CS 310
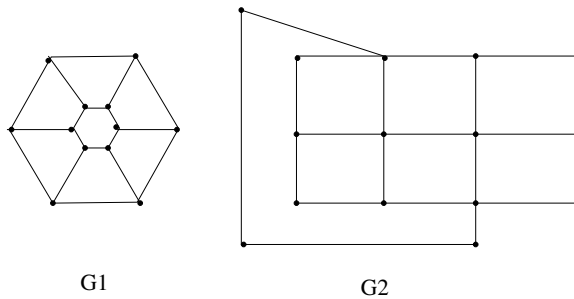**Homework Assignment No. 5**
Due on Tue 5/11/2005

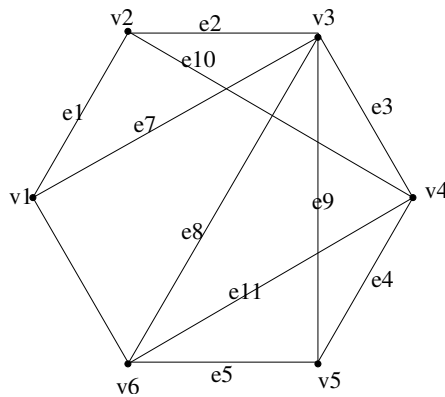**1.** Does there exist a simple graph with six vertices and these degrees? If so, draw such graph. If not, explain why.

a) $0, 1, 2, 3, 4, 5$ b) $1, 2, 3, 4, 5, 6$
c) $2, 2, 2, 2, 2, 2$ d) $3, 2, 3, 2, 3, 2$
e) $3, 2, 2, 2, 2, 3$ f) $1, 1, 1, 1, 1, 1$
g) $3, 3, 3, 3, 3, 5$ h) $1, 2, 3, 4, 5, 5$
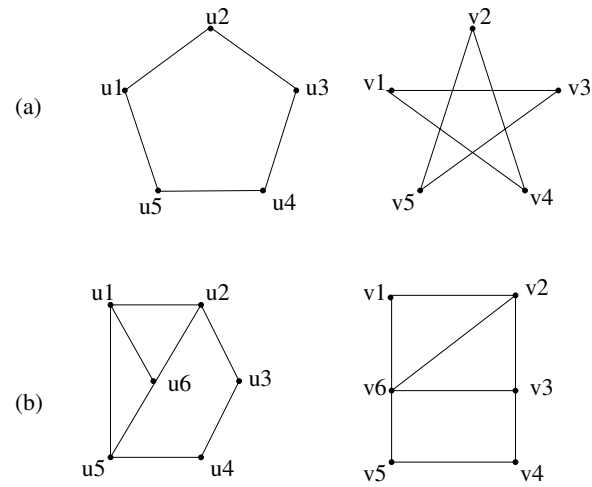
2. Determine whether the following graphs are bipartite. Justify the answer.

G1

G2

3. Write the adjacency matrix and the incidence matrix of the following graph:

4. Determine whether the given pair of graphs is isomorphic. Exhibit an isomorphism or provide a rigurous argument that none exists:

(a)

(b)

5. Find all non-isomorphic simple graphs with five vertices and three edges (draw them.)