Roll No. ....

OLE-3230

B. Tech. 5th Semester (CSE) Examination – April, 2021
DESIGN AND ANALYSIS OF ALGORITHMS
Paper : PCC-CSE-307-G

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

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 *five* questions in all, selecting *one* question from each Unit. Question No. **1** is *compulsory*. All questions carry equal marks.

1. Explain the following terms :   2.5 × 6 = 15

   (a) Asymptotic Notation

   (b) Binary Search

   (c) Greedy method vs. Dynamic Programming

   (d) Backtracking

(e) NP Complete Problem

(f) Satisfiability

UNIT – I

2. What is an algorithm ? Explain its characteristics. How we calculate time and space complexity for an algorithm ? Explain with suitable example.   15

3. What is Divide and Conquer Algorithm ? Explain Merge Sort using Divide and Conquer Strategy.   15

UNIT – II

4. What is Minimum Cost Spanning Tree ? Explain its algorithms to construct MCST from a graph.   15

5. Explain Optimal Binary Search Tree problem in detail.

       15

UNIT – III

6. What is 8 Queen Problem ? Explain with algorithm in detail.   15

7. What is Travelling Salesperson Problem ? Explain with respect to Branch and Bound.   15

UNIT – IV

8. State and Prove Cook's Theorem.   15

9. What is NP Hard Problems ? Explain with examples.

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