Midterm Exam: Economics 101

You have one hour and fifteen minutes. Do all 3 questions; each have equal weight. Good luck.

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1. Short Answers

For each of the normal form games below, find all of the Nash equilibria. Which are Pareto Efficient?

a)

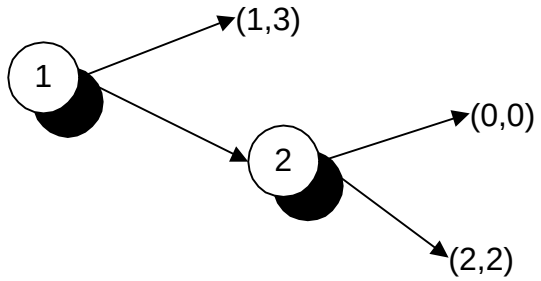
	R	L
U	2,2	0,0
D	0,0	1,1

b)

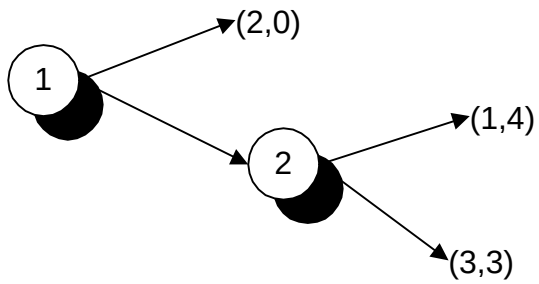
	R	L
U	3,3	0,4
D	4,0	1,1

For each of the extensive form games below, find all of the subgame perfect equilibria. Which are Pareto Efficient?

c)



d)



2. Cooperation or Competition?

Julius J. Johnson must decide whether to engage George G. Gigantic in a competitive game or a cooperative enterprise. In the competitive game, each must decide (simultaneously) between helping and hurting. If both help, both get 5; if both hurt both get 2. If one helps and one hurts, the one who helps gets nothing, while the one who hurts gets 6. In the cooperative enterprise, each must decide (simultaneously) between working on a good project or a bad project. If both work on the good project, both get 3, while if both work on the bad project both get 1. If they disagree about the project, both get nothing.

a) Find the extensive form of this game.

b) Find the normal form of this game.

c) Find all Nash equilibria of this game.

d) Which of the Nash equilibria are subgame perfect and which are not?

e) Which of the Nash equilibria are Pareto Efficient and which are not?

f) Apply the theory of iterated weak dominance to this game.

3. Duopoly

Peach and Macrosoft are at it again. This time, industry demand for their identical product is $p = 17 - x$ where x is industry output. Macrosoft faces a marginal cost of 1, while Peach has a higher marginal cost of 3.

a) Find the Cournot equilibrium of the market.

b) What is the Bertrand equilibrium?

c) Find the Stackelberg equilibrium in which Macrosoft is the leader.

d) Compare profits of the two firms in each of the three cases.