Economics 602 – Quiz #3 (December 7, 2000)

Closed book quiz. You have 60 minutes. All questions are worth 10 points.
Have fun: After all, if the quiz hurts your grade, it doesn't count.
Note: T/F means "True or False, and correctly justify."

1. Let Γ be the 3 period grab-the-dollar game: in period one, player A can take \$1, or pass; in period two, player B can take \$2, or pass; in period three, player A can take \$3, or pass, in which case B gets \$4. Of course, in each case, if a player takes the money, the other player gets nothing. [10]

   T/F: There are no Nash equilibria of Γ that are not also subgame perfect equilibria.

2. Recall the standard entry-deterrence game: First, an entrant decides whether to enter a market ('In') or stay out ('Out'). If he stays out, then the payoff vector of (entrant, incumbent) is $(0, 2)$. If he enters, then the incumbent may fight or yield. If he fights, then both players are hurt, so that the payoff vector is $(-3, -1)$. If he yields, then the payoff vector is $(2, 1)$.

   (a) Graph the space of *feasible and individually rational* payoffs of the associated normal form. [10]

   (b) Suppose that this game is played infinitely often, with payoffs discounted by the factor $0 < \delta < 1$. Could there exist a subgame perfect equilibrium where in every period the entrant enters, and the incumbent fights? [5]

3. Consider a version of the Rubinstein bargaining game. A pie of size one is to be split between two selfish and impatient players Peter and Katya with discount factor 3/4. In every period until the bargaining is over, a two fair coins are flipped. If both come coins are heads, then Peter offers a split of the pie, and Katya responds immediately with 'yes', or 'no'. Otherwise Katya offers, and Peter responds immediately with 'yes', or 'no'. The game ends as soon as one player says 'yes'.

   T/F: In the unique subgame perfect equilibrium, Peter asks for a fraction 1/4 of the pie in every period in which he can offer. [15]