CSE2023 - ASSIGNMENT #6

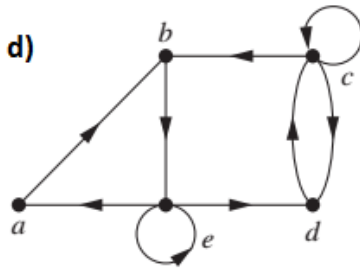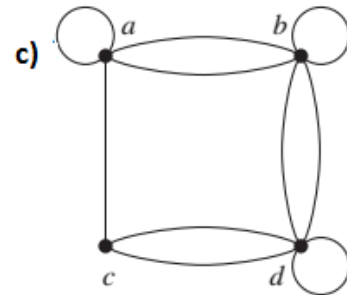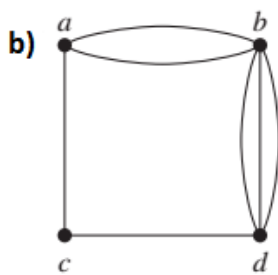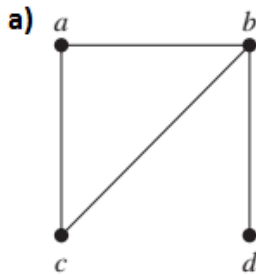Solve the following questions from course book. (Discrete Mathematics and Discrete Mathematics and Its Applications, 7th Ed. by Kenneth Rosen)
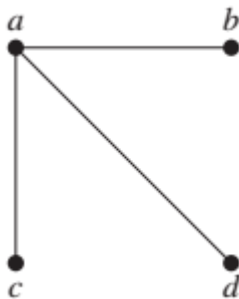
Note that we may grade selected questions from HWs.
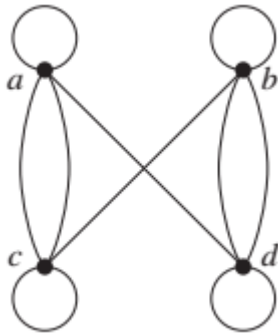
* Show all your works.

1) Determine whether the graph shown has *directed or undirected edges*, whether it has *multiple edges*, and whether it has *one or more loops*.
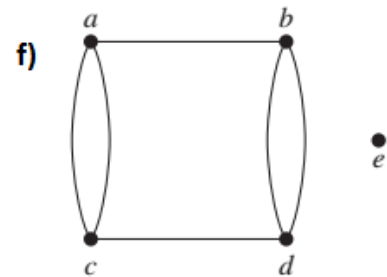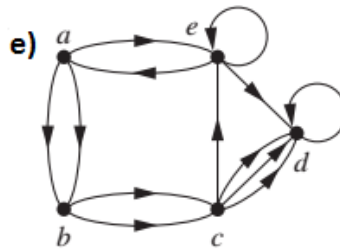
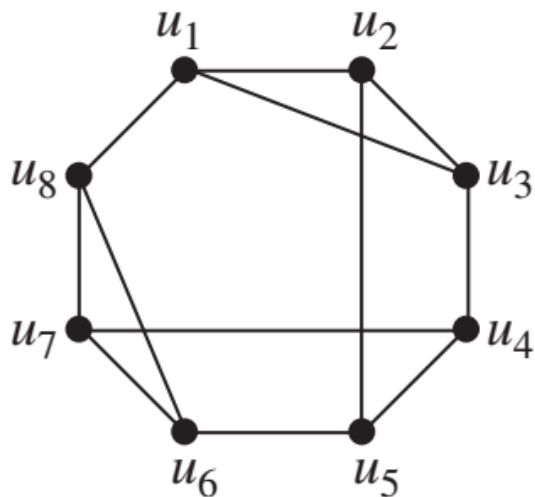
2) Draw all subgraphs of this graph.

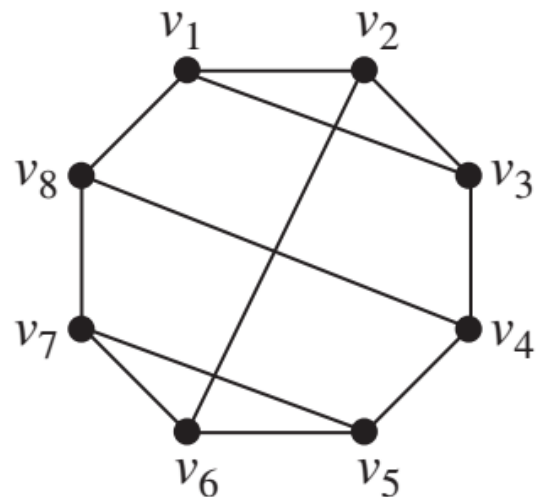3) Represent the given graph using an adjacency matrix.

4) Draw an undirected graph represented by the given adjacency matrix.

$$\begin{bmatrix} 0 & 1 & 3 & 0 & 4 \\ 1 & 2 & 1 & 3 & 0 \\ 3 & 1 & 1 & 0 & 1 \\ 0 & 3 & 0 & 0 & 2 \\ 4 & 0 & 1 & 2 & 3 \end{bmatrix}$$

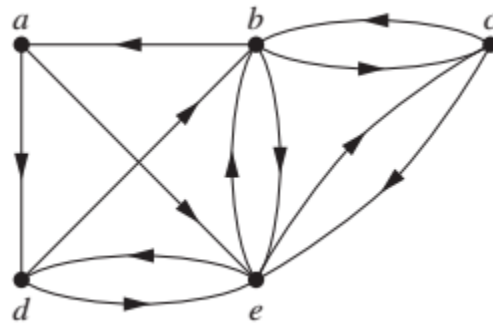5) Determine whether the following two graphs are isomorphic or not.
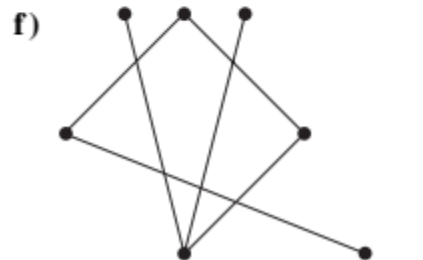

G
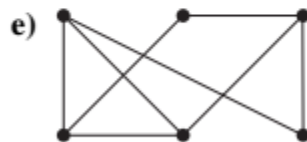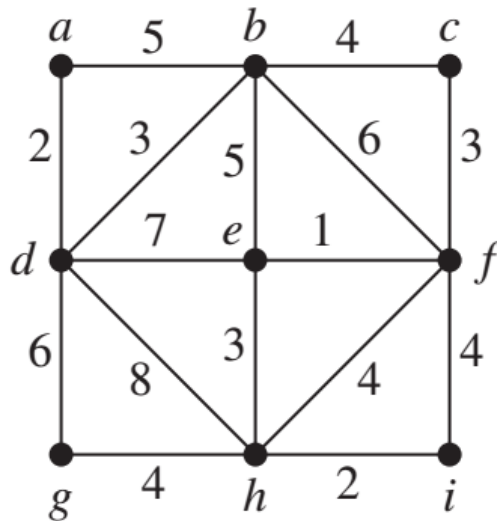

H

6) Determine whether the directed graph shown has an Euler circuit. Construct an Euler circuit if one exists. If no Euler circuit exists, determine whether the directed graph has an Euler path. Construct an Euler path if one exists.

7) Which of these graphs are trees?

8) Use Prim's algorithm to find a minimum spanning tree for the given weighted graph.

Submission Instruction (10p)
Please zip and submit all your files using filename YourNumberHW6.zip
(ex: 150629573HW6.zip) to Canvas system (under Assignments tab).

Your zip file should contain the following:
    1. Single PDF file for solutions (150629573HW6.pdf)

Notes:

1. Write your name and student ID on each sheet.
2. No late submission will be accepted