



Name of the Bundle	Proficient & Advanced Bundle V2	Subject	Python Programming V2
Topic	Sets & Frozen Sets	Last updated on	22 February 2024

1. What is a set in Python?

- a. A collection of key-value pairs
- b. An ordered collection of unique elements
- c. An unordered collection of unique elements
- d. A mutable sequence of characters

Ans: c. An unordered collection of unique elements

Explanation: A set in Python is an unordered collection of unique elements. It does not maintain the order of insertion and does not allow duplicates.

2. How do you create an empty set in Python?

- a. `set = {}`
- b. `set = set()`
- c. `set = []`
- d. `set = ()`

Ans: b. set = set()

Explanation: An empty set is created using the `set()` function, which is a constructor. `{}` creates an empty dictionary, not a set.

3. Which of the following is a valid set in Python?

- a. `{1, 2, 2, 3}`
- b. `{1: 'a', 2: 'b'}`
- c. `{1, [2, 3], 4}`
- d. `{(1, 2), (3, 4)}`

Ans: d. {(1, 2), (3, 4)}

Explanation: Sets can contain immutable elements like tuples. Sets automatically remove duplicate elements.



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4.How do you add an item '4' to a set named 'my_set'?

- a. my_set.add(4)
- b. my_set.append(4)
- c. my_set.insert(4)
- d. my_set.push(4)

Ans: a .my_set.add(4)

Explanation: The add() method is used to add a single element to a set.

5.How do you remove an item '3' from a set 'my_set' if you're unsure it exists?

- a. my_set.remove(3)
- b. my_set.discard(3)
- c. del my_set[3]
- d. my_set.pop(3)

Ans: b .my_set.discard(3)

Explanation:discard () removes an element if it exists in the set, but does not raise an error if it doesn't. The method remove () will raise an error if it doesn't exist.

6.How can you loop through a set 'my_set' to print all its elements?

- a. for item in my_set: print(item)
- b. for i in range(len(my_set)): print(my_set[i])
- c. while my_set: print(my_set.pop())
- d. print(my_set)

Ans: a .for item in my_set: print(item)

Explanation: Set can be directly looped through to access each element using for loop.



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7. How do you create a union of two sets 'set1' and 'set2'?

- a. `set1.union(set2)`
- b. `set1 + set2`
- c. `set1.join(set2)`
- d. `set1 && set2`

Ans: a. `set1.union(set2)`

Explanation: The `union()` method returns a new set with all elements from both sets. `+` operator doesn't work with sets.

8. What does the set method `intersection()` do?

- a. Combines two sets
- b. Returns the common elements of two sets
- c. Removes all elements of another set from one set
- d. Duplicates the set

Ans: b. Returns the common elements of two sets

Explanation: The method `intersection()` returns a set containing only elements that are common to both sets.

9. How do you check if 'my_set' is a superset of another set 'another_set'?

- a. `my_set.issuperset(another_set)`
- b. `my_set > another_set`
- c. `my_set == another_set`
- d. `my_set.contains(another_set)`

Ans: a. `my_set.issuperset(another_set)`

Explanation: The method `issuperset()` checks if the given set has every element of the other set.



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10. How do you remove all items from a set 'my_set'?

- a. my_set.remove()
- b. my_set.discard()
- c. my_set.clear()
- d. del my_set

Ans: c. my_set.clear()

Explanation: The clear() method removes all items from a set. The set becomes empty.

11. Which method finds the difference between two sets?

- a. difference()
- b. subtract()
- c. minus()
- d. remove()

Ans: a. difference()

Explanation: The method difference() returns a set containing elements that are in the first set but not in the second.

12. What does set.pop() do?

- a. Returns and removes a random element from the set
- b. Removes the last element of the set
- c. Deletes the set
- d. Removes the first element of the set

Ans: a . Returns and removes a random element from the set

Explanation: The pop() method removes and returns a random element from the set. Since sets are unordered, there is no 'first' or 'last' element.



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13. How do you check if two sets 'set1' and 'set2' have no elements in common?

- a. `set1.isdisjoint(set2)`
- b. `set1.intersection(set2) == set()`
- c. `set1 == set2`
- d. both a and b

Ans: d. both a and b

Explanation: The `isdisjoint()` method checks if two sets have no elements in common. An empty intersection also indicates there are no common elements.

14. What is the output of `len({1, 2, 3, 4, 4})`?

- a. 5
- b. 4
- c. 3
- d. Error

Ans: b.4

Explanation: Since sets cannot contain duplicate elements, the duplicate element will be discarded when the set is created.

15. What is the result of `{1, 2, 3} - {2, 3, 4}`?

- a. `{1, 4}`
- b. `{2, 3}`
- c. `{1}`
- d. `{1, 2, 3, 4}`

Ans: c. {1}

Explanation: The `-` operator returns the difference of two sets, i.e., elements present in the first set but not in the second. The literal `{1, 2, 3, 4, 4}` creates a set.



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16. Which of these about a frozen set is not true?

- a. Mutable data type
- b. Allows duplicate values
- c. Data type with unordered values
- d. Immutable datatype

Ans: a. Mutable data type

Explanation: A Frozen set in Python is an immutable data type. i.e., once created, it cannot be changed.

17. What is the output of the following python code?

```
a=frozenset(set([5,6,7]))
```

```
print(a)
```

- a. {5,6,7}
- b. Frozenset({5,6,7})
- c. Error,not possible to convert set into frozenset
- d. Syntax error

Ans: b. Frozenset({5,6,7})

Explanation: The output is frozenset({5, 6, 7})

18. Is the following python code valid?

```
a=frozenset([5,6,7])
```

```
print(a)
```

```
print(a.add(5))
```

- a. Yes,now a is {5,5,6,7}
- b. No,frozen set is immutable
- c. No,invalid syntax for add method
- d. Yes,now a is {5,6,7}

Ans: b No,frozen set is immutable

Explanation : This code is not valid and it generates error. Since a frozen set is immutable, add() method doesn't apply for a frozenset.



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19. Which of the following is true about set?

- a. Set members must be hashable.
- b. Set members must not be hashable.
- c. Whole set must be hashable.
- d. At least one element in the set must be hashable

Ans: a. Set members must not be hashable.

Explanation: Set members, must be hashable. A data type is hashable if it has a hash value that never changes during its lifetime.

20. What will be the output of the following python code?

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

```
a.update([1,2,3])
```

```
print(a)
```

- a. Error, no method called update for set data type
- b. {1,2,3,4,5}
- c. Error, list can't be added to set
- d. Error, duplicate item present in list

Ans: b . {1,2,3,4,5}

Explanation: The method update adds element to a set. The duplicate element gets discarded.

21. What will be the output of following Python code?

```
set1={0,0,9}
```

```
print(set1)
```

- a. {0,0,9}
- b. {0,9}
- c. {9}
- d. It will throw an error as there are two 0 while creating the set.

Ans: b.{0,9}

Explanation: The output is {0,9}. The duplicate element 0 will be discarded.



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22. What will be the output of the following python code?

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

```
a.intersection_update([2,3,4,5])
```

```
print(a)
```

- a. Error, no method called intersection for set data type
- b. {2,3}
- c. {1,4,5}
- d. Error, duplicate item present in list

Ans: b. {2,3}

Explanation: The method `intersection_update()` returns a set which is an intersection of both the sets. i.e., only the common elements between the two sets will be updated in set a.

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

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

```
b=a
```

```
b.remove(3)
```

```
print(a)
```

- a. {1, 2}
- b. {1,2,3,4,5}
- c. Error, list can't be added to set
- d. Error, duplicate item present in list

Ans: a. {1,2}

Explanation: The method `remove()` removes the specified element from the set.



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24. Which of the following Python code will create a set?

(i) `set1=set((0,9,0))`

(ii) `set1=set([0,2,9])`

(iii) `set1={}`

- a. iii
- b. i and ii
- c. ii, iii
- d. All of the above

Ans: b. i and ii

Explanation: `set1=set((0,9,0))` : `set()` is a constructor for set and `(0,9,0)` is a tuple. A set is created of a tuple provided to the constructor.

`set1=set([0,2,9])` : `set()` constructor, `[0, 2, 9]` is a list. A set is created of a list provided to the constructor.

`set1={}` will create a dictionary. Not a set. Though both set and dictionary use `{}`. Empty set is created using `set()`.

25. What will `set1|set2` do?

If `set1={"a","b",3}`

`set2={3,7}`

- a. Elements of `set2` will get appended to `set1`
- b. Elements of `set1` will get appended to `set2`
- c. A new set will be created with the elements of both `set1` and `set2`
- d. A new set will be created with the unique elements of `set1` and `set2`.

Ans: c .A new set will be created with the elements of both set1 and set2

Explanation: A new set `{3, 7, 'a', 'b'}`, will be created with the elements of both `set1` and `set2`. Duplicate element 3 is not accepted.



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26. What will the below Python code do?

```
set1={"a",3,"b",3}
```

```
set1.remove(3)
```

- It removes element with index position 3 from set1
- It removes element 3 from set1
- It removes only the first occurrence of 3 from set1
- No such function exists for set

Ans: b. It removes element 3 from set1

Explanation: It removes element 3 from set1. There will be only one 3 in the set because duplicate 3 will be removed when the set is created.

27. What will be the result of below Python code?

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

```
set1.add(4)
```

```
set1.add(4)
```

```
print(set1)
```

- {1,2,3,4}
- {1,2,3}
- {1,2,3,4,4}
- It will throw an error as same element is added twice

Ans: a. {1,2,3,4}

Explanation: The output for the following python code is {1,2,3,4}. A duplicate element cannot be added to a set and the set remains unchanged.



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28. What is frozen set() in Python?

- a. It is a data structure
- b. Keywords
- c. Functions
- d. All of the above

Ans: c. Functions

Explanation: The method frozen set() is a constructor (Function) which is used to create a frozen set which is a build in data set.

29. Why does python use frozen set?

- a. To create immutable set
- b. To create copy of a set
- c. To remove duplicate elements
- d. To reverse the elements

Ans: a. To create immutable set

Explanation: In Python set is mutable. If there is a need for a immutable set, one can make use of a frozen set.

30. Which of the following is true about frozen set ?

- a. Can convert frozen set to set
- b. Cannot convert frozen set to set
- c. Empty frozen set can be converted to set
- d. Both a and c

Ans: b. Cannot convert frozen set to set

Explanation: Converting a frozen set to a set is not possible. A frozen set cannot be modified directly.



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31. Which of the following statements is used to create an empty set?

- a. {}
- b. set()
- c. []
- d. ()

Ans: b.set()

Explanation: {} creates a dictionary not a set. Only set() creates an empty set.

32.If a={5,6,7}, what happens when a.add(5) is executed?

- a. a={5,5,6,7}
- b. a={5,6,7}
- c. Error as there is no add function for set data type
- d. Error as 5 already exists in the set

Ans: b. a={5,6,7}

Explanation: There exists add method for set data type. However 5 isn't added again as set consists of only non-duplicate elements and 5 already exists in the set.

Execute in python shell to verify.

33. If a={5,6,7,8}, which of the following statements is false?

- a. print(len(a))
- b. print(min(a))
- c. a.remove(5)
- d. a[2]=45

Ans: d. a[2]=45

Explanation: The members of a set can be accessed by their index values since the elements of the set are unordered.



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34. If $a=\{5,6,7\}$, what happens when $a.add(5)$ is executed?

- a. $a=\{5,5,6,7\}$
- b. $a=\{5,6,7\}$
- c. Error as there is no add function for set data type
- d. Error as 5 already exists in the set

Ans: b. $a=\{5,6,7\}$

Explanation: There exists add method for set data type. However 5 isn't added again as set consists of only non-duplicate elements and 5 already exists in the set.

Execute in python shell to verify.

35. What will be the output of the following Python code?

```
>>> a={4,5,6}
```

```
>>> b={2,8,6}
```

```
>>> a-b
```

- a. $\{4,5\}$
- b. $\{6\}$
- c. Error as unsupported operand type for set data type
- d. Error as the duplicate item 6 is present in both sets

Ans: a $\{4,5\}$

Explanation: – operator gives the set of elements in set a but not in set b.



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36. What will be the output of the following Python code?

```
>>> a={5,6,7,8}
```

```
>>> b={7,8,10,11}
```

```
>>> a^b
```

- a. {5,6,7,8,10,11}
- b. {7,8}
- c. Error as unsupported operand type of set data type
- d. {5,6,10,11}

Ans: d. {5,6,10,11}

Explanation: ^ operator returns a set of elements in set A or set B, but not in both (symmetric difference).

37. What will be the output of the following Python code?

```
>>> s={5,6}
```

```
>>> s*3
```

- a. Error as unsupported operand type for set data type
- b. {5,6,5,6,5,6}
- c. {5,6}
- d. Error as multiplication creates duplicate elements which isn't allowed

Ans: a. Error as unsupported operand type for set data type

Explanation: The multiplication operator isn't valid for the set data type.



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38. What will be the output of the following Python code?

```
a={5,6,7,8}
```

```
b={7,5,6,8}
```

```
print( a==b)
```

- a. True
- b. False
- c. None
- d. No output

Ans: a.True

Explanation: It is possible to compare two sets and the order of elements in both the sets doesn't matter if the values of the elements are the same.

39.What will be the output of the following Python code?

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

```
b={5,6,7}
```

```
print(a|b)
```

- a. Invalid operation
- b. {3, 4, 5, 6, 7}
- c. {5}
- d. {3,4,6,7}

Ans: b. {3, 4, 5, 6, 7}

Explanation: The operation in the above piece of code is union operation. This operation produces a set of elements in both set a and set b.



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40. Is the following Python code valid?

```
a={3,4,{7,5}}
```

```
print(a[2][0])
```

- a. Yes, 7 is printed
- b. Error, elements of a set can't be printed
- c. Error, subsets aren't allowed
- d. Yes, {7,5} is printed

Ans: c. Error, subsets aren't allowed

Explanation: In python, elements of a set must not be mutable and sets are mutable.

Thus, subsets can't exist.