Reg. No. : ....

Name : ....

III Semester M.C.A. Degree Examination, May 2009
ALGORITHM ANALYSIS AND DESIGN

Time : 3 Hours   Max. Marks : 100

PART – A

Answer **all** questions. **All** questions carry **equal** marks.

1. List the advantageous of complexity analysis in algorithms.

2. What are priority queues ? List the application of priority queues.

3. List the advantageous and disadvantageous (if any) of heap sort over any two well known sorting methods.

4. Write an algorithm for right rotation of a binary tree. Explain your algorithm with an example.

5. Write a short note on B trees.

6. Write a short note on NP problems.

7. What do you mean by branch and bound method of problem solving ?

8. What do you mean by knapsack problem and how it can be solved ?

9. Write a short note on Strassen's algorithm.

10. What do you mean by topological sorting ? Explain with example. **(10×4=40 Marks)**

PART – B

Answer **any two** questions from **each** Module.

Module – I

11. Do you think that both time space complexity analyses are required for all types of problems ? Discuss with examples.

12. Write an algorithm to find the second largest element in a set of 'n' numbers. How many comparisons dos your algorithm required in the worst case ?

13. What do you mean by recurrence equations and where it is used ? Explain with an example.

Module – II

14. Write an algorithm to find the minimum cost spanning tree. Explain the algorithm with an example.

15. What are AVL trees ? Explain the importance of AVL tree with examples.

16. Write a simple algorithms for DFS and BFS traversals in a graph and list the data structures used in those algorithms.

Module – III

17. What is eight-queen problem ? Write and explain an algorithm for solving this problem.

18. How the divide and conquer algorithm is differ from greedy algorithms ? Explain with a simple example.

19. What is the working principle of dynamic programming ? Explain with an example.

(6×10=60 Marks)

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