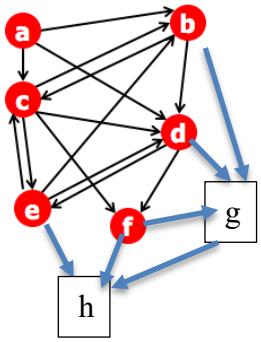
Quiz 9 Social networks

Name: _____ ID: _____

1) (3pts) Trawling: with a support threshold s = 3, find one bipartite sub-graph from the graph below. You need to first convert the graph to a market basket model (i.e., write down baskets and their contents




2) (3pts) Give the graph and its community below, calculate $P_C$ (green) and $P_D$ (red) that support the maximum likelihood of this graph. You don't have to calculate the exact number of them. You only need to show the equation(s) that you have to solve to find them.

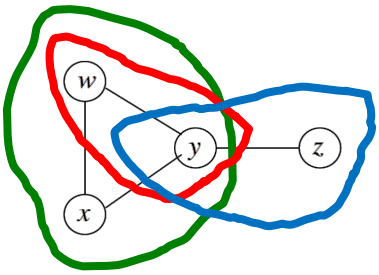



Figure 10.20: A social graph

3) (4pts) Derive $\sum_{(i,j)\in E}(x_i - x_j)^2$ from $x^T L x$ (2pts) and explain why we can use the sign of x to split the graph (2pts)