24362

B. Tech. 6th Semester (CSE)

Examination – May, 2019

ANALYSIS & DESIGN OF ALGORITHM

Paper : CSE-306-F

Time : Three Hours]   *[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions in all, selecting *one* question from each Section. Question Number 1 is *compulsory.* All questions carry equal marks.

1. (a) What do you mean by complexity of an algorithm ? Explain.

   (b) What is general backtracking method ?

   (c) What is the difference between deterministic and non-deterministic algorithm ?

   (d) What is traveling salesman problem ?

   (e) What is Clique decision problem ?

SECTION – A

2. (a) Explain the following : Union and find operations in terms of set and disjoint set.

(b) Write and explain different type of asymptotic notations with suitable example.

3. (a) What is Divide and Conquer strategy ? Design a recursive binary search algorithm using divide an conquer strategy.

(b) Write an algorithm for quick sort and find its complexity.

SECTION – B

4. (a) What is minimum spanning tree ? Explain Prime algorithm to generate minimum spanning tree.

(b) Explain Job sequencing with deadline by using Greedy method.

5. What do you mean by dynamic programming ? Explain the concept optical binary search tree with suitable example showing its application.

SECTION – C

6. (a) Write back-tracking procedure to determine all Hamilton cycle in a graph.

(b) Give an algorithm for graph coloring problem using backtracking.

7. What is branch and bound method ? Explain 0/1 knapsack problem using branch and bound method.

SECTION – D

8. State and prove Cook's theorem.

9. (a) What are NP hard and NP complete problem ? Explain.

(b) Discuss Subset-Sum problem.

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