

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

B.Tech II Year II Semester (R09) Supplementary Examinations May/June 2016

**DESIGN & ANALYSIS OF ALGORITHMS**

(Common to CSS, IT &amp; CSE)

Time: 3 hours

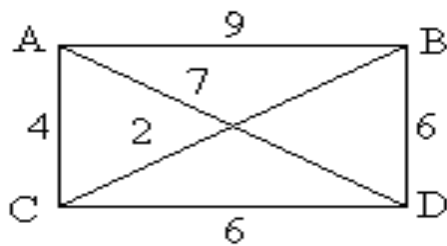
Max. Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Present an algorithm to compute the power of n.  
(b) List and explain different categories of randomized algorithms.
- 2 (a) What is degenerative tree? Write the simple UNION and FIND algorithms.  
(b) Generate the trees for the set {1, 2, 3, 4, ..... n} by using Weighted rule.
- 3 (a) Solve the following recurrence relation:  

$$T(n) = \begin{cases} 1 & n \leq 4 \\ 2T(\sqrt{n}) & n > 4 \end{cases}$$
  
(b) Write short notes on Binary Search.
- 4 (a) Give brief description about the single source shortest path by using Greedy Technique.  
(b) Write a high – level description for Job Sequencing algorithm.
- 5 Find the shortest path of a TSP for the following graph by using dynamic programming.



- 6 Draw and explain the tree organization of the 4-queen solution space- number the nodes using DFS.
- 7 (a) Write LCBB algorithm for the 0/1 knapsack problem.  
(b) What do you mean by bounding? Explain how these are useful in branch and bound method.
- 8 (a) Explain about decision problem with an example  
(b) Explain how NP-hard and NP-complete problems are classified.

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