Register Number: ……

M.E. DEGREE EXAMINATIONS: NOV/DEC 2010

First Semester

COMPUTER SCIENCE AND ENGINEERING

CSE501: Data Structures and Algorithms

Time: Three Hours **Maximum Marks: 100**

Answer ALL Questions:-

PART A (10 x 2 = 20 Marks)

1. Give any two properties of Big Oh notation.
2. Define NP- completeness.
3. Define Fibonacci Heaps.
4. Define Max heap. Give an example.
5. What is Binary Search Tree? How do you calculate total cost to search a node in this tree?
6. Define Tries Give an example..
7. What is Convex Hull structure? Where are these structures used?
8. Define Mean Retrieval Time.
9. What is m-colorability decision problem?
10. Formulate a multistage graph problem in resource allocation environment.

PART B (5 x 16 = 80 Marks)

11. a) What is recurrence equation? Explain in detail any two techniques used for solving recurrence equations.

(OR)

b) Define Amortized analysis. Write in detail about the Amortized analysis techniques with an example.

12. a) With examples, write briefly about Binomial heaps.

(OR)

b) Write about Deaps and discuss the insertion and deletion operations performed in deap structure with an example.

13. a) Define 2 – 3 trees. Write an algorithm to insert and search an item in the tree with an example.

(OR)

b) Write the properties of a B-Tree and explain deletion algorithm for B-trees.

14. a) Explain with an example about Quick sort and compare its performance with Merge sort.

(OR)

b) Write about Tree Vertex Splitting problem with an example.

15. a) With an example, describe the algorithm for 0/1 Knapsack problem using dynamic programming.

(OR)

b) Explain the recursive backtracking algorithm and general iterative backtracking algorithm. Analyse the algorithms for estimating the efficiency of backtracking.

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