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Question Paper Code : 71379

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Fourth Semester

Computer Science and Engineering

CS 2251/CS 41/CS 1251/080230013/10144 CS 402 — DESIGN AND ANALYSIS OF ALGORITHMS

(Regulation 2008/2010)

(Common to PTCS 2251/10144 CS 402 - Design and Analysis of Algorithms for B.E. (Part-Time) Third Semester – Computer Science and Engineering – Regulation 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the use of Asymptotic Notation?
2. Define Big-Oh notation.
3. Define Binary Tree.
4. How divide and conquer technique applied to binary trees?
5. What do you mean by Dynamic programming?
6. Give short notes of travelling salesman problem.
7. Compare backtracking, branch and bound Techniques.
8. What do you mean by state space tree?
9. What are the two techniques of traversals in graph?
10. List out the two Draw backs of binary search algorithm.



PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the various Asymptotic notations used in algorithm design? (8)
(ii) Describe in detail about the steps in analyzing & coding an algorithm? (8)

Or

- (b) Describe briefly the notations of complexity of an algorithm?

12. (a) Develop a pseudo code for divide & conquer algorithm for merge two sorted Arrays into a single sorted one – Explain with example. (16)

Or

- (b) (i) Explain about knapsack problem with example. (10)
(ii) Explain binary search with three order traversal with example. (6)

13. (a) Explain about the multistage graphs with example. (16)

Or

- (b) Write down and explain the algorithm to solve all pair's shortest paths problems? (16)

14. (a) Describe the detail about the backtracking solution to solve 8 queens problem? (16)

Or

- (b) Explain about knapsack problem using back tracking with example (16)

15. (a) Briefly explain NP-hard and NP-Completeness with example? (16)

Or

- (b) Explain how the branch and bound technique is used to solve I/O knapsack? (16)