BCIT BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

COMP 8851
Instructor: Borna Noureddin
Assignment #4

All work should be done individually.

Total marks: 50

1. [10 marks] Give an algorithm to find a *maximum* spanning tree. Is this harder than finding a minimum spanning tree? Why or why not?

2. [10 marks] A file contains only colons, spaces, newlines, commas, and digits in the following frequency: colon (100), space (605), newline (100), comma (705), 0 (431), 1 (242), 2 (176), 3 (59), 4 (185), 5 (250), 6 (174), 7 (199), 8 (205), 9 (217). Construct the Huffman code.

3. [30 marks] You are a tournament director and need to arrange a round robin tournament among $N = 2^k$ players. In this tournament, everyone plays exactly one game each day; after $N - 1$ days, a match has occurred between every pair of players. Give a recursive algorithm to do this. Implement your algorithm in C++ and demonstrate that it works.