

list (30) + tuple (20) + set (20) + dict (30) = 100

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Class #05: Python's Built-in Data Structures

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Here are 30 multiple-choice questions (MCQs) related to Python lists:

1. What is the correct syntax to create a list in Python?

- A) list = {1, 2, 3}
- B) list = (1, 2, 3)
- C) list = [1, 2, 3]
- D) list = <1, 2, 3>

Answer: C) list = [1, 2, 3]

2. How do you access the third element in the list my_list = [10, 20, 30, 40, 50]?

- A) my_list[2]
- B) my_list[3]
- C) my_list[1]
- D) my_list(3)

Answer: A) my_list[2]

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

```
list = [10, 20, 30, 40]
print(list[-1])
```

- A) 10
- B) 20
- C) 40
- D) IndexError

Answer: C) 40

4. Which of the following methods is used to add an element to the end of a list?

- A) append()
- B) insert()

- C) extend()
- D) add()

Answer: A) append()

5. What does the list.extend() method do?

- A) Adds a single element to the list
- B) Adds multiple elements to the list
- C) Removes an element from the list
- D) Sorts the list in ascending order

Answer: B) Adds multiple elements to the list

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

```
list = [1, 2, 3]
```

```
list.remove(2)
```

```
print(list)
```

- A) [1, 3]
- B) [2, 3]
- C) [1, 2]
- D) Error

Answer: A) [1, 3]

7. Which of the following operations is used to add an element at a specific index in a Python list?

- A) insert()
- B) append()
- C) extend()
- D) add()

Answer: A) insert()

8. What is the output of the following code?

```
list = [10, 20, 30]
```

```
list[1] = 40
```

```
print(list)
```

- A) [10, 20, 30]
- B) [10, 40, 30]
- C) [40, 20, 30]
- D) Error

Answer: B) [10, 40, 30]

9. How do you remove all items from a list?

- A) list.clear()
- B) list.delete()
- C) list.remove()
- D) list.clear()

Answer: A) list.clear()

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

```
list = [1, 2, 3]
print(len(list))
```

- A) 3
- B) 2
- C) 1
- D) Error

Answer: A) 3

11. Which method would you use to combine two lists in Python?

- A) merge()
- B) append()
- C) extend()
- D) combine()

Answer: C) extend()

12. What is the result of the following code?

```
list = [5, 3, 8]
list.sort()
print(list)
```

- A) [3, 5, 8]
- B) [8, 5, 3]
- C) [5, 8, 3]
- D) Error

Answer: A) [3, 5, 8]

13. What does the list.pop() method do?

- A) Adds an element to the list
- B) Removes and returns the last element of the list
- C) Removes the first element of the list
- D) Sorts the list

Answer: B) Removes and returns the last element of the list

14. What is the result of the following code?

```
list = [1, 2, 3]
```

```
list = list * 2
```

```
print(list)
```

- A) [1, 2, 3, 1, 2, 3]
- B) [1, 2, 3, 6]
- C) [2, 4, 6]
- D) [1, 2, 3, 1, 2]

Answer: A) [1, 2, 3, 1, 2, 3]

15. What is the purpose of the list.index() method?

- A) To find the index of a specific element
- B) To append an element at a specific index
- C) To remove an element by its index
- D) To reverse the list

Answer: A) To find the index of a specific element

16. Which of the following will return a copy of a list?

- A) list.copy()
- B) list.clone()

C) list.slice()

D) list[:]

Answer: A) list.copy()

17. How do you join two lists list1 = [1, 2] and list2 = [3, 4]?

A) list1 + list2

B) list1.append(list2)

C) list1.join(list2)

D) list1.concat(list2)

Answer: A) list1 + list2

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

```
list = [10, 20, 30]
```

```
del list[1]
```

```
print(list)
```

A) [10, 30]

B) [20, 30]

C) [10, 20]

D) Error

Answer: A) [10, 30]

19. Which of the following methods is used to reverse the elements of a list in place?

A) reverse()

B) sort()

C) flip()

D) invert()

Answer: A) reverse()

20. What is the output of the following code?

```
list = [1, 2, 3, 4]
```

```
print(list[1:3])
```

A) [2, 3]

B) [1, 2, 3]

- C) [1, 2]
- D) [2, 3, 4]

Answer: A) [2, 3]

21. How can you check if an element is in a list?

- A) element in list
- B) element.contains(list)
- C) list.contains(element)
- D) list.has(element)

Answer: A) element in list

22. What is the output of the following code?

```
list = [1, 2, 3, 4, 5]  
print(list[::-1])
```

- A) [5, 4, 3, 2, 1]
- B) [1, 2, 3, 4, 5]
- C) [1, 4, 3, 2, 5]
- D) Error

Answer: A) [5, 4, 3, 2, 1]

23. Which of the following is used to check if a list is empty?

- A) if list == []
- B) if list.isEmpty()
- C) if list.size() == 0
- D) if list.length == 0

Answer: A) if list == []

24. What is the output of the following code?

```
list = [1, 2, 3]  
print(list * 0)
```

- A) []
- B) [1, 2, 3]

- C) 0
- D) Error

Answer: A) []

25. How would you create a nested list in Python?

- A) list = [[1, 2], [3, 4]]
- B) list = (1, 2), (3, 4)
- C) list = [1, 2, (3, 4)]
- D) list = [1, [2, 3]]

Answer: A) list = [[1, 2], [3, 4]]

26. Which of the following methods returns the first element of the list?

- A) list.pop()
- B) list.first()
- C) list[0]
- D) list[1]

Answer: C) list[0]

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

```
list = [1, 2, 3]
```

```
list *= 2
```

```
print(list)
```

- A) [1, 2, 3]
- B) [2, 4, 6]
- C) [1, 2, 3, 1, 2, 3]
- D) Error

Answer: C) [1, 2, 3, 1, 2, 3]

28. What method can be used to sort a list in descending order?

- A) list.sort(reverse=True)
- B) list.sort(descending=True)
- C) list.reverse()
- D) list.order(descending=True)

Answer: A) `list.sort(reverse=True)`

29. Which of the following is true about list comprehension?

- A) It is used to create a list based on an existing list
- B) It is used to add elements to a list
- C) It is used to merge two lists
- D) It is used to remove elements from a list

Answer: A) It is used to create a list based on an existing list

30. What does the `list.count()` method do?

- A) Returns the index of a given element
- B) Counts the number of elements in the list
- C) Counts the occurrences of a specific element in the list
- D) Returns the last element of the list

Answer: C) Counts the occurrences of a specific element in the list

Here are 20 multiple-choice questions (MCQs) related to Python tuples:

1. What is the correct syntax to create a tuple in Python?

- A) `tuple = [1, 2, 3]`
- B) `tuple = {1, 2, 3}`
- C) `tuple = (1, 2, 3)`
- D) `tuple = <1, 2, 3>`

Answer: C) `tuple = (1, 2, 3)`

2. Which of the following statements is true about tuples?

- A) Tuples are mutable
- B) Tuples are immutable
- C) Tuples can be changed in size
- D) Tuples are slower than lists

Answer: B) Tuples are immutable

3. How do you access the first element in the tuple `my_tuple = (10, 20, 30)`?

- A) my_tuple[0]
- B) my_tuple(0)
- C) my_tuple{0}
- D) my_tuple[1]

Answer: A) my_tuple[0]

4. What will be the result of the following code?

```
tuple = (1, 2, 3)
```

```
tuple[1] = 5
```

- A) (1, 5, 3)
- B) Error
- C) (5, 2, 3)
- D) (1, 2, 3, 5)

Answer: B) Error

5. Which method is used to find the index of an element in a tuple?

- A) tuple.index()
- B) tuple.find()
- C) tuple.search()
- D) tuple.locate()

Answer: A) tuple.index()

6. What is the output of the following code?

```
tuple = (1, 2, 3)
```

```
print(len(tuple))
```

- A) 1
- B) 3
- C) 2
- D) Error

Answer: B) 3

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

```
tuple = (1, 2, 3)
```

```
print(tuple * 2)
```

- A) (2, 4, 6)
- B) (1, 2, 3, 1, 2, 3)
- C) (1, 1, 2, 2, 3, 3)
- D) Error

Answer: B) (1, 2, 3, 1, 2, 3)

8. Can you add or remove elements in a tuple after it is created?

- A) Yes, tuples are mutable
- B) No, tuples are immutable
- C) Yes, but only if the elements are integers
- D) Yes, but only if the tuple is empty

Answer: B) No, tuples are immutable

9. What is the result of the following code?

```
tuple = (10, 20, 30)
print(tuple[-1])
```

- A) 30
- B) 20
- C) 10
- D) Error

Answer: A) 30

10. Which of the following is used to create a tuple with one element?

- A) tuple = (1)
- B) tuple = (1,)
- C) tuple = [1]
- D) tuple = {1}

Answer: B) tuple = (1,)

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

```
tuple = (10, 20, 30)
del tuple[1]
```

- A) (10, 30)
- B) Error
- C) (20, 30)
- D) (10, 20)

Answer: B) Error

12. How do you concatenate two tuples tuple1 = (1, 2) and tuple2 = (3, 4)?

- A) tuple1 + tuple2
- B) tuple1.append(tuple2)
- C) tuple1.concatenate(tuple2)
- D) tuple1.add(tuple2)

Answer: A) tuple1 + tuple2

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

```
tuple = (1, 2, 3)
print(tuple[::-1])
```

- A) (1, 2, 3)
- B) (3, 2, 1)
- C) Error
- D) (1, 3, 2)

Answer: B) (3, 2, 1)

14. What is the method used to find the count of a specific element in a tuple?

- A) tuple.count()
- B) tuple.find()
- C) tuple.index()
- D) tuple.size()

Answer: A) tuple.count()

15. What is the result of the following code?

```
tuple = (1, 2, 3, 1)
print(tuple.count(1))
```

- A) 1
- B) 2
- C) 3
- D) 0

Answer: B) 2

16. What is the correct way to create a tuple with mixed data types?

- A) tuple = (1, 'string', 3.5)
- B) tuple = [1, 'string', 3.5]
- C) tuple = {1, 'string', 3.5}
- D) tuple = 1, 'string', 3.5

Answer: A) tuple = (1, 'string', 3.5)

17. How do you check if an element exists in a tuple?

- A) if element in tuple:
- B) if tuple.contains(element):
- C) if element.exists(tuple):
- D) if tuple.has(element):

Answer: A) if element in tuple:

18. What is the output of the following code?

```
tuple = (10, 20, 30)
tuple = tuple + (40,)
print(tuple)
```

- A) (10, 20, 30, 40)
- B) (10, 20, 30)
- C) (40, 10, 20, 30)
- D) Error

Answer: A) (10, 20, 30, 40)

19. Which method can you use to access a specific element from a tuple using its index?

- A) tuple.get(index)
- B) tuple.fetch(index)

- C) tuple[index]
- D) tuple.access(index)

Answer: C) tuple[index]

20. Which of the following is a valid tuple in Python?

- A) (1, 2, 3)
- B) 1, 2, 3
- C) (1, 2, 3,)
- D) All of the above

Answer: D) All of the above

Here are 20 multiple-choice questions (MCQs) related to Python sets:

1. What is the correct syntax to create a set in Python?

- A) set = {1, 2, 3}
- B) set = (1, 2, 3)
- C) set = [1, 2, 3]
- D) set = <1, 2, 3>

Answer: A) set = {1, 2, 3}

2. Which of the following statements is true about sets in Python?

- A) Sets are ordered collections of elements
- B) Sets are immutable
- C) Sets do not allow duplicate elements
- D) Sets allow indexing and slicing

Answer: C) Sets do not allow duplicate elements

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

```
set1 = {1, 2, 3}
set2 = {3, 4, 5}
print(set1 & set2)
```

- A) {3, 4, 5}
- B) {1, 2, 3, 4, 5}

- C) {3}
- D) {1, 2, 5}

Answer: C) {3}

4. Which method is used to add an element to a set in Python?

- A) add()
- B) insert()
- C) append()
- D) extend()

Answer: A) add()

5. What is the result of the following code?

```
set1 = {1, 2, 3}
set1.add(4)
print(set1)
```

- A) {1, 2, 3, 4}
- B) {1, 2, 3}
- C) {4, 1, 2, 3}
- D) Error

Answer: A) {1, 2, 3, 4}

6. Which of the following methods removes all elements from a set?

- A) clear()
- B) remove()
- C) delete()
- D) discard()

Answer: A) clear()

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

```
set1 = {1, 2, 3}
set2 = {3, 4, 5}
print(set1 | set2)
```

- A) {1, 2, 3, 4, 5}
- B) {3}
- C) {1, 2, 5}
- D) {3, 4}

Answer: A) {1, 2, 3, 4, 5}

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

```
set1 = {1, 2, 3}
set1.remove(2)
print(set1)
```

- A) {1, 3}
- B) {1, 2, 3}
- C) {2, 3}
- D) Error

Answer: A) {1, 3}

9. What does the discard() method do in a set?

- A) Removes the element from the set
- B) Removes the element from the set, but does not raise an error if the element is not present
- C) Removes the last element of the set
- D) Clears the set completely

Answer: B) Removes the element from the set, but does not raise an error if the element is not present

10. What is the result of the following code?

```
set1 = {1, 2, 3}
set2 = {4, 5, 6}
set1.update(set2)
print(set1)
```

- A) {1, 2, 3, 4, 5, 6}
- B) {1, 2, 3}

C) {4, 5, 6}

D) Error

Answer: A) {1, 2, 3, 4, 5, 6}

11. What is the purpose of the intersection() method in a set?

A) Finds the union of two sets

B) Finds the difference between two sets

C) Finds the common elements between two sets

D) Finds all the elements in both sets

Answer: C) Finds the common elements between two sets

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

```
set1 = {1, 2, 3}
```

```
set2 = {3, 4, 5}
```

```
print(set1 - set2)
```

A) {1, 2}

B) {4, 5}

C) {1, 2, 3, 4, 5}

D) {3}

Answer: A) {1, 2}

13. Which of the following is the correct way to create an empty set?

A) set = {}

B) set = set()

C) set = []

D) set = ()

Answer: B) set = set()

14. Which method is used to check if an element exists in a set?

A) contains()

B) exists()

C) in

D) find()

Answer: C) in

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

```
set1 = {1, 2, 3}
set2 = {1, 2, 3}
set3 = {1, 2, 4}
print(set1 == set2)
print(set1 == set3)
```

- A) True, False
- B) True, True
- C) False, False
- D) False, True

Answer: A) True, False

16. What does the pop() method do in a set?

- A) Removes the first element from the set
- B) Removes a random element from the set
- C) Removes the last element from the set
- D) Clears all the elements in the set

Answer: B) Removes a random element from the set

17. What will be the result of the following code?

```
set1 = {1, 2, 3}
set2 = {2, 3, 4}
print(set1 ^ set2)
```

- A) {1, 2, 3, 4}
- B) {1, 4}
- C) {2, 3}
- D) {1, 2, 3}

Answer: B) {1, 4}

18. Which of the following operations cannot be performed on a set?

- A) Add elements
- B) Remove elements
- C) Access elements by index
- D) Find union

Answer: C) Access elements by index

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

```
set1 = {1, 2, 3}
set2 = {3, 4, 5}
print(set1.isdisjoint(set2))
```

- A) True
- B) False
- C) Error
- D) {3, 4, 5}

Answer: B) False

20. Which method is used to find the difference between two sets?

- A) difference()
- B) subtract()
- C) diff()
- D) exclude()

Answer: A) difference()

Here are 30 multiple-choice questions (MCQs) related to Python dictionaries:

1. What is the correct syntax to create a dictionary in Python?

- A) dict = {1: 'a', 2: 'b', 3: 'c'}
- B) dict = (1, 'a', 2, 'b')
- C) dict = [1: 'a', 2: 'b', 3: 'c']
- D) dict = {1, 2, 3}

Answer: A) dict = {1: 'a', 2: 'b', 3: 'c'}

2. What is the method to add a key-value pair to a dictionary in Python?

- A) dict.append()
- B) dict.add()
- C) dict.update()
- D) dict.insert()

Answer: C) dict.update()

3. Which of the following is the correct way to access the value associated with the key name in the dictionary person = {'name': 'John', 'age': 25}?

- A) person.name
- B) person['name']
- C) person.get('name')
- D) Both B and C

Answer: D) Both B and C

4. What will be the result of the following code?

```
person = {'name': 'John', 'age': 25}
person['age'] = 26
print(person)
```

- A) {'name': 'John', 'age': 26}
- B) {'name': 'John', 'age': '26'}
- C) {'name': 'John', 25: 'age'}
- D) Error

Answer: A) {'name': 'John', 'age': 26}

5. What does the get() method of a dictionary do?

- A) Returns the key
- B) Returns the value for the given key, or None if the key is not found
- C) Adds a new key-value pair
- D) Deletes the specified key-value pair

Answer: B) Returns the value for the given key, or None if the key is not found

6. Which of the following methods is used to remove a key-value pair from a dictionary in Python?

- A) dict.remove()
- B) dict.pop()
- C) dict.delete()
- D) dict.clear()

Answer: B) dict.pop()

7. What is the output of the following code?

```
person = {'name': 'John', 'age': 25}  
print(person.get('age'))
```

- A) 'age'
- B) 25
- C) 'John'
- D) None

Answer: B) 25

8. What will happen if you try to access a key that doesn't exist in a dictionary using the square bracket notation?

- A) It will return None
- B) It will raise a KeyError
- C) It will return an empty string
- D) It will create a new key with a default value

Answer: B) It will raise a KeyError

9. How do you check if a dictionary contains a specific key?

- A) key in dict
- B) dict.contains(key)
- C) dict.has_key(key)
- D) key.has_key(dict)

Answer: A) key in dict

10. Which of the following methods removes all items from a dictionary?

- A) dict.clear()
- B) dict.remove()

- C) dict.pop()
- D) dict.delete()

Answer: A) dict.clear()

11. What is the result of this operation: person = {'name': 'John', 'age': 25}; del person['age']?

- A) The dictionary will become {'name': 'John'}
- B) The dictionary will become empty
- C) The dictionary will raise a KeyError
- D) The age key will be updated to None

Answer: A) The dictionary will become {'name': 'John'}

12. How do you get all the keys of a dictionary?

- A) dict.get_keys()
- B) dict.keys()
- C) dict.all_keys()
- D) dict.key()

Answer: B) dict.keys()

13. What will the following code print?

```
person = {'name': 'John', 'age': 25}
```

```
person['age'] = 26
```

```
person['city'] = 'New York'
```

```
print(person)
```

- A) {'name': 'John', 'age': 25, 'city': 'New York'}
- B) {'name': 'John', 'age': 26, 'city': 'New York'}
- C) {'name': 'John', 'age': 26}
- D) Error

Answer: B) {'name': 'John', 'age': 26, 'city': 'New York'}

14. What does the popitem() method do in a dictionary?

- A) Removes and returns a random key-value pair
- B) Removes a specific key-value pair

- C) Adds a new key-value pair
- D) Clears the entire dictionary

Answer: A) Removes and returns a random key-value pair

15. What is the output of this code?

```
person = {'name': 'John', 'age': 25}
keys = person.keys()
print(keys)
```

- A) ['name', 'age']
- B) dict_keys(['name', 'age'])
- C) {'name', 'age'}
- D) None

Answer: B) dict_keys(['name', 'age'])

16. Which method can be used to merge two dictionaries in Python?

- A) dict.append()
- B) dict.merge()
- C) dict.update()
- D) dict.concat()

Answer: C) dict.update()

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

```
person = {'name': 'John', 'age': 25}
person.update({'age': 26, 'city': 'New York'})
print(person)
```

- A) {'name': 'John', 'age': 26, 'city': 'New York'}
- B) {'name': 'John', 'age': 25, 'city': 'New York'}
- C) {'name': 'John', 'age': 25, 'city': 'New York', 'age': 26}
- D) {'name': 'John', 'city': 'New York'}

Answer: A) {'name': 'John', 'age': 26, 'city': 'New York'}

18. Which method returns all the values in a dictionary?

- A) dict.get_values()
- B) dict.items()
- C) dict.values()
- D) dict.all_values()

Answer: C) dict.values()

19. What will be the result of the following code?

```
person = {'name': 'John', 'age': 25}
print(person.pop('age'))
```

- A) None
- B) 'age'
- C) 25
- D) Error

Answer: C) 25

20. What is the method to create a dictionary from a list of tuples?

- A) dict(list_of_tuples)
- B) dict.fromkeys(list_of_tuples)
- C) list.to_dict()
- D) dict.create(list_of_tuples)

Answer: A) dict(list_of_tuples)

21. What will be the result of this code?

```
person = {'name': 'John', 'age': 25}
person['age'] += 1
print(person)
```

- A) {'name': 'John', 'age': 25}
- B) {'name': 'John', 'age': 26}
- C) {'name': 'John', 'age': 1}
- D) {'name': 'John', 26: 'age'}

Answer: B) {'name': 'John', 'age': 26}

22. How can you create a dictionary with default values for keys that do not exist?

- A) dict = {}.fromkeys(keys, value)
- B) dict = {}.withdefault(keys, value)
- C) dict = create_dict(keys, value)
- D) dict = new_dict(keys, value)

Answer: A) dict = {}.fromkeys(keys, value)

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

```
person = {'name': 'John', 'age': 25}
del person['name']
print(person)
```

- A) {'age': 25}
- B) {'name': 'John', 'age': 25}
- C) {'name': 'John'}
- D) Error

Answer: A) {'age': 25}

24. Which of the following is NOT allowed as a dictionary key?

- A) String
- B) Integer
- C) Tuple
- D) List

Answer: D) List

25. What is the method to get the list of all key-value pairs in a dictionary?

- A) dict.get()
- B) dict.items()
- C) dict.keys()
- D) dict.pairs()

Answer: B) dict.items()

26. What will be the result of the following code?

```
person = {'name': 'John', 'age': 25}
person['name'] = 'Jane'
```



```
print(person)
```

- A) {'name': 'Jane', 'age': 25}
- B) {'name': 'John', 'age': 25}
- C) {'name': 'Jane', 'age': '25'}
- D) Error

Answer: A) {'name': 'Jane', 'age': 25}

27. Which function can be used to create an empty dictionary?

- A) dict.create()
- B) dict()
- C) empty_dict()
- D) new_dict()

Answer: B) dict()

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

```
person = {'name': 'John', 'age': 25}
print('age' in person)
```

- A) True
- B) False
- C) None
- D) Error

Answer: A) True

29. What does the setdefault() method do in a dictionary?

- A) Adds a key-value pair if the key does not exist
- B) Returns the value for a given key if it exists, otherwise adds the key with a default value
- C) Removes a key-value pair if the key exists
- D) Returns the default value for all keys

Answer: B) Returns the value for a given key if it exists, otherwise adds the key with a default value

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

```
person = {'name': 'John', 'age': 25}
```

```
person['city'] = 'New York'
```

```
print(person.get('city'))
```

A) 'New York'

B) None

C) city

D) Error

Answer: A) 'New York'
