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2005 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS
DESIGN AND ANALYSIS OF ALGORITHMS
(INFORMATION TECHNOLOGY AND COMPUTER SCIENCE & SYSTEM ENGINEERING)

NOVEMBER 2005

TIME – 3 HOUR
MARK – 80

Answer any FIVE Questions
All Questions carry equal marks

1. What is meant by time complexity? Give and explain different notations used with examples. [16]

2. (a) Write an algorithm of Quick sort and explain in detail.

(b) Suggest refinements to Merge sort to make it in-place. [6+12]

3. (a) Explain the control at straction of Greedy method compare this with Dynamic programming.

(b) Applying the Greedy stentegy find the solution for optimal storage on tapes problem instance n = 3, (l1, l2, l3) = (5, 10, 3).

(c) Explain the 0/1 knap sack problem algorithm with Greedy concept. [6+6+4]

4. (a) Write the implementation of DELETE (b,s) in which an element b found at vertex v of a binary Search tree whose elements belong to set S. .

(b) Given the following binary search tree. (figure 1) . [10+6]

5. (a) What do you mean by forward and backward approach of problem solving in Dynamic Programming?

(b) What are the differences between Greedy and dynamic programming method of problem solving techniques? [8+8]

6. (a) What are the breadth first spanning trees? Explain.

(b) Obtain the binary tree form for the following infix expressions.

i. (a + b) / (c * d)

ii. a + (b + (c + d)) [6+10]

7. Write a program schema for a LIFO branch and bound search for a Least cost answer node. [16]

8. What is interpolation? Explain Lagrange interpolation algorithm & Newtonian Interpolation algorithm. [16]