CSCE 222: Discrete Structures for Computing
Section 502 & 503
Fall 2020

YOUR NAME HERE

Homework 7

Due: 15 November (Sunday) before 11:59 p.m. on Gradescope.
You must show your work in order to recieve credit.

Aggie Honor Statement: On my honor as an Aggie, I have neither given nor received any unauthorized aid on any portion of the academic work included in this assignment.

Checklist: Did you...
1. abide by the Aggie Honor Code?
2. solve all problems?
3. start a new page for each problem?
4. show your work clearly?
5. type your solution?
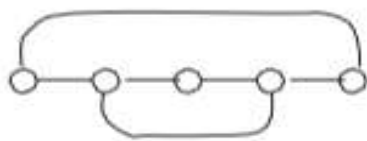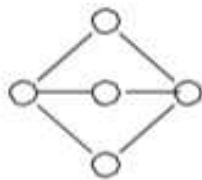6. submit a PDF to eCampus?

Problem 1.
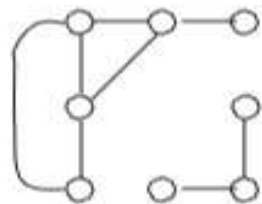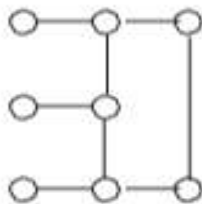Give the adjacency matrix for the following digraph:
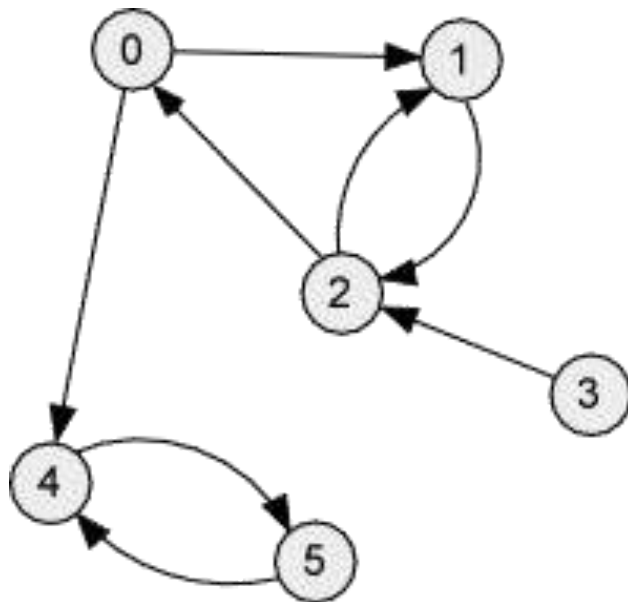
Problem 2.

Look at the following pairs of graphs. Determine whet, give a precise reason why it is impossible that the two graphs are isomorphic.
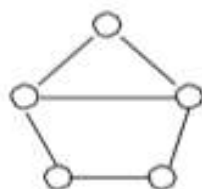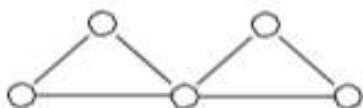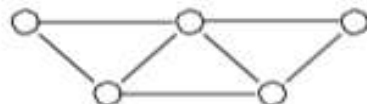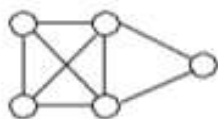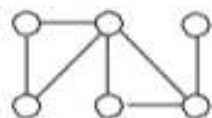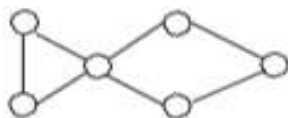
a)

b)

c)

d)

e)

Problem 3.
Remember that a directed graph is strongly connected if there is a path from *a* to *b* and from *b* to *a* whenever *a* and *b* are vertices in the graph. The maximal strongly connected subgraphs of a directed graph are called the **strong components** of G.

    a. How many strong components are in the following graph?
    b. Give the set of vertices in each of the strong components for the graph.
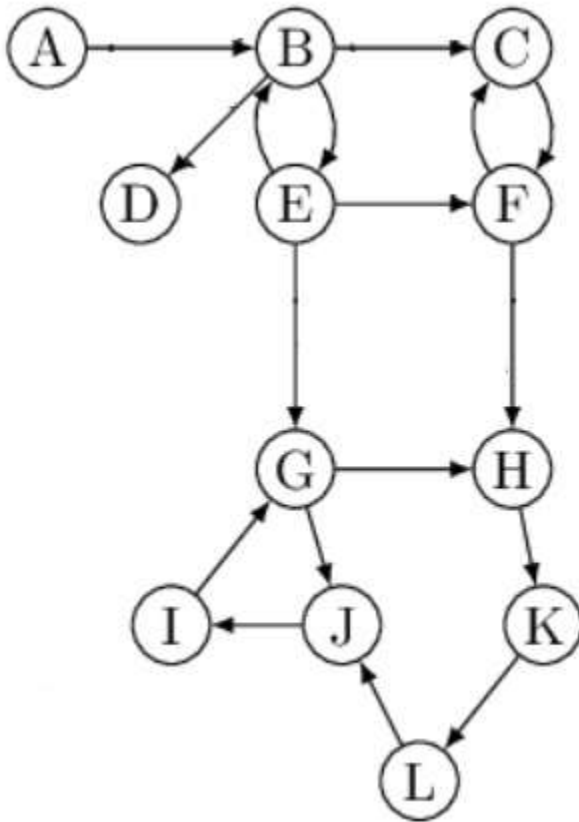
Problem 4.
Give the truth table for the following Boolean expression and transform it into an equivalent Boolean expression in sum-of-products form:
$$(x + y + z)(\bar{x} + y + \bar{z})(x + y + \bar{z})$$