(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   10
          Scan algorithm for convex hull problem

Q3 (a)   Write and analyze the Huffman Code algorithm and use it to Construct   10
          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.
    (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   10
          problem NP complete? If so explain.

Q5 (a)   Define approximation algorithms? Explain the travelling salesperson   10
          problem.
    (b)   Explain Mesh algorithm in detail   10

Q6 (a)   Explain the algorithm to determine whether two line segments   10
          intersects
    (b)   Explain the Las Vegas Algorithm   10

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