MCS34 — DESIGN AND ANALYSIS OF ALGORITHMS

Time : Three hours   Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) Write short notes on Big Oh notation.

Or

   (b) Discuss about Asymptotic notations.

2. (a) Write the Iterative Binary search algorithm.

Or

   (b) Explain about the simple Merge sort algorithm.

3. (a) Explain the multistage graph with suitable example.

Or

   (b) Write a short note on Optimal binary search tree.

4. (a) Explain the classical 8-queens problem with a neat diagram.

Or

   (b) Write about the mColoring algorithm.

5. (a) What is a spanning tree? Explain.

Or

   (b) Explain the FIFO method for branch and bound.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. What are recurrence equations? Explain the concept of solving the concept of recurrence equation.

7. Give a detailed account on Divide and conquer method.

8. Discuss in detail about the Travelling salesperson problem.

9. Elaborate on the Hamiltonian cycle with an example.

10. Describe in detail about the NP-Hard and NP-Completeness.