

Data Structures and Algorithms for Artificial Intelligence

Sample Questions

Answer All Questions

Duration 1 hour

Question 1

- a) Explain the difference between a data structure and an algorithm.
- b) Explain the importance of algorithm analysis.
- c) What do LIFO and FIFO mean?
- d) Suppose you push 10, 20, 30, and 40 onto the stack. Then you pop three items. Which one is left on the stack?
- e) Suppose you insert 15, 25, 35, and 45 into a queue. Then you remove three items. Which one is left?

Question 2

- a) Merge sort is an example for divide and conquer type algorithm. List 2 other examples for divide and conquer type algorithm.
- b) Merge sort is one of the most efficient sorting algorithms. List 3 advantages of Merge sort over other types of sorting algorithms.
- c) Write the pseudo code for Merge sort algorithm.

Question 3

- a) Explain the linked list data structure identifying the different types of linked lists that can be implemented.
- b) Explain the Binary Search Tree data structure and its properties.
- c) Identify the different types of tree traversals using an example.