

Bennett University, Greater Noida
Department of Computer Science and Engineering
School of Engineering and Applied Science

ECSE701L (Advanced Data Structures and Algorithms)

Time allowed: 1 Hr Max. Marks: 20

Note: All questions carry equal weightage of five marks. Attempt questions in order given.

Q1 External Sorting algorithms are heavily used due to ever increasing volume of the data related to customer transactions. Write the steps for any external sorting algorithms. Also, highlight the issue of the time required to transfer data from secondary memory. How this factor plays out in the overall complexity of the external sorting algorithms.

Q2. KMP algorithm is the one of the best performing algorithms for String comparison. There are some basic concepts that have been introduced in this algorithm to bring the overall efficiency. Discuss those concepts and then bring out an overall flow of the steps that happen one after another to realise the string mapping. Talk about the complexity calculations for KMP algorithm.

Q3. Write approximation algorithm for travelling salesman problem. Draw the proof showing the approximation factor of the algorithm.

Q4. Compare two different methods to find out the topological sort of a given graph. Discuss one situation where it becomes critical to find out a topological sort in context of a graph problem.