Economics 201B - Midterm Exam

Do all questions. You have two hours. Good luck.

Risk Aversion

Show that the utility function $-e^{-c}$, where c is consumption, exhibits constant absolute risk aversion and declining relative risk aversion.

Nash Equilibrium

Two players must choose whether to specialize – they must choose between being a hunter and a gatherer. After they choose, they meet to play a game. If both are hunters, or both are gatherers, they get no benefit from specialization, and receive a utility of zero. If one is a hunter and one a gatherer, the hunter receives 2 and the gatherer 1 unit of utility. 1) Write the normal form of the game. 2) Find the *symmetric* Nash equilibrium in which both players employ the same strategy. 3) Find a *symmetric* correlated equilibrium (probabilities remain the same when we interchange rows for columns) which Pareto dominates the symmetric Nash equilibrium. The correlated equilibrium may use public randomization if you wish, but you must show it is a correlated equilibrium by showing that neither player wishes to deviate from the recommendation of the randomization device.

Trembling Hand Perfection

A strategy profile σ is *trembling hand perfect* if there exists a sequence of strategy profiles $\sigma^n \to \sigma$ with $\sigma_i^n(s_i) > 0$ for all i and $s_i \in S_i$ such that $\sigma_i(s_i) > 0$ implies that s_i is a best-response to σ_{-i}^n. Prove that every trembling hand perfect profile is a Nash equilibrium. Give an example of a Nash equilibrium in a 2x2 game which is not trembling hand perfect and explain why.

Subgame Perfection

Player 1 moves first. He may end the game resulting in a payoff of 4 to everyone. Or he may choose to engage in a 2x2 game with Player 2 with payoffs Find the unique subgame perfect equilibrium of this game. Does this yield the same solution as iterated weak dominance?

6,6	3,0
0.0	2.2