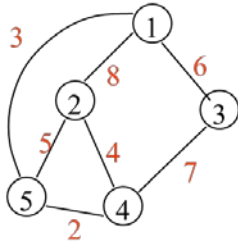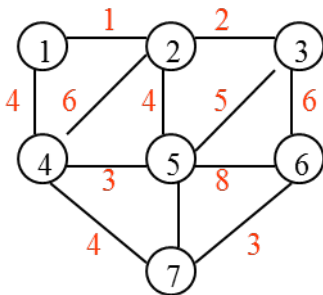# COT5405: Homework 2 (Fall 2017)

1. Construct the MST for the following graph using Prim's MST Algorithm. Show your work.

2. Create the optimal prefix code (Huffman Encoding) for this set of symbols {a, e, o, u, y} where $f_a=0.32$, $f_e=0.25$, $f_o=0.23$, $f_u=0.15$, $f_y=0.05$.

3. Find a 3-clustering of maximum spacing for the following nodes (Hint: modify Kruskal' algorithm, see Slide 19 of mst.ppt)

4. Heapsort in ascending order the following numbers: 17, 19, 15, 18, 3, 21, 9, 50, 22, 14, 11, 25, and 14 (initial array must store these numbers in this order. Show your work (i.e., after heapify, after the largest number in the correct location..., and finally, the sorted array.