

Code :R5321906

R5

III B.Tech II Semester(R05) Supplementary Examinations, April/May 2011
DESIGN & ANALYSIS OF ALGORITHMS
 (Electronics & Computer Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks
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1. (a) Write the non recursive algorithm for finding the Fibonacci sequence and derive its time complexity.
 (b) Show that $n^3 \log n$ is $w(n^3)$.
2. (a) Derive the Time complexity of strassen's matrix multiplication.
 (b) Write insertion algorithm of Binary search tree.
3. (a) Prove that Prim's algorithm finds a minimum spanning tree.
 (b) Explain the single source shortest path using Greedy method with an example.
4. (a) Using dynamic programming method, find the maximum no. of operations possible for the following chain matrix multiplication and also the sequence of multiplications that will require this maximum no. of operations
 $A(20,30) * B(30,5) * C(5,12) * D(12,5)$
 (b) Define merging and purging rules in 0/1 Knapsack problem.
5. (a) Explain the BFS algorithm with an example.
 (b) The Preorder and Postorder sequences of a binary tree do not uniquely define the binary tree. Justify the answer.
6. (a) Let $w = \{20, 18, 15, 12, 10, 7, 5\}$ and $m=35$. Find all possible subsets of w that sum to m . Draw the portion of the state space tree that is generated.
 (b) Describe the applications of m -coloring.
7. (a) What is Bounding? Explain how these bound are useful in Branch and Bound methods.
 (b) Describe the TSP in Branch and Bound.
8. (a) Explain about cook's theorem.
 (b) Explain the strategy to prove that a problem is NP hard.

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