

Subject Code: MC1335/R13

M C A - III Semester Regular/Supply Examinations, January - 2016

DESIGN AND ANALYSIS OF ALGORITHMS

Time: 3 hours

Max Marks: 60

Answer any FIVE of the following

All questions carry equal marks.

1. a) What is weighting rule? Discuss about the union algorithm using weighting rule.
b) How to calculate time and space complexity of an algorithm? Explain.
2. a) Write control abstraction for greedy method.
b) Write an algorithm for sorting the given elements using Quick sort.
c) Write an algorithm for minimum cost spanning tree using prim's
3. a) What is principal optimality? Dynamic programming was best compared to the greedy method. Justify the statement.
b) What is the need of the Reliability design? Give the equations for the Reliability design of the system.
c) Explain about the 0/1 knapsack problem.
4. a) What is the backtracking? Give the solution for the 8 queens problem.
b) Write an algorithm for the graph coloring.
5. a) What is branch and bound? Explain about the FIFO branch and bound solution.
b) What are the applications of branch and bound?
c) Discuss about the cook's theorem.
6. a) Explain about the asymptotic notations.
b) Calculate the best, average and worst case time complexity for the merge sort.
7. a) What is travelling sales person problem? Explain with example.
b) Differentiate between divide and conquer method and greedy method.
8. Explain about the following terms
 - a) Strassen's matrix multiplication
 - b) Amortized analysis.
 - c) Simple find and union algorithm
