18BB1001

M. Tech. EXAMINATION, May 2019

(Second Semester)

(C Scheme) (Main Only)

CSE

MTCSE502C

ADVANCED ALGORITHMS

Time : 3 *Hours*]   [*Maximum Marks :* 75

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

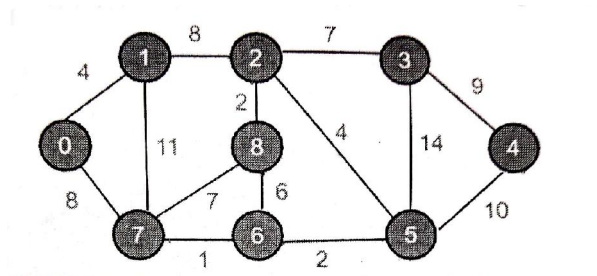**Note** : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Find the shortest path Using Dijkstra's Algortihm. **10**

    (b) Give one example of amortized analysis. **5**

2. (a) Explain topological sorting with example. **8**

    (b) Explain recent trends in problem solving paradigms using recent searching and sorting techniques. **7**

Unit II

3. (a) What is Maximal Independent Set ? Explain algorithm to find maximum weight independent set. **10**
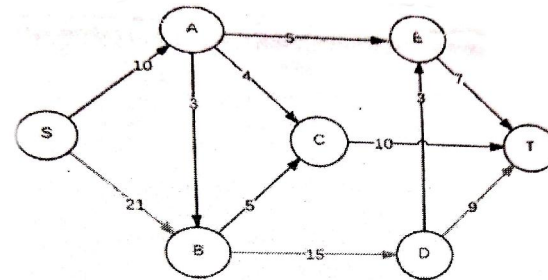
    (b) Explain application of MST. **5**

4. Prove that A matching M is a maximum matching if and only if there is no augmenting path w.r.t. M. **15**

Unit III

5. Starting from the flow network, computer the maximum flow using Ford-Fulkerson Method for given figure. **15**

6. Explain Strassen's algorithm with example. Also explain the time complexity of Strassen's algorthim. **15**

Unit IV

7. Explain Chinese Remainder Theorem. **15**

8. Explain Fast Fourier Transform Algorithm. **15**