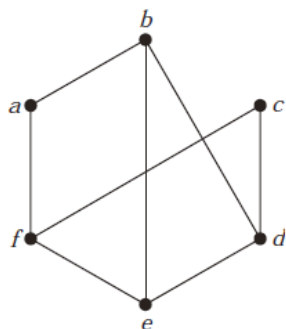# Discrete Math, Semester 2019-2020-1, Quiz 4
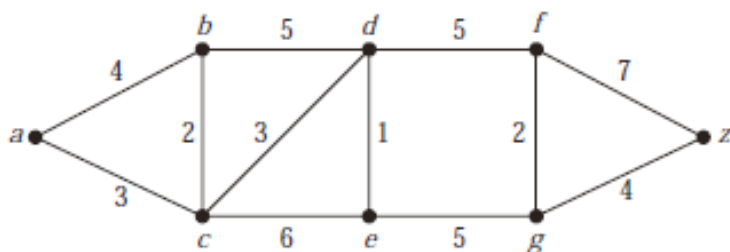
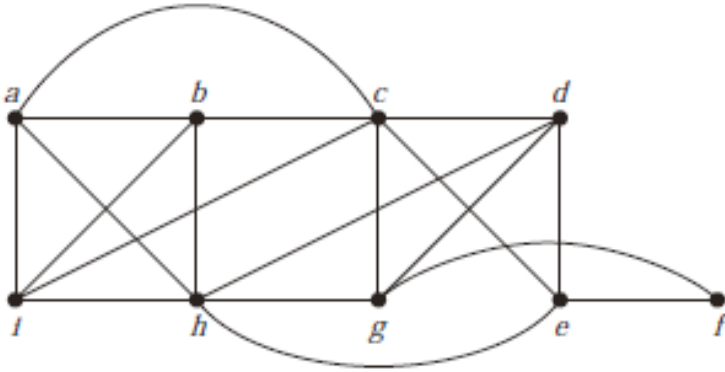Student ID:——————— Name:———————

2019/12/27

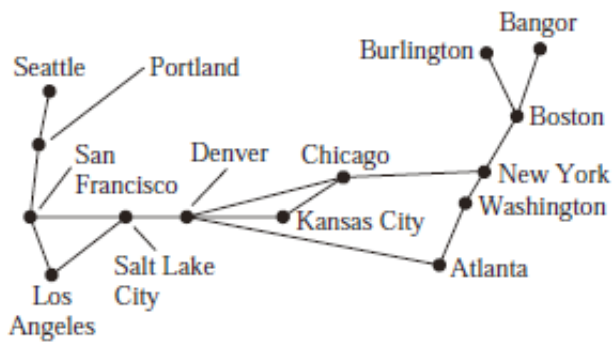1. Determine whether the graph is bipartite. Why or why not? (2 points)

2. Find the length of a shortest path between a and z in the given weighted graph. (2 points)

3. Determine whether the given graph has an Euler circuit. Construct such a circuit when one exists. If no Euler circuit exists, determine whether the graph has an Euler path and construct such a path if one exists. (2 points)

4. A communications link in a network should be provided with a backup link if its failure makes it impossible for some message to be sent. For each of the communications networks shown below, determine those links that should be backed up. (2 points)

5. Using the symbols 0, 1, and 2 use ternary ($m = 3$) Huffman coding to encode these letters with the given frequencies: A: 0.25, E: 0.30, N: 0.10, R: 0.05, T: 0.12, Z: 0.18. (2 points)