5513
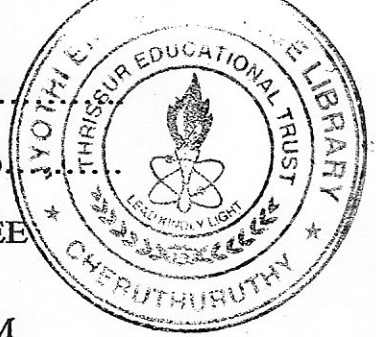
SEVENTH SEMESTER B.TECH (ENGINEERING) DEGREE EXAMINATION JUNE 2010

CS 04 704-DESIGN AND ANALYSIS OF ALGORITHM

Time: Three Hours   Maximum : 100 Marks

Part A

Answer all *questions*.

1. What is amortised analysis?

2. How does potential method work?

3. Define optimal binary search trees.

4. How to construct the Huffman code?

5. What is NP-completeness? Explain.

6. Explain the subset-sum problem.

7. Specify the applications of cryptography.

8. Explain the probabilistic counting method.

(8 x 5 = 40 marks)

Part B

II. (a) Derive the recurrence equation for fibunacci series. Perform complexity analysis for the same.

Or

(b) (i) Explain the property of linearity of expectation.

(ii) Explain in detail heap sort with an example.

(5 + 10 = 15 marks)

III. 1 Give the efficient algorithm for knapsack problem. Justify your algorithm.

Or

2 Write the Floyd - War shall algorithm and explain it.

(15 marks)

IV. (a) Explain the following problem :-

(I) Vertex cover problem.

(II) Hamiltonian cycle problem.

Or

(b) Explain the approximation algorithm for set covering problem.

(7 + 8 = 15 marks)

V. (a) Explain the randomized selection algorithm and analyse its complexity.

Or

(b)   (I) Explain the Pollard's oho heuristic algorithm.

(II) Discuss the applications of cryptography.

(7 + 8 = 15 marks)