

# Online Assessment (Even Sem/Part-I/Part-II Examinations 2019 - 2020)

Course Name - --Design and Analysis of Algorithm

Course Code - BCSE401(BL)

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Answer all the questions. Each question carry one mark.

9. 1. Best case in insertion sort occurs when

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- array elements are in random order
- both array elements are in random order and array elements are in sorted order
- array elements are in sorted order
- none of these

10. 2. Master's theorem is used for?

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- solving iterative relations
- analyzing loops
- solving recurrences
- calculating the time complexity of any code

11. 3. Recursion tree method is used to find

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- Space complexity
- Both Time complexity and Space complexity
- Time complexity
- None of these

12. 4. How many cases are there under Master's theorem?

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- 2
- 4
- 3
- 5

13. 5. An algorithm which uses the past results and and uses them to find the new results is

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- Brute Force
- Divide and Conquer
- Dynamic programming
- Greedy Algorithm

14. 6. Which of the following is used to depict the working of algorithm?

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- Flow chart
- Pseudo code
- All of these
- Source code

15. 7. An algorithm is made up of two independent time complexities  $f(n)$  and  $g(n)$ . Then the complexities of the algorithm in the order of

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- $f(n) \times g(n)$
- $\min ( f(n),g(n))$
- $\max ( f(n),g(n))$
- $f(n) + g(n)$

16. 8. Quick Sort can be categorised into which of the following?

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- Brute Force technique
- Greedy algorithm
- Divide and conquer algorithm
- Dynamic programming

17. 9. Disjoint set data structure is used in

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- prim's algorithm
- dfs algorithm
- kruskal's algorithm
- none of these

18. 10. Lower bound complexity denoted by

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- Big-O
- Little-o
- $\Omega$
- $\emptyset$

19. 11.  $\emptyset$  - notation provides an asymptotic

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- Lower bound
- Upper bound
- One that is sandwiched between the two bounds
- None of these

20. 12. Big-O notation provides an asymptotic

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- Lower bound
- One that is sandwiched between the two bounds
- Upper bound
- None of these

21. 13. Which algorithm is able to detect negative edge cycle

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- Dijkstra's
- Floyd warshall
- Bellman ford
- None of these

22. 14. Time complexity of linear search algorithm on n item in worst case is

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- $O(1)$
- $O(\log n)$
- $O(n)$
- $O(n \log n)$



23. 15. Time complexity of binary search algorithm on n item in worst case is

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- $O(1)$
- $O(n)$
- $O(\log n)$
- $O(n \log n)$

24. 16. The time factor when determining the efficiency of an algorithm is measured by

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- Counting microseconds
- Counting number of statements
- Counting number of key operations
- Counting kilobyte of algorithm

25. 17. Which of the following property/properties is/are necessary for an algorithm?

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- Definiteness
- Effectiveness
- Both Definiteness and Effectiveness
- None of these

26. 18. Which of the following is false in the case of a spanning tree of a graph  $G$ ?

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- It is tree that spans  $G$
- It is a subgraph of the  $G$
- It can be either cyclic or acyclic
- It includes every vertex of the  $G$

27. 19.  $o(g(n))$  [ read as little oh of  $g(n)$ ]

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- Asymptotically tight
- Same as big- $O$
- Asymptotically loose
- None of these

28. 20. Kruskal's algorithm is used to \_\_\_\_\_

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- find single source shortest path
- find all pair shortest path algorithm
- find minimum spanning tree
- traverse the graph

29. 21. A list contains 10 elements in sorted (ascending) order. What will be the number of comparisons for searching the 7th element in binary search technique?

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- 2
- 3
- 4
- 5

30. 22. The 0/1 Knapsack problem is an example of \_\_\_\_\_

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- Divide and conquer algorithm
- greedy algorithm
- dynamic algorithm
- None of these

31. 23. The fractional Knapsack problem is an example of \_\_\_\_\_

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- Divide and conquer algorithm
- dynamic algorithm
- greedy algorithm
- None of these

32. 24. The Data structure used in standard implementation of Breadth First Search is?

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- Stack
- Linked List
- Queue
- None of these

33. 25. The Data structure used in standard implementation of Depth First Search is?

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- Queue
- Linked List
- Stack
- None of these

34. 26. Which of the following methods can be used to solve the matrix chain multiplication problem?

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- Brute force
- Recursion
- Dynamic programming
- All of these

35. 27. Dijkstra's Algorithm is used to solve \_\_\_\_\_ problems.

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- All pair shortest path
- Network flow
- Single source shortest path
- Sorting

36. 28. How many possible solutions exist for an 8-queen problem?

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- 100
- 98
- 92
- 88

37. 29. The average number of comparisons performed by merge sort algorithm in merging two sorted lists of 2 elements is

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- 8/5
- 11/7
- 8/3
- 11/6

38. 30. Which is an external sorting algorithm?

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- bubble
- heap sort
- merge sort
- quick sort

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