614128

S-261 (N)

B.Sc. (Fourth Semester)
NEP EXAMINATION 2023-24
COMPUTER SCIENCE
(Design and Analysis of Algorithms)
[SOS/CS/C-004]

Time : Two Hours] *[Maximum Marks : 70*

Note:(i) **Attempt any five questions from Section A and any three questions from Section B.**

(ii) **Answer each question of Section A within 50 words.**

(iii) **Limit your answers within the given answer book. Additional answer book (B-Answer book) should not be provided or used.**

Section-A

Attempt any five questions. Each question carries five marks.

1. Explain the properties of an algorithm with an example.
2. Differentiate between Bigon and Omega rotation with example.
3. Why as we perform topological sorts only on DAGs? Explain.
4. Describe in detail 8-queens problem using backtracking.
5. How are P and NP problems realated.
6. Define time Complexity and Space Complexity.
7. What do you mean by dynamic Programming.

Section-B

Attempt any three questions. Each question carries 15 marks.

1. Explain Strassen's algorithm for matrix multiplication with the help of an example.
2. Write the algorithm to compute 0/1 knapsack problem using dynamic programming and explain it.
3. (a) Write about heap sort algorithm with example and time complexity.

(b) What is spanning tree? Explain the Kruskals algorithm with a suitable example.

4. Explain travelling sales man problem with an example by using dynamic programming?

5. Write short notes on:

(a) Single Source Shortest path.

(b) Recursive binary search algorithm

(c) Max heapify.