example:

```
def divide(x, y):  
    if y == 0:  
        raise ValueError("Cannot divide by zero!")  
    return x / y
```

Example usage

```
try:  
    result = divide(10, 0)  
    print(result)  
except ValueError as ve:  
    print(f"Error: {ve}")
```

6) Which of the following modules need to be imported to handle date time computations in Python? a) time b) date c) datetime d) time

Solution

C) Datetime

7) What will be the output of the following code snippet?

```
print(4**3 + (7 + 5)**(1 + 1))  
a) 248  
b) 169  
c) 208  
d) 233
```

Solution:

C) 208

8) Which of the following functions converts date to corresponding time in Python? a) strptime b) strftime c) both a) and b) d) None

Solution

B) Strftime

The strftime function (string format time) is used to convert a datetime object to a string representing it based on a format string.

9) The python tuple is _____ in nature. a) mutable b) immutable

c)unchangeable d) none

Solution

B) Immutable

A Python tuple is immutable, meaning once it is created, and cannot be change.

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.

A. range()

B. set()

C. dictionary{}

D. None of the mentioned above

Solution

A) Range()

The range() function generates a sequence of numbers within a specified range.

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

A. Del function

B. Show function

C. Lambda function

D. None of the mentioned above

Solution

C) Lambda

A lambda function in Python is an anonymous function, meaning it does not have a name.

12) The module Pickle is used to ____.

A. Serializing Python object structure

B. De-serializing Python object structure

C. Both A and B

D. None of the mentioned above

Solution:

C) Both A and B

The pickle module in Python is used for serializing (converting Python objects into byte streams) and de-serializing (reconstructing Python objects from byte streams).

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

A. set() method

B. dump() method

C. load() method

D. None of the mentioned above

Solution:

B) dump() method

The dump() method is part of the pickle module in Python, and it is used to serialize (convert into a byte stream) a Python object and write it to a binary file. This method is commonly used for storing and later retrieving complex data structures.

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

- A. load()
- B. set() method
- C. dump() method
- D. None of the mentioned above

Solution:

D) None of the mentioned above

The methods used for unpickling data from a binary file are not mentioned among the options provided.

15) A text file contains only textual information consisting of ____.

- A. Alphabets
- B. Numbers
- C. Special symbols
- D. All of the mentioned above

Solution:

D) All of the mentioned above

A text file can contain alphabets, numbers, and special symbols.

16) Which Python code could replace the ellipsis (...) below to get the following output?
(Select all that apply.) captains = { "Enterprise": "Picard", "Voyager": "Janeway", "Defiant": "Sisko", } Enterprise Picard, Voyager Janeway Defiant Sisko

- a) for ship, captain in captains.items():
print(ship, captain)
- b) for ship in captains:
print(ship, captains[ship])
- c) for ship in captains:
print(ship, captains)
- d) both a and b

Solution:

D) both a and b

17) Which of the following lines of code will create an empty dictionary named captains? a) captains = {dict} b) type(captains) c) captains.dict() d) captains = {}

Solution:

D) `captain = {}`

This line initializes an empty dictionary in Python.

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?

- a) `captains{"Enterprise" = "Picard"}`
`captains{"Voyager" = "Janeway"}`
`captains{"Defiant" = "Sisko"}`
- b) `captains["Enterprise"] = "Picard"`
`captains["Voyager"] = "Janeway"`
`captains["Defiant"] = "Sisko"`
- c) `captains = {`
`"Enterprise": "Picard",`
`"Voyager": "Janeway",`
`"Defiant": "Sisko",`
`}`
- d) None of the above

Solution:

B)

```
captains["Enterprise"] = "Picard"
captains["Voyager"] = "Janeway"
captains["Defiant"] = "Sisko"
```

This code snippet uses square brackets (`[]`) to add or update key-value pairs in a dictionary.

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?

- a) `for item in captains.items():`
`print(f"The [ship] is captained by [captain].")`
- b) `for ship, captain in captains.items():`
`print(f"The {ship} is captained by {captain}.")`
- c) `for captain, ship in captains.items():`
`print(f"The {ship} is captained by {captain}.")`
- d) All are correct

Solution:

B)

```
for ship, captain in captains.items():
    print(f"The {ship} is captained by {captain}.")
```

This option correctly uses the `items()` method to iterate over the key-value pairs in the `captains` dictionary and then prints the ship and captain names with additional context.

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"? a) `del captains` b) `captains.remove()` c) `del captains["Discovery"]` d) `captains["Discovery"].pop()`

Solution:

C) `del captains["Discovery"]`