Code: 13A05406

R13

B.Tech II Year II Semester (R13) Regular Examinations May/June 2015

DESIGN & ANALYSIS OF ALGORITHMS

(Common to CSE & IT)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Write the differences between the Greedy method and Dynamic programming.
(b) What is an algorithm?
(c) Write the control abstraction for divide-and conquer. Give computing time for binary search.
(d) Write some applications of travelling salesperson problem.
(e) Define minimum spanning tree.
(f) State m-colorability decision problem.
(g) Define Hamiltonian graph with an example.
(h) Define branch and bound method. What are the searching techniques that are commonly used in branch and bound method.
(i) Explain NP complete problems.
(j) Write the general procedure of dynamic programming.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 What is asymptotic notation? Explain different types of notations with examples.

OR

3 Explain quick sort algorithm with an example.

UNIT – II

4 Explain the concept of job sequencing with deadlines by Greedy technique.

OR

5 Explain travelling salesman problem with an example by using dynamic programming.

UNIT – III

6 Differences between BFS and DFS with an example.

OR

7 Explain about N-QUEENS problem with an example.

UNIT – IV

8 Explain about 0/1 knapsack problem using branch and bound technique.

OR

9 Explain the comparison trees.

UNIT – V

10 Explain about P, NP – COMPLETE, NP, NP – HARD problems with examples for each.

OR

11 Explain about Cook's theorem.

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