Dictionaries:

1. What is the output of the following code?

python

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d = {'a': 1, 'b': 2, 'c': 3}

print(d.get('d', d['a']))

a) None b) 1 c) KeyError d) 'd'

1. Which method would you use to remove and return an item from a dictionary? a) dict.remove() b) dict.pop() c) dict.discard() d) del dict[key]
2. What is the time complexity of accessing an element in a dictionary by its key? a) O(1) on average b) O(n) c) O(log n) d) O(n^2)
3. What will be the output of the following code?

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d1 = {'a': 1, 'b': 2}

d2 = {'b': 3, 'c': 4}

d1.update(d2)

print(d1)

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

1. Which of the following will create a dictionary where the keys are numbers from 1 to 5 and the values are their squares? a) dict([(x, x**2) for x in range(1, 6)]) b) {x: x**2 for x in range(1, 6)} c) dict(zip(range(1, 6), [x\*\*2 for x in range(1, 6)])) d) All of the above
2. What is the output of the following code?

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d = {'a': 1, 'b': 2, 'c': 3}

print(list(d.items())[1][1])

a) 'b' b) 2 c) ('b', 2) d) IndexError

1. Which method would you use to get a list of all values in a dictionary? a) dict.keys() b) dict.values() c) dict.items() d) dict.get()
2. What will be the output of the following code?

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d = {1: 'a', 2: 'b', 3: 'c'}

print(d.setdefault(4, 'd'))

print(d)

a) None, {1: 'a', 2: 'b', 3: 'c'} b) 'd', {1: 'a', 2: 'b', 3: 'c', 4: 'd'} c) KeyError d) 'd', {1: 'a', 2: 'b', 3: 'c'}

1. Which of the following will merge two dictionaries in Python 3.9+? a) dict1 | dict2 b) {\*\*dict1, \*\*dict2} c) dict1.update(dict2) d) Both a and b
2. What is the output of the following code?

python

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d = {'a': 1, 'b': 2, 'c': 3}

print(d.pop('b', 0) + d.get('d', 4))

a) 2 b) 4 c) 6 d) KeyError

Dictionaries:

1. Answer: b) 1 Explanation: d.get('d', d['a']) returns d['a'] (which is 1) if 'd' is not in the dictionary.
2. Answer: b) dict.pop() Explanation: dict.pop() removes the item with the specified key and returns its value.
3. Answer: a) O(1) on average Explanation: Dictionary lookups are implemented using hash tables, providing constant-time access on average.
4. Answer: b) {'a': 1, 'b': 3, 'c': 4} Explanation: d1.update(d2) updates d1 with the key-value pairs from d2, overwriting existing keys.
5. Answer: d) All of the above Explanation: All these methods create a dictionary with numbers as keys and their squares as values.
6. Answer: b) 2 Explanation: list(d.items())[1] gives the second key-value pair, and [1] accesses its value.
7. Answer: b) dict.values() Explanation: dict.values() returns a view object of all values in the dictionary.
8. Answer: b) 'd', {1: 'a', 2: 'b', 3: 'c', 4: 'd'} Explanation: setdefault() sets the value if the key doesn't exist and returns the value.
9. Answer: d) Both a and b Explanation: In Python 3.9+, both | and {\*\*dict1, \*\*dict2} can be used to merge dictionaries.
10. Answer: c) 6 Explanation: d.pop('b', 0) returns 2, and d.get('d', 4) returns 4, so 2 + 4 = 6.