

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**M.Sc. DEGREE EXAMINATION - COMPUTER SC.**

FIRST SEMESTER – NOVEMBER 2011

**CS 1810 - DESIGN & ANALYSIS OF ALGORITHM**

Date : 01-11-2011  
Time : 1:00 - 4:00

Dept. No.

Max. : 100 Marks

**Section – A (10 X 2 = 20 Marks)**

**Answer all Questions**

1. Define Parallel algorithm?
2. Define graph?
3. Define binary tree?
4. What do you mean by minimum spanning tree?
5. Define transitive closure?
6. Define binary search tree?
7. What do you mean by backtracking?
8. List out the advantages of branch and bound technique?
9. What is intractable problems?
10. Define Heuristics?

**Section – B (5 X 8 = 40 Marks)**

**Answer all Questions**

- 11 a). Write and describe the procedure to identify GCD using consecutive integer checking method with example?  
Or  
b). Write about Mathematical analysis of recursive algorithms?
- 12 a). Explain how Quick sort can be performed with example?  
Or  
b). With algorithm explain how binary search is used to search the element in the given list?
- 13 a). Explain with example to find optimal binary search tree for an array of search probabilities?  
Or  
b). Explain with example the procedure to handle knapsack problem by dynamic programming?
- 14 a). Apply backtracking to solve the following instance of a subset sum problem  $s = \{1,3,4,5\}$  with  $d=11$ ?  
Or  
b). Explain in detail about assignment problem?

15 a). Describe about NP Complete problems?

Or

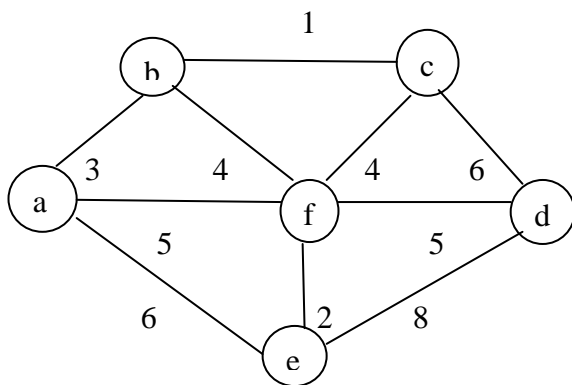
b). Write the approximation algorithm for Knapsack problem?

**Section – C (2 X 20 = 40 Marks)**

**Answer any TWO Questions**

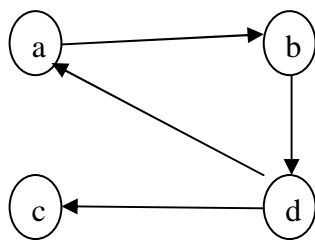
16 a). Explain in detail about the different efficiencies and the asymptotic notations?

b). Apply the prim's algorithm for the following graph



17 a). Explain with example the Dijkstra's algorithm?

b). Apply the warshall's algorithm to the following graph and explain your algorithm



18 a). Apply the branch and bound technique to solve the traveling salesman problem? Write the algorithm and explain it?

b). Explain how the approximation algorithm is used in solving knapsack problem?

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