Code: R7310506

R07

III B. Tech I Semester (R07) Supplementary Examinations, May 2012

DESIGN & ANALYSIS OF ALGORITHMS

(Computer Science & Engineering)

Time: 3 hours Max Marks: 80

Answer any FIVE questions
All questions carry equal marks
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1 (a) Define an algorithm. What are the different criteria that satisfy the algorithm?
(b) Explain the different areas of research where the algorithms can be applied.

2 (a) Write a pseudo code for UNION algorithm with weighted rule.
(b) Present an algorithm for FIND using collapsing rule.

3 (a) Write an algorithm to sort N numbers in ascending order using merge sort.
(b) Compute the time complexity for merge sort.

4 (a) Prove that the greedy method produces an optimal solution to the job sequencing problem.
(b) Write an algorithm for Knapsack problem by using Greedy technique.

5 (a) What are the differences between greedy and dynamic programming method of problem solving techniques?
(b) Explain the concept of dynamic programming through this approach; discuss the solutions for O/1 knapsack problem.

6 (a) Explain in detail about back tracking.
(b) Explain the graph coloring with an example.

7 Write and explain an algorithm for a LIFO branch and bound algorithm to find the minimum cost answer node.

8 (a) Explain about non deterministic algorithm.
(b) Discuss NP-hard and NP-complete problems.

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