FIRST MIDTERM EXAM
Econ 4011, Spring 2012

Do all questions. The questions have equal weight. You have 1hr and 23minutes.

1. BDM

A participant in a laboratory experiment is asked to bid a price. A random number between four and eight is drawn with equal probabilities. If the stated price is lower than or equal to the random number, the participant gets the random number (winning scenario); if the stated price is higher than the random number the participant gets five dollars (losing scenario).

a. What bid or bids are *not* weakly dominated.

b. What should you bid if when you win you are paid the value of your bid rather than the value of the random number? (You continue to get 5 upon losing.)

2. Extensive Form Game

There is an emperor and a serf. The emperor moves first and decides whether to tax the peasant. If he does not, the emperor gets zero and the serf gets two. If he does try to tax the peasant, the peasant can either comply in which case the serf gets zero and the emperor gets two, or he can run away. If he runs away both get –1.

a. Find the normal form of the game.

b. What are the Nash equilibria of the game?

c. Which Nash equilibria are Pareto efficient?

d. Do either of the Nash equilibria involve the use of weakly dominated strategies?

e. What is the subgame perfect equilibrium?

3. Cournot Duopoly

Unbalance and Contrapositive are the leading producers of slippers. The market demand function for pairs of slippers is given by $p = 60 - 2x$. The number of pairs of slippers produced by Unbalance and Contrapositive are denoted by x_U and x_C, respectively. Remember, $x = x_U + x_C$. The cost functions for Unbalance and Contrapositive are x_U and $4x_C$, respectively. The two firms can choose any positive level of production.

(a) Write down the profit equations for Unbalance and Contrapositive.

(b) Write down the reaction (best response) functions.

(c) What are the Nash Equilibria choices of x_U and x_C.

(Note: Assume that fractions of slippers can in fact be produced and sold!)