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Total Number of Pages : 01

B.Tech
PCS41102

4th Semester Regular / Back Examination 2018-19

DESIGN & ANALYSIS OF ALGORITHMS

BRANCH : CSE

Time : 3 Hours

Max Marks : 100

Q.CODE : F678

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right hand margin indicate marks.

Part- I

Q1 Short Answer Type Questions (Answer All-10) (2 x 10)

- What are the important problem types focused by the researchers? Explain all the types with example.
- What is empirical analysis of an algorithm? Discuss its strength and weakness.
- Elaborate the simple factoring algorithm with example .
- Explain the fundamentals of algorithmic problem solving with algorithm design and analysis process diagram.
- Develop the general framework for analyzing the efficiency of algorithm
- Discuss briefly the sequence of steps in designing and analyzing algorithm.
- What is pseudo code? Explain with an example.
- Explain various criteria used for analyzing algorithms.
- Describe briefly the notions of complexity of algorithm.
- Explain the various asymptotic notations used in algorithm techniques.

Part- II

Q2 Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- Explain the necessary steps for analyzing the efficiency of recursive algorithms.
- Explain about binary search with example.
- Explain Kruskal's algorithm.
- Define Spanning tree. Discuss design steps in Prim's algorithm to construct minimum spanning tree with an example.
- Explain Dijkstra algorithm
- Explain about Knapsack Problem with example
- Construct a minimum spanning tree using Kruskal's algorithm with your own example.
- Write a pseudo code for divide & conquer algorithm for merging two sorted arrays in to a single sorted one. Explain with example.
- Explain algorithm animation with example
- Explain static algorithm visualization and dynamic algorithm visualization with example.
- Differentiate mathematical analysis of algorithm and empirical analysis of algorithm.
- Write an algorithm for finding of the largest element in a list of n- numbers.

Part-III

Long Answer Type Questions (Answer Any Two out of Four)

- Q3 Discuss Brute force method with proper example. (16)
- Q4 Develop algorithm for selection sort and bubble sort with proper example. (16)
- Q5 Explain Depth First Search and Breadth First Search . (16)
- Q6 Develop the divide and conquer algorithms with example . (16)