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Question Paper Code: 34024

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Fourth Semester

Computer Science and Engineering

01UCS404 - DESIGN AND ANALYSIS OF ALGORITHMS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is an algorithm?
2. Differentiate recursive and non-recursive algorithms.
3. List the strength and weakness of brute force algorithm.
4. How divide and conquer technique can be applied to binary trees?
5. Define dynamic programming.
6. State the uses of memory functions to solve knapsack problem.
7. Define feasible solution. Give an example.
8. List the steps for simplex methods.
9. Define NP Hard and NP Completeness.
10. Define tractable and intractable problems.

PART - B (5 x 16 = 80 Marks)

11. (a) Briefly explain the steps in mathematical analysis of recursive algorithms. (16)

Or

(b) Briefly discuss the steps in designing and analyzing an algorithm. (16)

12. (a) Write an algorithm for Quicksort and sort the list 5, 3, 1, 9, 8, 2, 4, 7. Also find its time complexity. (16)

Or

(b) Write the algorithm for Iterative binary search. (16)

13. (a) Define Minimum Spanning Tree. Explain Prim's Algorithm with an example. (16)

Or

(b) Write the Floyd's algorithm for solving all pair shortest path. (16)

14. (a) Briefly explain the stable marriage problem. Find the best and worst case time complexity. (16)

Or

(b) What is maximum matching? Illustrate the steps involved in finding the maximum matching in Bipartite Graphs. (16)

15. (a) Explain in detail about assignment problem. (16)

Or

(b) Draw the State-space tree of solving the four queens problem by backtracking. (16)
