Reg. No.														

B.Tech. (PT) DEGREE EXAMINATION, DECEMBER 2018

First Semester

PCS203 – DESIGN AND ANALYSIS OF ALGORITHMS

(For the candidates admitted from the academic year 2007-2008 to 2016-2017)

Time: Three hours Max. Marks: 100

Answer **ALL** Questions

PART – A (10 × 2 = 20 Marks)

1. Define O-notation.
2. What is meant by 'worst-case'?
3. Differentiate divide and conquer and greedy techniques.
4. What is the average case complexity of linear search algorithm?
5. Define: Dynamic programming.
6. Write down the floyd's algorithm.
7. What is 'state space tree'?
8. Define: branch method.
9. What is the property of NP complete problem?
10. List out some of the characteristics of non-deterministic problem.

PART – B (5 × 16 = 80 Marks)

11. a. Explain in detail about asymptotic notations with examples.

(OR)

b. Explain in detail about the process of solving recurrence relations with suitable example.

12. a. Illustrate binary search algorithm with an example.

(OR)

b. Explain minimum spanning tree algorithm in detail.

13. a. Describe the travelling salesman problem. Discuss how to solve it using dynamic programming.

(OR)

b. Find the optimal solution for given Knapsack problem.

Item	1	2	3	4
Weight	2	1	3	2
value	$12	$10	$20	$15

14. a. Explain the following:
    (i) Sum of subsets
    (ii) Hamiltonian cycle

(OR)

b. What is backtracking? Using 8 queens problem explain the algorithm.

15. a. Explain: NPA hard and NP complete problem.

(OR)

b. Explain in detail about deterministic and non deterministic algorithms.

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