

The University of Burdwan

M.Sc. Semester II Examination, 2020 (CBCS)

Subject: Computer Science and Applications

Paper: MCSA-201

(Design and Analysis of Algorithms)

Time: 2 Hours

Full Marks: 40

Attempt any *eight* questions.
All questions carry equal marks.

1. Explain the worst case time complexity of Insertion sort. 5
2. Discuss Divide-and-Conquer method. 5
3. Discuss the paradigm of Dynamic programming. How does it differ from Divide-and-Conquer method? 5
4. Write down the algorithm of Matrix Chain Order to multiply chain of matrices using Dynamic programming. 5
5. Write down the algorithm for Greedy activity selector. 5
6. Discuss the paradigm of approximation algorithm in brief. 5
7. Explain Union-Find data structure in brief. 5
8. Discuss the heap in brief along with the time complexity of heap sort. 5
9. Write down the algorithm for single source shortest path using Dijkstra's method. 5
10. Discuss vertex cover problem and its algorithmic solutions in brief. 5