CSIT504 Module 8 Homework

1. (Problem 3 on page 665 from Rosen) Find the number of vertices, the number of edges, and degree of each vertex in the given undirected graph on page 665 from Rosen.

2. (Problem 5 on page 665 from Rosen) Can a simple graph exist with 15 vertices each of degree five?

3. (Problem 25 on page 665 from Rosen) Determine whether the given graph on page 666 is bipartite.

4. (Problem 15 on page 675 from Rosen) Represent the given graph using an adjacency matrix.

5. (Problem 25 on page 676 from Rosen) Is every zero-one square matrix that is symmetric and has zeros on the diagonal the adjacency matrix of a simple graph?

6. (Problem 21 on page 690 from Rosen) Use paths either to show that these graphs are not isomorphic or to find an isomorphism between them.

7. (Problem 7 on page 704 from Rosen) Determine whether the given graph has an Euler circuit. Construct such a circuit when one exists. If no Euler circuit exists, determine whether the graph has an Euler path and construct such a path if one exists.

8. (Problem 37 on page 705 from Rosen) Does the graph in Exercise 30 have a Hamilton path? If so, find such a path. If it does not, give an argument to show why no scuh path exists.