



K21P 3106

Reg. No.:

Name :

II Semester M.C.A. Degree (C.B.S.S. – Regular)
Examination, May 2021
(2020 Admission)
MCA 2C01 : ALGORITHMS AND DATA STRUCTURES

Time : 3 Hours

Max. Marks : 60

SECTION – A

Answer all questions. Each question carries two marks.

1. Which are the various methods for specifying an algorithm ?
2. Write the algorithm for binary search.
3. State Master's theorem for solving recurrences.
4. Define P and NP classes with examples.
5. What is a double ended queue ?
6. What are the advantages of doubly linked lists ?
7. What is a trie ?
8. What is hashing ?
9. What is meant by a backtracking algorithm ?
10. Which are the data structures used in the DFS and BFS algorithms ?

P.T.O.



SECTION – B

Answer **all** questions. **Each** question carries **eight** marks.

11. a) Compare Greedy approach and dynamic programming approach in algorithm design.

OR

- b) Explain various steps in developing an algorithm.

12. a) Explain any two methods for solving recurrences with examples.

OR

- b) Explain strassen's algorithm for matrix multiplication. Derive its complexity.

13. a) Write and explain the algorithm for converting infix expression to postfix expression with an example.

OR

- b) Explain the insertion and deletion operations performed on a linked list with algorithms.

14. a) What is a Binary Search Tree (BST)? Explain the tree traversal algorithms.

OR

- b) With an example explain the Huffman algorithm for extended binary tree.

15. a) Compare and explain quick-sort and merge sort.

OR

- b) Explain the matrix representation of graph in memory. Explain the various applications of graph.
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