Spring 2012/13 Econ 446

First Midterm Exam

3 Questions

Question 1 (10 points)

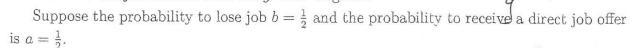
Suppose there are 4 agents. The utility of an agent i is at a network g is

 $u_i(g)=$ the number of indirect neighbors of i which are not direct neighbors of i $-\frac{1}{3} {\rm the\ number\ of\ links\ of\ i}$

Find the pairwise-stable networks.

Question 2 (15 points)

Consider the job contact network g with 4 agents.



Suppose i and j are neighbors, then the probability of i receiving an indirect offer from j is

$$p(n_j(g) = a(1-b)\frac{1 - (1-b)^{n_j(g)}}{bn_j(g)}$$

Question 3

Consider the network g with 4 agents.

Suppose each player i chooses an activity level x_i and the utility of an agent i is

$$u_i(x_i) = x_i - 5x_i^2 + \sum_{i \in \mathcal{I}} x_i x_j$$

Solve for the Nash equilibrium of this game.

