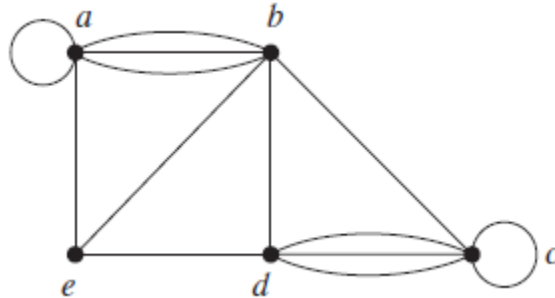


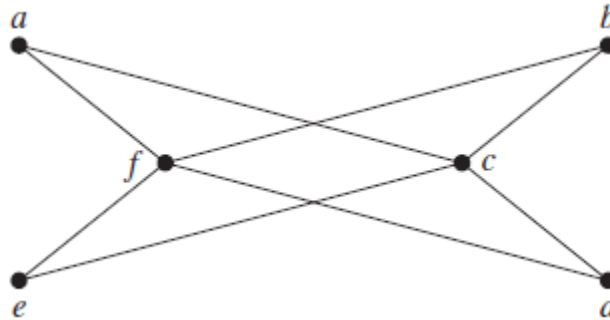
Discrete Mathematical Structures (UCS405)

Tutorial Sheet – 8

1. Verify Handshaking Theorem for the following graph:



2. Determine whether the following graph is bipartite or not. Find its chromatic number.



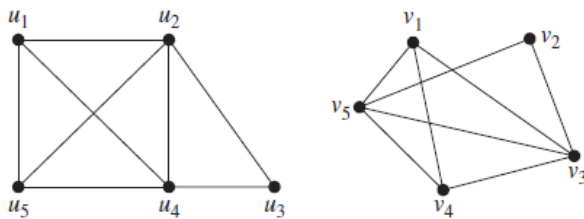
3. Suppose that a new company has five employees: Zamora, Agraharam, Smith, Chou, and Macintyre. Each employee will assume one of six responsibilities: planning, publicity, sales, marketing, development, and industry relations. Each employee is capable of doing one or more of these jobs: Zamora could do planning, sales, marketing, or industry relations; Agraharam could do planning or development; Smith could do publicity, sales, or industry relations; Chou could do planning, sales, or industry relations; and Macintyre could do planning, publicity, sales, or industry relations.

a) Model the capabilities of these employees using a bipartite graph.

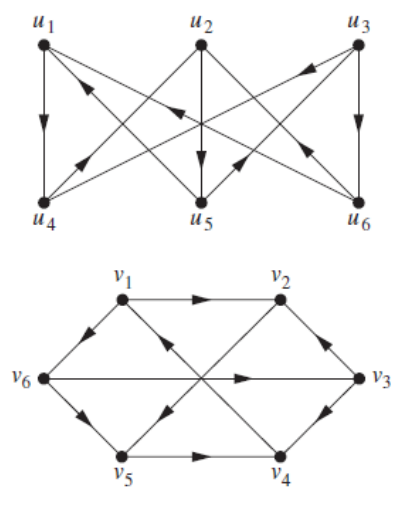
b) Find an assignment of responsibilities such that each employee is assigned one responsibility.

4. If G is a simple graph with 15 edges and G has 13 edges, how many vertices does G have?

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



i)



ii)