1)

nodes{1,2,3} & edges{a,b,c,d}

g(a) = (1,2)

g(b) = (1,3)

g(c) = (2,3)

g(d) = (2,2)

2)

a) yes it is a simple graph.

b) no it is not complete.

c) yes it is connected.

d) 3->4->5->6 & 3->5->6

e)3->4->5->3

f) removing a5 will make it acyclic.

g)removing a2 will make it not connected.

5)

9)

a) It implies that no one from the IT department is acquainted with anyone one from the marketing department.

b) Carl and Fletcher are not acquainted. SiuYin is acquainted with only Carl.

c) The Degree of separation is 2.

13) Graph B is not isomorphic to the others because both a and c have an isolated node while graph does not because all three nodes are connected.

30) It divided into 8 regions.

49) It has n isolated nodes with a loop at each node.

50) It has no edges just isolated nodes.

51) The matrix only has zeros going down diagonally from left to right and 1’s everywhere else.

65)

71) The matrix G’ would have 1’s going down diagonally from left to right instead of zeros and zeros everywhere else.