1. Consider a graph $G$ with degree sequence 2, 3, 4, 4, 4. Give an example of such a graph or prove that it does not exist.

2. Consider a simple graph $G$ with 6 vertices and 16 edges. Give an example of such a graph or show that such a graph does not exist.

3. Are the two graphs shown below isomorphic? If they are give the mapping, else explain why not?

4. Draw the undirected graph with adjacency matrix

5. Suppose $G$ is a graph with vertices $a, b, c, d, e, f$ with adjacency matrix shown below (where alphabetical order is used to determine the rows and columns of the adjacency matrix). Find
   (a) the number of vertices in $G$.
   (b) the number of edges in $G$.
   (c) the degree of each vertex.
   (d) the number of loops.
   (e) the length of the longest simple path in $G$.
   (g) the distance between vertex $a$ and vertex $c$. 