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	2,3	0,0
D	0,0	1,2

b)

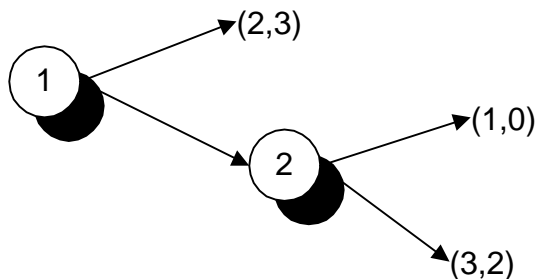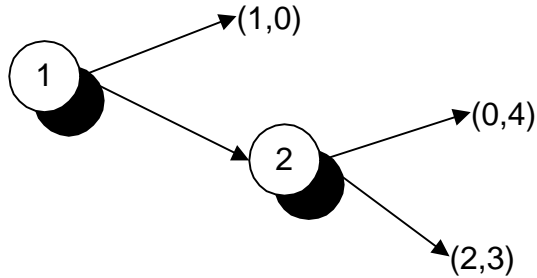|	R	L
U	4,3	1,4
D	5,0	2,1

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?

Herbert H. Hacker must decide whether to engage Robert R. Robot in a contest or in a collaboration. In the contest, Herbert must decide to be a chicken, in which case the game ends and he gets 1 while Robert gets 8, or he can be bold. If he is bold, Robert gets to choose whether to be mean, in which case they both get –1 or to be nice, in which case they both get 3. In the collaboration, each must decide (simultaneously) between high quality and low quality. If both choose high quality, both get 5, while if both choose low quality both get 2. If they disagree about the quality, 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 $p = 18 - x$ where x is industry output. Macrosoft faces a marginal cost of 2, while Peach has a higher marginal cost of 4.

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.