1. (5 points) One multiple-choice question regarding the binary implementation of general trees.

2. (10 points) Two 5-point explanation questions regarding the implementation of the Table ADT.

3. (20 points) One 8-point exercise involving repeated insertions into a heap, one 3-point question regarding the array implementation of the heap, and three 3-point questions involving the heapsort algorithm.

4. (10 points) Two 5-point questions in which an adjacency matrix is used to draw a graph.

5. (5 points) One multiple-choice question regarding topological sorts.

6. (10 points) One shortest-paths problem in which the shortest path from a designated source node is determined.

7. (10 points) One maximum flow problem, with flow graph and residual graph determination.

8. (10 points) One minimum spanning tree problem, involving the application of Prim’s Algorithm.

9. (10 points) One depth-first search problem, in which the DFS tree must be determined.

10. (10 points) One NP problem, for which a nondeterministic polynomial-time algorithm must be outlined.