B. Tech. 6th Semester Computer Science & Engineering

(F. Scheme) Examination,

May–2012

ANALYSIS & DESIGN OF ALGORITHM

Paper–CSE–306–F

Time allowed : 3 hours] *[Maximum marks : 100.*

Note : *Attempt **five** questions, selecting **one** question from each section and question number **one is compulsory.***

1. Write short notes on any *five* :

(a) Asymptotic notations

(b) Difference in Greedy and Dynamic approaches

(c) NP Hard and NP complete problems

(d) General Backtracking method

(e) Hamiltonian Cycles with example

(f) Recursive Relations. 20

Section–A

2. Explain the following :

(a) Union and find operations in terms of Set and Disjoint set.

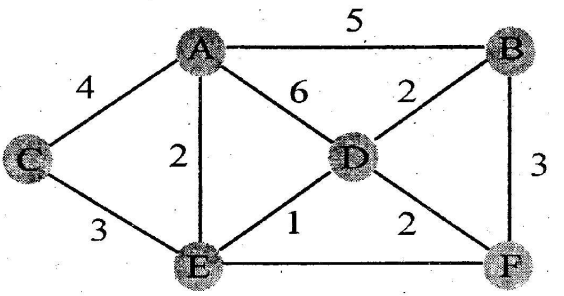
(b) Which sorting algorithm is most efficient ? Explain various pros and cons. 20

3. (a) Explain quick sort algorithm

(b) Explain Strassen's matrix multiplication. 20

Section–B

4. (a) Generate the minimum spanning tree of the following connected graph using Kruskal's algorithm. 10



(b) Explain single source shortest path problem along with the algorithm, example and its complexity. 10

5. Explain the problem of solving optional binary search trees using dynamic programming. 20

Section–C

6. Suggest the solutions to the following problems using backtracking :

(a) 8-queen

(b) Graph-Coloring. 20

7. (a) Differentiate between backtracking and branch and bound. 10

(b) Explain LC branch and bound with example. 10

Section–D

8. (a) Show that Clique decision problem is NP Hard. 10

(b) Discuss Node cover decision problem. 10

9. State and prove Cook's theorem. 20