Reg. No. : | | | | | | | | | | | |

Question Paper Code : P 1199

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009

Third Semester/Fourth Semester

(Regulation 2004)

Computer Science and Engineering

CS 1201 — DESIGN AND ANALYSIS OF ALGORITHMS

(Common to B.E.(Part-Time) Second Semester — Regulation 2005)

Time : Three hours Maximum : 100 marks

Answer ALL questions

PART A — (10 × 2 = 20 marks)

1. What are the drawbacks in using the standard unit of time, to measure the runtime of an algorithm?

2. What is meant by empirical analysis of algorithm?

3. What are the ways to represent the data obtained?

4. What are the types of algorithm visualization?

5. What are the six step processes in Algorithmic Problem Solving?

6. Formally define the notion of Algorithm with diagram.

7. Give some examples for brute force algorithm.

8. How can you improve the quick sort?

9. What are the types of decrease and conquer?

10. Define articulation point.

PART B — (5 × 16 = 80 marks)

11. (a) Explain Divide and Conquer technique.

Or

(b) Explain the quick sort technique.

12. (a) (i) What is the efficiency of DFS traversal? (2)

(ii) State the applications of DFS. (2)

(iii) State the applications of BFS. (2)

(iv) Compare DFS and BFS. (10)

Or

(b) Design an algorithm for find the largest element of n numbers and find the efficiency of the algorithm?

13. (a) For n = 40,30,20,60,50,80,15,28,25 draw all the binary trees with n nodes that satisfy the balance requirement of AVL trees.

Or

(b) Write about general plan for Empirical analysis of algorithm efficiency.

14. (a) Design a presorting based algorithm for computing mode of an array and determine its efficiency class.

Or

(b) Explain heap sort with example and analyze.

15. (a) Discuss in detail the Branch and Bound Technique.

Or

(b) Apply Floyd's algorithm for the following graph