GS/ECON 5010 Assignment 4 W2005

due : Wednesday March 23 before class

Do all 5 questions. Each counts 20%.

1. What does the contract curve look like for a 2–person, 2–good exchange economy, if the preferences of the two people could be represented by the utility functions

$$u^1(x_1^1, x_2^1) = 100 - \frac{1}{x_1^1} - \frac{1}{x_2^1}$$

$$u^2(x_1^2, x_2^2) = x_2^2 + 100 \ln x_1^2$$

where x_j^i is person i's consumption of good j?

2. What are all the allocations in the core of a 4–person exchange economy in which all 4 people had the same preferences, represented by the utility function

$$u^i(x_1^i, x_2^i) = x_1^i x_2^i$$

if person 1 and person 2 each had the endowment vector $(2, 0)$, and if person 3 and person 4 each had the endowment vector $(0, 2)$?

3. How would the equilibrium prices of the goods vary with the people's endowments in a 2–person, 2–good exchange economy, if each person's preferences could be represented by the utility function

$$u^i((\mathbf{x}^i) = a \ln x_1^i + b \ln x_2^i$$

where x_j^i was person i's consumption of good j?

continued **over**

4. Find all the Nash equilibria (pure and mixed) in the following strategic–form two–person game.

	LL	L	R	RR
tt	$(20, 0)$	$(5, 4)$	$(100, 2)$	$(10, 30)$
t	$(0, 5)$	$(10, 10)$	$(40, 5)$	$(20, 6)$
b	$(3, 60)$	$(5, 10)$	$(10, 20)$	$(7, 50)$
bb	$(4, 40)$	$(8, 50)$	$(20, 60)$	$(12, 60)$

5. Find all the Nash equilibria (in pure or mixed strategies) to the following two–person game in strategic form.

	L	R
t	$(2, 6)$	$(6, 4)$
b	$(0, 4)$	$(10, 8)$