

Q1. Write the extended version of the masters theorem.

Q2. Solve the following questions:

i) Write the pseudocode for Prim's Algorithm using Priority Queue.

ii) Write the pseudocode for Kruskal's algorithms.

Analyze the time complexity of the two algorithms.

Q3. Write down the pseudocode for activity selection problem. Analyze the time complexity of the algorithm.

Q4. Write the code for scheduling the time table for a university using greedy algorithm. Consider  $N$  classes and  $k$  available classrooms. Make necessary assumptions.

Q5. Write short notes on Big O, Theta and Omega asymptotic notations.

Q6. Prove that the time complexity of the famous Fibonacci Sequence, if solved via recursion, is exponential.