SmartKalike

CBSE Class 12 · Computer Science

searChIng

10 most probable questions for Boards 2027

Q1. 2 marks · Short answer

What is searching? What does a search result establish about the key? (2 marks)

Answer

Searching is the process of checking a collection for a particular element, called the key. A search result establishes whether the key is present and, if present, its position in the collection.

Q2. 5 marks · Long answer

Describe how linear search examines a list to locate a key, including what happens when a match is found and when the list is traversed without a match. (5 marks)

Answer

Linear search examines the elements of a list one by one to locate a key.
1. The search begins at the first element and compares that element with the key. The comparisons follow the order in which the elements occur in the list.
2. If an element matches the key, the search is successful. The algorithm stops comparing and reports the position of the matching element.
3. If an element does not match, the algorithm moves to the next element and compares it with the key. This continues until a match is found or the entire list has been traversed.
When no element matches after the complete traversal, the search is unsuccessful, and the key is not present in the list.

Q3. 2 marks · Short answer

What makes linear search an exhaustive searching technique? (2 marks)

Answer

Linear search is an exhaustive searching technique because it compares every element of a list with the key, one by one, in list order. The search stops when a matching element is found; otherwise, it examines the entire list before declaring the search unsuccessful.

Q4. 5 marks · Long answer

Why is linear search also called sequential or serial search, and for what kind of collection is it useful? Explain how its comparisons differ when the key is first versus last or absent. (5 marks)

Answer

Linear search checks list elements in their existing order, making it useful for small, unordered collections.

1. The search starts with the first element and moves towards the last, comparing each element with the key. This ordered, one-by-one examination gives linear search the names sequential search and serial search.
2. If the key is the first element, the algorithm finds it in one comparison. This is the minimum number of comparisons required.
3. If the key is the last element, the algorithm compares all n elements before finding it, making n comparisons. If the key is absent, all n elements must also be checked before the search is declared unsuccessful.
Thus, the number of comparisons depends on the key's position or absence in the list.

Q5. 2 marks · Short answer

Give two applications of binary search mentioned in the textbook, including one application involving a sorted list. (2 marks)

Answer

Binary search is used to search a dictionary or telephone directory. In a sorted list, it can also find the element with the minimum or maximum value.

Q6. 5 marks · Long answer

Explain why binary search requires an ordered list. Describe how it compares the key with the middle element and uses the result of that comparison to continue searching. (5 marks)

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/computer-science/searching

Q7. 2 marks · Short answer

What is a collision in hashing? Illustrate the idea using the textbook's modulo-10 example of 16 and 26. (2 marks)

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/computer-science/searching

Q8. 5 marks · Long answer

Explain which half of the list is discarded when the middle element is greater than or less than the key. Describe how the search area is reduced and when the search ends unsuccessfully. (5 marks)

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/computer-science/searching

Q9. 2 marks · Short answer

What condition must a list satisfy before binary search can be used? Briefly describe how binary search uses the middle element to reduce the search area.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-12/computer-science/searching

Q10. 5 marks · Long answer

Describe the ordering that can be used for numeric and textual data in binary search. Explain the floor-division rule for finding the middle element of an even-sized list, using 10 elements as the example, and state whether the list itself is changed during the search. (5 marks)

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