From your textbook (CLRS), please read Chapters 22.1–22.3.

A general note: When writing up your homework, please write neatly and explain your answers clearly, giving all details needed to make your answers easy to understand. Graders may not award credit to incomplete or illegible solutions. Clear communication is the point, on every assignment.

Exercises

1. CLRS 22.1-2 (pg. 592). (Note: A complete binary tree is one in which every level is filled in, left to right; for example, a complete binary tree with 7 vertices has every possible node on three levels. See pg. 1179 for a definition of a complete tree.)

2. CLRS 22.2-2 (pg. 601). Explain your answer by showing every step in the process.

3. Show how depth-first search works on the graph of Figure 22.6 in CLRS by showing the resulting discovery time, finishing time, and $\pi$ values. Once again, explain your answer by showing every step in the process.

Assume that the for loop of lines 5–7 of the DFS procedure considers the vertices in alphabetical order; further, assume that the graph has an adjacency list representation, and assume that each adjacency list is ordered alphabetically.