(3 Hours) [Total Marks : 80]

N.B. (1) Question No. 1 is compulsory

(2) Attempt any three out of remaining five questions

(3) Make suitable assumptions wherever necessary and justify it.

(4) Figures to the right indicate full marks

Q1 Write short note on following 20

(a) Substitution method

(b) Dynamic programming

(c) Set Cover problem

(d) Asymptotic notation

Q2 (a) Explain the Floyd Warshall algorithm 10

(b) Explain Convex hull and rotational sweep also explain the Graham Scan algorithm for convex hull problem 10

Q3 (a) Write and analyze the Huffman Code algorithm and use it to Construct the Huffman code for the following characters a, b, c, d, e, f with their frequencies as given below
a: 45, b : 13, c : 12, d : 16, e: 9, f.5. 10

(b) Explain the Maximum bipartite matching 10

Q4 (a) Write a detailed note on RSA 10

(b) What do you understand by NP Complete? Explain. Is Subset Sum problem NP complete? If so explain. 10

Q5 (a) Define approximation algorithms? Explain the travelling salesperson problem. 10

(b) Explain Mesh algorithm in detail 10

Q6 (a) Explain the algorithm to determine whether two line segments intersects 10

(b) Explain the Las Vegas Algorithm 10

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