Code: 9A05403

SS

B.Tech III Year I Semester (R09) Supplementary Examinations December 2015

DESIGN & ANALYSIS OF ALGORITHMS

(Computer Science and Engineering)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) Explain pseudo code conventions for writing an algorithm.
(b) Write short notes on space complexity.

2 (a) Explain in detail about spanning trees and related algorithms.
(b) Explain the following fundamental operations on sets:
(i) FIND. (ii) DELETE. (iii) MIN. (iv) INSERT.

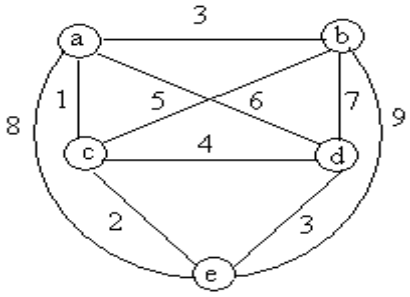
3 (a) Write an algorithm to sort N numbers in ascending order using merge sort.
(b) Compute the time complexity for Merge sort.

4 (a) Prove that the Kruskal algorithm generates a minimum cost spanning tree for every connected undirected graph G.
(b) Write an algorithm to find minimum cost spanning tree by using prim's technique.

5 (a) Explain the traveling sales person problem and also analyze its time complexity.
(b) Explain the 0/1 knapsack problem.

6 (a) Derive the Bounding functions of sum of subsets problem and write the algorithm for the same.
(b) Define the following terms: live node, E-node, dead node.

7 Solve the traveling sales man problem for the following graph by using branch and bound.



8 (a) What is meant by Halting problem? Explain with an example.
(b) Prove that CNF satisfiability α AND/OR graph decision problem.

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