MCA-137 MCA-12

M.C.A. DEGREE EXAMINATION — JANUARY, 2009.

Third Semester/Second Year

DESIGN AND ANALYSIS OF ALGORITHMS

Time : 3 hours

Maximum marks : 75

Answer for 5 marks question should not exceed 2 pages.

Answer for 10 marks questions should not exceed 5 pages.

PART A — $(5 \times 5 = 25 \text{ marks})$

Answer any FIVE questions.

1. Write the four distinct areas on the study of algorithms.

2. What is meant by Data structure? Explain.

3. What is meant by Bottom-up Approach? Give an example.

4. Between two different algorithm which perform same task with computing time O(n) and $O(n^2)$, which one could be selected? Justify your answer. 5. What is meant by lexicographic order? Explain briefly.

- 6. Define a Binary Search Tree. Give example.
- 7. What is meant by program debugging? Explain.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. What are the criterias to be satisfied by an algorithm? Explain in detail.

- 9. How to analyse programs? Explain.
- 10. Explain the Knight's tour problem in detail.
- 11. Explain the travelling salesman problem.
- 12. What is meant by a Hashing function? Explain.
- 13. Explain Bubble sort algorithm.
- 14. Write short notes on :
 - (a) Random number generation.
 - (b) In order traversal.

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