

Python Lists — Quiz (Hard)

Auto-generated quiz (hard) for Python Lists

Subject: Python Lists

Assessment Type: Quiz

Difficulty Level: Hard

Total Questions: 7

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Question 1 [2 marks] (hard)

What is the primary performance inefficiency when using a Python list as a queue and removing elements from its beginning (index 0)?

Question 2 [2 marks] (hard)

Write a function `process_nested_list` that takes a list of lists of integers. The function should flatten this nested list into a single list, but only include numbers that are even. For each even number found, its square should be added to the final flattened list.

Question 3 [2 marks] (hard)

Which Python list operation has a time complexity that is generally $O(n)$ for a list of length n , due to element shifting?

- A. `list.append(x)`
- B. `list.pop()`
- C. `list[len(list):] = [x]`
- D. `list.insert(0, x)`

Question 4 [2 marks] (hard)

What is the return value of methods like `sort()` or `reverse()` when called on a Python list?

- A. The modified list itself
- B. A new list containing the sorted/reversed elements
- C. The first element of the modified list
- D. None

Question 5 [2 marks] (hard)

What will be the output of the following list comprehension: `vec = [[1,2], [3,4], [5,6]]` then `[num for elem in vec for num in elem]`?

- A. [[1,2], [3,4], [5,6]]
- B. [1, 2, 3, 4, 5, 6]
- C. [[1,3,5], [2,4,6]]
- D. [1, 3, 5]

Question 6 [2 marks] (hard)

Consider creating a list of (number, square) tuples using a list comprehension. Which of the following syntaxes would result in a `SyntaxError`?

- A. `[(x, x**2) for x in range(3)]`
- B. `[x, x**2 for x in range(3)]`
- C. `[(x, pow(x, 2)) for x in range(3)]`
- D. `[(x, x*x) for x in range(3) if True]`

Question 7 [2 marks] (hard)

Given `my_list = [10, 20]`, what is the state of `my_list` after executing `my_list[len(my_list):] = '34'`?

- A. [10, 20, '34']
- B. [10, 20, ['3', '4']]
- C. [10, 20, '3', '4']
- D. TypeError