Economics 201   Midterm Exam 2   September 1, 2005

You have two hours. Do both questions. Each question has equal weight. Good Luck.

1. President of the U.S. Bert C. Tree will shortly negotiating an agreement with the Premier of Hapistan. The Premier of Hapistan believes that President Tree is one of two types: sane (S) or crazy (C). The probability of type S is p. Prior to the negotiation, President Tree may bomb another country. The cost to the President of the bombing is zero for a crazy type and one for a sane type. After the bombing, the Premier may offer the President either a good deal (worth G>0 to the President) or a bad deal (worth nothing to the President). The Premier gets one for offering the crazy type the good deal, one for offering the sane type the bad deal, and zero otherwise.

a. Draw the extensive form.

b. Find the pure strategy Nash equilibria of the game for the different values of p,G.

c. Find a mixed strategy Nash equilibrium of the game for a particular value of p,G.

d. From the cases above, give examples of a pooling, separating and hybrid equilibrium?

2. An automobile driver faces three possible outcomes: no accident; medium accident and severe accident. There are two equally probable types of driver, all have a 50% chance of no accident. The high risk driver has a 50% chance of a severe accident and the low risk driver has a 50% chance of a medium accident. The driver type is known only to the driver. The income of a driver is equal to her income of 100 minus the cost of the accident. The utility of a driver with income c is $u(c) = c - c^2 / 200$.

The cost of an accident is zero for no accident; ten for a medium accident; twenty for a severe accident. You may offer four kinds of contracts: no contract; a payment of ten for a medium accident; a payment of twenty for a severe accident; a payment of ten for a medium accident *and* a payment of twenty for a severe accident. Which contract or combination of contracts should you offer and what should you charge for each one?