

C 4720

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Name.....

Reg. No.....

**SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)  
EXAMINATION, APRIL 2021**

(CBCSS)

Computer Science

CSS 2C 06—DESIGN AND ANALYSIS OF ALGORITHMS

(2019 Admissions)

Time : Three Hours

Maximum : 30 Weightage

**General Instructions**

1. *In cases where choices are provided, students can attend **all** questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

**Section A**

*Answer any **four** questions.  
Each question carries 2 weightage.*

1. **Outline** the general method of Greedy algorithms.
2. **Explain** the Longest common Subsequence problem.
3. Identify the importance of the selection of appropriate data structures while designing an algorithm.
4. State and explain with an example Big Oh ratio theorem.
5. Compare Big omega and Little Omega.
6. Compare NP Hard and NP complete problems. Give examples.
7. Bring out the relevance of Amdahl's law.

(4 × 2 = 8 weightage)

**Section B**

*Answer any **four** questions.  
Each question carries 3 weightage.*

8. **Explain** Merge sort algorithm.
9. Illustrate the concept of backtracking with suitable example.

**Turn over**

10. Demonstrate a geometric problem with suitable example.
11. Analyse the time complexity of Binary search algorithm in terms of Big Oh.
12. Bring out the importance of algorithm analysis.
13. Give an overview of P versus NP problems.
14. Explain an algorithm for parallel sorting.

(4 × 3 = 12 weightage)

### Section C

*Answer any two questions.*

*Each question carries 5 weightage.*

15. Explain Knapsack problem. Illustrate with example how Branch-and-Bound approach is used to solve Knapsack problem.
16. Illustrate the following problem types with appropriate examples : Searching, string processing and graph problems.
17. Demonstrate with examples different methods for solving recurrences.
18. Explain Euler tour technique.

(2 × 5 = 10 weightage)