Multiple Choice Question & Answer

1. Which notation is used to represent the upper bound of an algorithm's time complexity?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: A) Big oh notation

2. Which algorithmic technique involves breaking a problem into smaller subproblems and solving each recursively?

A) Divide and conquer

B) Backtracking

C) Dynamic programming

D) Greedy algorithms

Answer: A) Divide and conquer

3. What is the time complexity of the binary search algorithm?

A) O(n)

B) O(log n)

C) O(n log n)

D) O(n^2)

Answer: B) O(log n)

4. Which notation represents both the upper and lower bounds of an algorithm's time complexity?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: C) Theta notation

5. Which sorting algorithm uses the divide and conquer technique?

A) Bubble sort

B) Insertion sort

C) Quick sort

D) Selection sort

Answer: C) Quick sort

6. What is the space complexity of merge sort?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: A) O(n)

7. Which problem-solving technique is often used to solve problems involving making a sequence of choices?

A) Greedy algorithms

B) Backtracking

C) Dynamic programming

D) Divide and conquer

Answer: B) Backtracking

8. Which data structure is commonly used to implement a priority queue?

A) Stack

B) Queue

C) Heap

D) Linked list

Answer: C) Heap

9. What is the time complexity of heap sort?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

10. In which problem, dynamic programming technique is often applied to find the optimal solution?

A) Graph coloring

B) Hamiltonian cycles

C) Optimal binary search tree

D) Disjoint set operations

Answer: C) Optimal binary search tree

11. Which notation represents the lower bound of an algorithm's time complexity?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: B) Omega notation

12. Which algorithm is used to multiply two matrices efficiently using the divide and conquer technique?

A) Bubble sort

B) Insertion sort

C) Quick sort

D) Strassen's matrix multiplication

Answer: D) Strassen's matrix multiplication

13. What is the main idea behind the backtracking algorithm?

A) Systematically searching through all possible solutions

B) Dividing the problem into smaller subproblems

C) Storing the solutions to subproblems in a table

D) Finding the optimal solution through a sequence of choices

Answer: A) Systematically searching through all possible solutions

14. Which problem-solving technique aims to find all (or some) solutions to a problem by trying all possibilities?

A) Greedy algorithms

B) Divide and conquer

C) Backtracking

D) Dynamic programming

Answer: C) Backtracking

15. What is the primary advantage of dynamic programming over naive recursive algorithms?

A) Dynamic programming always guarantees the optimal solution.

B) Dynamic programming requires less space.

C) Dynamic programming avoids recomputation of solutions to subproblems.

D) Dynamic programming is easier to implement.

Answer: C) Dynamic programming avoids recomputation of solutions to subproblems.

16. Which sorting algorithm has a worst-case time complexity of O(n^2) but is often faster in practice for small datasets?

A) Merge sort

B) Bubble sort

C) Heap sort

D) Quick sort

Answer: B) Bubble sort

17. Which problem-solving technique is particularly useful for solving optimization problems with overlapping subproblems?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: C) Dynamic programming

18. Which algorithmic technique involves breaking a problem into smaller, non-overlapping subproblems?

A) Divide and conquer

B) Dynamic programming

C) Backtracking

D) Greedy algorithms

Answer: D) Divide and conquer

19. What is the time complexity of the union operation in a disjoint-set data structure implemented using the union-find algorithm?

A) O(1)

B) O(log n)

C) O(n)

D) O(n log n)

Answer: B) O(log n)

20. Which problem-solving technique often involves exploring a solution space by recursively trying different options and backtracking when a dead end is reached?

A) Divide and conquer

B) Dynamic programming

C) Greedy algorithms

D) Backtracking

Answer: D) Backtracking

21. Which notation represents a stricter upper bound on an algorithm's time complexity compared to Big Oh notation?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: D) Little oh notation

22. What is the time complexity of the best-case scenario for quicksort when the pivot selection is well-balanced?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

23. Which algorithm is used to find the minimum spanning tree of a graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Bellman-Ford algorithm

Answer: A) Prim's algorithm

24. Which problem-solving technique aims to find the optimal solution through a sequence of choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

25. What is the time complexity of a naive recursive approach to calculating the Fibonacci sequence?

A) O(1)

B) O(log n)

C) O(n)

D) O(2^n)

Answer: D) O(2^n)

26. Which algorithmic technique involves reducing a problem instance to smaller instances of the same problem?

A) Divide and conquer

B) Greedy algorithms

C) Dynamic programming

D) Backtracking

Answer: A) Divide and conquer

27. In which algorithmic technique, the problem is divided into two or more similar but smaller subproblems, which are then solved recursively?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: B) Divide and conquer

28. Which algorithm is used to find the shortest path from a source node to all other nodes in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Bellman-Ford algorithm

Answer: C) Dijkstra's algorithm

29. Which data structure is commonly used to implement the disjoint-set data structure?

A) Stack

B) Queue

C) Array

D) Forest

Answer: D) Forest

30. Which problem-solving technique systematically searches through all possible solutions to find the optimal one?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: D) Backtracking

Apologies for any confusion.

31. Which notation represents both the upper and lower bounds of an algorithm's time complexity?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: C) Theta notation

32. What is the time complexity of the merge operation in the merge sort algorithm?

A) O(1)

B) O(log n)

C) O(n)

D) O(n log n)

Answer: C) O(n)

33. Which algorithm is used to solve the all-pairs shortest path problem in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Floyd-Warshall algorithm

Answer: D) Floyd-Warshall algorithm

34. What is the primary advantage of using the heap data structure?

A) Constant time insertion and deletion

B) Constant time search operation

C) Maintains sorted order of elements

D) Efficient priority queue operations

Answer: D) Efficient priority queue operations

35. Which problem-solving technique involves iteratively making locally optimal choices with the hope of finding a global optimum?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

36. What is the space complexity of the quicksort algorithm in the worst case?

A) O(1)

B) O(log n)

C) O(n)

D) O(n^2)

Answer: C) O(n)

37. Which algorithmic technique involves exploring a solution space by making a sequence of decisions and then undoing those decisions when they lead to failure?

A) Divide and conquer

B) Greedy algorithms

C) Dynamic programming

D) Backtracking

Answer: D) Backtracking

38. In which problem-solving technique, the problem is solved by iteratively selecting the best choice at each step without reconsidering previous choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

39. Which sorting algorithm has the best average-case time complexity?

A) Bubble sort

B) Insertion sort

C) Merge sort

D) Quick sort

Answer: C) Merge sort

40. What is the time complexity of the best-case scenario for merge sort?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

41. What is the time complexity of the best-case scenario for merge sort?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

42. Which notation represents a stricter upper bound on an algorithm's time complexity compared to Big Oh notation?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: D) Little oh notation

43. Which algorithm is used to find the minimum spanning tree of a graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Bellman-Ford algorithm

Answer: A) Prim's algorithm

44. Which problem-solving technique aims to find the optimal solution through a sequence of choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

45. What is the time complexity of the best-case scenario for quicksort when the pivot selection is well-balanced?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

46. Which algorithm is used to find the shortest path from a source node to all other nodes in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Bellman-Ford algorithm

Answer: C) Dijkstra's algorithm

47. Which data structure is commonly used to implement the disjoint-set data structure?

A) Stack

B) Queue

C) Array

D) Forest

Answer: D) Forest

48. Which problem-solving technique systematically searches through all possible solutions to find the optimal one?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: D) Backtracking

49. Which algorithmic technique involves reducing a problem instance to smaller instances of the same problem?

A) Divide and conquer

B) Greedy algorithms

C) Dynamic programming

D) Backtracking

Answer: A) Divide and conquer

50. In which algorithmic technique, the problem is divided into two or more similar but smaller subproblems, which are then solved recursively?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: B) Divide and conquer

51. Which notation represents both the upper and lower bounds of an algorithm's time complexity?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: C) Theta notation

52. What is the time complexity of the merge operation in the merge sort algorithm?

A) O(1)

B) O(log n)

C) O(n)

D) O(n log n)

Answer: C) O(n)

53. Which algorithm is used to solve the all-pairs shortest path problem in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Floyd-Warshall algorithm

Answer: D) Floyd-Warshall algorithm

54. What is the primary advantage of using the heap data structure?

A) Constant time insertion and deletion

B) Constant time search operation

C) Maintains sorted order of elements

D) Efficient priority queue operations

Answer: D) Efficient priority queue operations

55. Which problem-solving technique involves iteratively making locally optimal choices with the hope of finding a global optimum?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

56. What is the space complexity of the quicksort algorithm in the worst case?

A) O(1)

B) O(log n)

C) O(n)

D) O(n^2)

Answer: C) O(n)

57. Which algorithmic technique involves exploring a solution space by making a sequence of decisions and then undoing those decisions when they lead to failure?

A) Divide and conquer

B) Greedy algorithms

C) Dynamic programming

D) Backtracking

Answer: D) Backtracking

58. In which problem-solving technique, the problem is solved by iteratively selecting the best choice at each step without reconsidering previous choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

59. Which sorting algorithm has the best average-case time complexity?

A) Bubble sort

B) Insertion sort

C) Merge sort

D) Quick sort

Answer: C) Merge sort

60. What is the time complexity of the best-case scenario for merge sort?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

61. Which notation represents a stricter upper bound on an algorithm's time complexity compared to Big Oh notation?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: D) Little oh notation

62. Which algorithm is used to find the minimum spanning tree of a graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Bellman-Ford algorithm

Answer: A) Prim's algorithm

63. Which problem-solving technique aims to find the optimal solution through a sequence of choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

64. What is the time complexity of the best-case scenario for quicksort when the pivot selection is well-balanced?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

65. Which algorithm is used to find the shortest path from a source node to all other nodes in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Bellman-Ford algorithm

Answer: C) Dijkstra's algorithm

66. Which data structure is commonly used to implement the disjoint-set data structure?

A) Stack

B) Queue

C) Array

D) Forest

Answer: D) Forest

67. Which problem-solving technique systematically searches through all possible solutions to find the optimal one?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: D) Backtracking

68. Which algorithmic technique involves reducing a problem instance to smaller instances of the same problem?

A) Divide and conquer

B) Greedy algorithms

C) Dynamic programming

D) Backtracking

Answer: A) Divide and conquer

69. In which algorithmic technique, the problem is divided into two or more similar but smaller subproblems, which are then solved recursively?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: B) Divide and conquer

70. Which notation represents both the upper and lower bounds of an algorithm's time complexity?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: C) Theta notation

71. What is the time complexity of the merge operation in the merge sort algorithm?

A) O(1)

B) O(log n)

C) O(n)

D) O(n log n)

Answer: C) O(n)

72. Which algorithm is used to solve the all-pairs shortest path problem in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Floyd-Warshall algorithm

Answer: D) Floyd-Warshall algorithm

73. What is the primary advantage of using the heap data structure?

A) Constant time insertion and deletion

B) Constant time search operation

C) Maintains sorted order of elements

D) Efficient priority queue operations

Answer: D) Efficient priority queue operations

74. Which problem-solving technique involves iteratively making locally optimal choices with the hope of finding a global optimum?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

75. What is the space complexity of the quicksort algorithm in the worst case?

A) O(1)

B) O(log n)

C) O(n)

D) O(n^2)

Answer: C) O(n)

76. Which algorithmic technique involves exploring a solution space by making a sequence of decisions and then undoing those decisions when they lead to failure?

A) Divide and conquer

B) Greedy algorithms

C) Dynamic programming

D) Backtracking

Answer: D) Backtracking

77. In which problem-solving technique, the problem is solved by iteratively selecting the best choice at each step without reconsidering previous choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

78. Which sorting algorithm has the best average-case time complexity?

A) Bubble sort

B) Insertion sort

C) Merge sort

D) Quick sort

Answer: C) Merge sort

79. What is the time complexity of the best-case scenario for merge sort?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

80. Which notation represents a stricter upper bound on an algorithm's time complexity compared to Big Oh notation?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: D) Little oh notation

81. Which notation represents both the upper and lower bounds of an algorithm's time complexity?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: C) Theta notation

82. What is the time complexity of the merge operation in the merge sort algorithm?

A) O(1)

B) O(log n)

C) O(n)

D) O(n log n)

Answer: C) O(n)

83. Which algorithm is used to solve the all-pairs shortest path problem in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Floyd-Warshall algorithm

Answer: D) Floyd-Warshall algorithm

84. What is the primary advantage of using the heap data structure?

A) Constant time insertion and deletion

B) Constant time search operation

C) Maintains sorted order of elements

D) Efficient priority queue operations

Answer: D) Efficient priority queue operations

85. Which problem-solving technique involves iteratively making locally optimal choices with the hope of finding a global optimum?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

86. What is the space complexity of the quicksort algorithm in the worst case?

A) O(1)

B) O(log n)

C) O(n)

D) O(n^2)

Answer: C) O(n)

87. Which algorithmic technique involves exploring a solution space by making a sequence of decisions and then undoing those decisions when they lead to failure?

A) Divide and conquer

B) Greedy algorithms

C) Dynamic programming

D) Backtracking

Answer: D) Backtracking

88. In which problem-solving technique, the problem is solved by iteratively selecting the best choice at each step without reconsidering previous choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

89. Which sorting algorithm has the best average-case time complexity?

A) Bubble sort

B) Insertion sort

C) Merge sort

D) Quick sort

Answer: C) Merge sort

90. What is the time complexity of the best-case scenario for merge sort?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

91. Which notation represents a stricter upper bound on an algorithm's time complexity compared to Big Oh notation?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: D) Little oh notation

92. Which algorithm is used to find the minimum spanning tree of a graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Bellman-Ford algorithm

Answer: A) Prim's algorithm

93. Which problem-solving technique aims to find the optimal solution through a sequence of choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

94. What is the time complexity of the best-case scenario for quicksort when the pivot selection is well-balanced?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

95. Which algorithm is used to find the shortest path from a source node to all other nodes in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Bellman-Ford algorithm

Answer: C) Dijkstra's algorithm

96. Which data structure is commonly used to implement the disjoint-set data structure?

A) Stack

B) Queue

C) Array

D) Forest

Answer: D) Forest

97. Which problem-solving technique systematically searches through all possible solutions to find the optimal one?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: D) Backtracking

98. Which algorithmic technique involves reducing a problem instance to smaller instances of the same problem?

A) Divide and conquer

B) Greedy algorithms

C) Dynamic programming

D) Backtracking

Answer: A) Divide and conquer

99. In which algorithmic technique, the problem is divided into two or more similar but smaller subproblems, which are then solved recursively?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: B) Divide and conquer

100. Which notation represents both the upper and lower bounds of an algorithm's time complexity?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: C) Theta notation

101. What is the time complexity of the merge operation in the merge sort algorithm?

A) O(1)

B) O(log n)

C) O(n)

D) O(n log n)

Answer: C) O(n)

102. Which algorithm is used to solve the all-pairs shortest path problem in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Floyd-Warshall algorithm

Answer: D) Floyd-Warshall algorithm

103. What is the primary advantage of using the heap data structure?

A) Constant time insertion and deletion

B) Constant time search operation

C) Maintains sorted order of elements

D) Efficient priority queue operations

Answer: D) Efficient priority queue operations

104. Which problem-solving technique involves iteratively making locally optimal choices with the hope of finding a global optimum?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

105. What is the space complexity of the quicksort algorithm in the worst case?

A) O(1)

B) O(log n)

C) O(n)

D) O(n^2)

Answer: C) O(n)

106. Which algorithmic technique involves exploring a solution space by making a sequence of decisions and then undoing those decisions when they lead to failure?

A) Divide and conquer

B) Greedy algorithms

C) Dynamic programming

D) Backtracking

Answer: D) Backtracking

107. In which problem-solving technique, the problem is solved by iteratively selecting the best choice at each step without reconsidering previous choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

108. Which sorting algorithm has the best average-case time complexity?

A) Bubble sort

B) Insertion sort

C) Merge sort

D) Quick sort

Answer: C) Merge sort

109. What is the time complexity of the best-case scenario for merge sort?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

110. Which notation represents a stricter upper bound on an algorithm's time complexity compared to Big Oh notation?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: D) Little oh notation

111. Which notation represents both the upper and lower bounds of an algorithm's time complexity?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: C) Theta notation

112. What is the time complexity of the merge operation in the merge sort algorithm?

A) O(1)

B) O(log n)

C) O(n)

D) O(n log n)

Answer: C) O(n)

113. Which algorithm is used to solve the all-pairs shortest path problem in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Floyd-Warshall algorithm

Answer: D) Floyd-Warshall algorithm

114. What is the primary advantage of using the heap data structure?

A) Constant time insertion and deletion

B) Constant time search operation

C) Maintains sorted order of elements

D) Efficient priority queue operations

Answer: D) Efficient priority queue operations

115. Which problem-solving technique involves iteratively making locally optimal choices with the hope of finding a global optimum?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

116. What is the space complexity of the quicksort algorithm in the worst case?

A) O(1)

B) O(log n)

C) O(n)

D) O(n^2)

Answer: C) O(n)

117. Which algorithmic technique involves exploring a solution space by making a sequence of decisions and then undoing those decisions when they lead to failure?

A) Divide and conquer

B) Greedy algorithms

C) Dynamic programming

D) Backtracking

Answer: D) Backtracking

118. In which problem-solving technique, the problem is solved by iteratively selecting the best choice at each step without reconsidering previous choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

119. Which sorting algorithm has the best average-case time complexity?

A) Bubble sort

B) Insertion sort

C) Merge sort

D) Quick sort

Answer: C) Merge sort

120. What is the time complexity of the best-case scenario for merge sort?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

121. Which notation represents a stricter upper bound on an algorithm's time complexity compared to Big Oh notation?

A) Big oh notation

B) Omega notation

C) Theta notation

D) Little oh notation

Answer: D) Little oh notation

122. Which algorithm is used to find the minimum spanning tree of a graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Floyd-Warshall algorithm

Answer: A) Prim's algorithm

123. Which problem-solving technique aims to find the optimal solution through a sequence of choices?

A) Greedy algorithms

B) Divide and conquer

C) Dynamic programming

D) Backtracking

Answer: A) Greedy algorithms

124. What is the time complexity of the best-case scenario for quicksort when the pivot selection is well-balanced?

A) O(n)

B) O(log n)

C) O(n^2)

D) O(n log n)

Answer: D) O(n log n)

125. Which algorithm is used to find the shortest path from a source node to all other nodes in a weighted graph?

A) Prim's algorithm

B) Kruskal's algorithm

C) Dijkstra's algorithm

D) Bellman-Ford algorithm

Answer: C) Dijkstra's algorithm