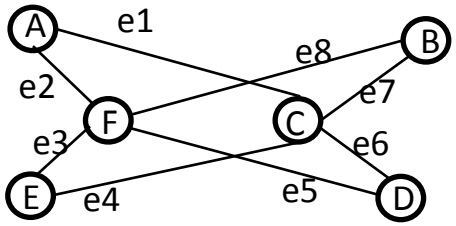
CMSC 57: Discrete Mathematical Structures in Computer Science 2
Exercise 10: Graph Theory

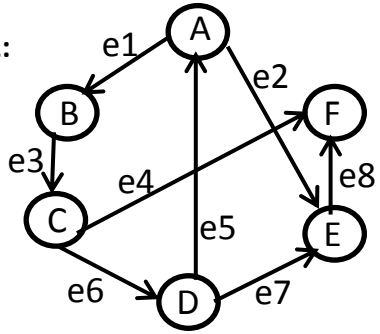
On your paper, write the exercise number and title, your name, student number, section, and the date today; and a self-portrait (do it cartoon style, painting, caricature, etc, as long as you draw yourself). Draw the tables and graphs on your solutions neatly.

Consider the following graphs:

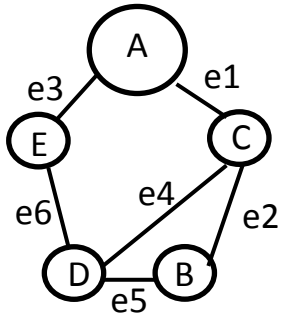
G1:



G2:



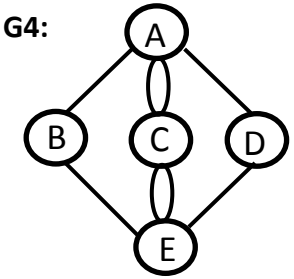
G3:



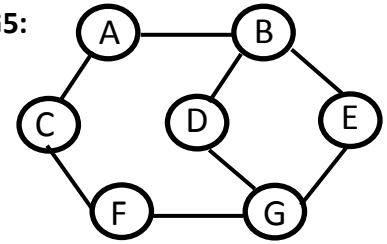
1. Draw the subgraph of G1 induced by the vertices A ,F,D,C.
2. Draw a spanning subgraph of G2.
3. Give the incidence matrices of G1 and G2.
4. Give the adjacency matrices of G2 and G3.
5. Perform the following operation on G2 then draw the final graph.
    a. Delete D
    b. Delete e4
    c. Add an edge (C,E) then label it e4
    d. Add an edge (F,A) then label it e5
    e. Delete e2.

II. Given the following graphs, determine whether they have a Eulerian circuit, Eulerian path, or a Hamiltonian cycle. If it has a Eulerian path or circuit, give the sequence of vertices of the path that you used. If the graph has a Hamiltonian cycle, draw a Hamiltonian cycle for the graph.

G4:



G5:



G6: