

**R09****Code: 9A05403**

B.Tech III Year II Semester (R09) Supplementary Examinations December/January 2015/2016

**DESIGN & ANALYSIS OF ALGORITHMS**

(Electronics and Computer Engineering)

Time: 3 hours

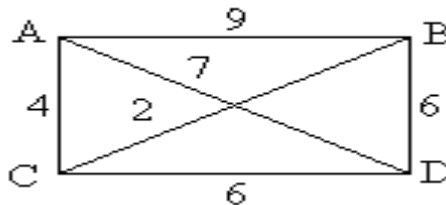
Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

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- 1 (a) Explain about primality testing.  
(b) What are the advantages and disadvantages of randomized algorithm?
- 2 (a) Present an algorithm for Union with Weighting rule.  
(b) What is collapsing rule. Explain with example.
- 3 (a) Discuss briefly about the randomized quick sort.  
(b) Draw the binary decision tree for the following set:  
(3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 47)
- 4 (a) Define minimum cost spanning trees. Explain them with suitable example.  
(b) Explain the greedy knapsack problem with suitable example.
- 5 Find the shortest path of a TSP for the following graph by using dynamic programming.



- 6 Draw and explain the solution space organization for the sum of subsets problem.
- 7 Explain the principles of:
  - (a) Control Abstraction for LC-search.
  - (b) Bounding.
  - (c) FIFO branch and bound.
  - (d) LIFO branch and bound.
- 8 (a) Write short notes on:
  - (i) Classes of NP-hard.
  - (ii) Classes of NP-complete.  
(b) How are P and NP problems related?

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