

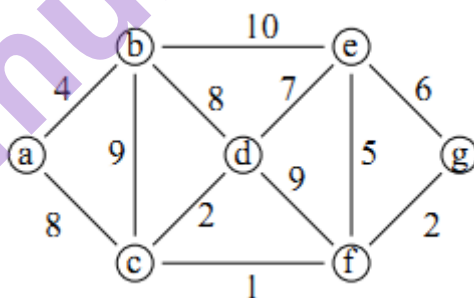
(3 Hours)

(Total marks : 80)

Note: (1) Question No. 1 is compulsory.

(2) Attempt any three questions out of remaining five questions.

- Q1. (a) Sort the following elements using merge sort: [08]
 70, 50, 30, 10, 20, 40, 60
 (b) Explain randomized algorithm with example [06]
 (c) Explain binary search algorithm and derive its complexity. [06]
- Q2. (a) Explain different string matching algorithms. [10]
 (b) Explain 8-queen's problem with example. [10]
- Q3. (a) Solve the following fractional knapsack problem: [10]
 Weights = { 40, 10, 20, 24 }
 Profits = { 280, 100, 120, 120 } & W = 60
 (b) Write an algorithm for sum of subsets. Hence solve the following problem: [10]
 S = { 10, 7, 5, 18, 12, 20, 15 } & M = 35
- Q4. (a) Write an algorithm to find minimum and maximum value using divide and conquer and also derive its complexity. [10]
 (b) Explain the different asymptotic notations. [10]
- Q5. (a) What is LCS? Find LCS for the following strings: [10]
 X = BACDB
 Y = BDCB
 (b) Find the minimum spanning tree for the following graph: [10]



- Q6. Write note on (any two) : [20]
 (a) 15-puzzle problem
 (b) Graph coloring
 (c) Strassen's matrix multiplication