



PART B — (5 × 16 = 80 marks)

11. (a) (i) With an example, explain how will you measure the efficiency of an algorithm. (8)
- (ii) Analyze the linear search algorithm with an example. (8)

Or

- (b) Explain the various aspects of problem solving in detail. Also discuss pros and cons of each. (16)
12. (a) (i) Write suitable routines to perform insertion and deletion operations in a linked queue. (12)
- (ii) Write a suitable C routine to remove and return the top element of the stack using Array implementation. (4)

Or

- (b) Write suitable ADT operations to perform insertion and deletion in a doubly linked list. (16)
13. (a) (i) Explain the various hashing techniques with suitable examples. (10)
- (ii) When will collisions arise? Discuss. (6)

Or

- (b) Write suitable ADT's to perform the following operations in an AVL Tree.
- (i) Insert a node. (8)
- (ii) Delete a node. (8)
14. (a) Write ADT operations for Heap Sort. Also simulate the following numbers using Heap Sort. What is the time complexity? (16)

35 45 25 11 6 85 17 38 102 178

Or

- (b) (i) Explain Merge sort with an example. (8)
- (ii) Explain External sorting. (8)

15. (a) Write suitable ADT operation for shortest path problem. Show the simulation of shortest path with an example graph. (16)

Or

- (b) (i) How do you construct a minimum cost spanning tree with Prim's algorithm? (8)
- (ii) Explain depth first search on a graph with necessary data structures. (8)
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