YORK UNIVERSITY Faculty of Graduate Studies

Final Examination April 13, 2005

Economics 5010 MW3.0 : Applied Microeconomics S. Bucovetsky

time=2.5 hours

Do any **6** of the following 10 questions. All count equally.

1. If a person's preferences can be represented by the utility function

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

(where x_i is her quanity consumed of good i), find the person's Marshallian demand functions for each good, her indirect utility function, her Hicksian demand functions, and her expenditure function.

2. If a person with a fixed amount of wealth W_0 could allocate that wealth between a safe asset, offering a certain rate of return $r \geq 0$, and a risky asset, which offers the return $r_g > r$ with some probability π, and the return $r_b < r$ with probability $1 - \pi$, how much wealth should she invest in the safe asset, and how much in the risky asset, if her utility–of–wealth function is $U(W) = A - e^{-\alpha W}$?

3. State and prove Shephard's Lemma.

4. What would be the equilibrium price and quantity in the long run, in a competitive industry in which there were many identical firms, each with the same long run total cost function

$$TC(q) = q^3 - 12q^2 + 60q$$

where q was the output of the firm, if the market demand curve for the output of the firms

had the equation

$$Q = 960 - 15p$$

where Q was the total quantity demanded, and p the price of the good?

5. Show that the reaction curve of a Cournot duopolist must slope down if the demand curve for its output is linear.

6. What is the contract curve in the following two–person, two–good exchange economy?

Person 1's preferences can be represented by the utility function

$$U^1(x_1^1, y_1^1) = \ln x_1^1 + \ln x_2^1$$

and person 2's by the utility function

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

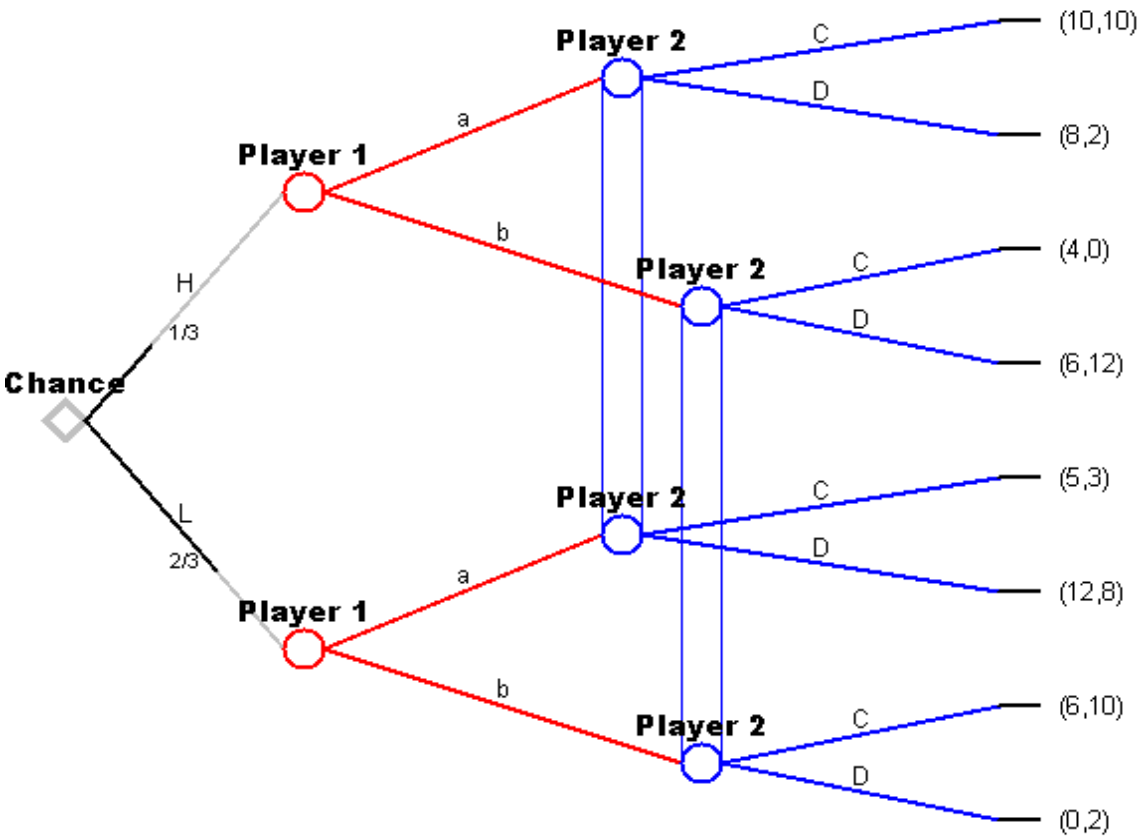
where x_j^h is person h's consumption of good j. The total endowment of goods is 12 units of good 1, and 6 of good 2.

7. State and prove Walras's Law.

8. Find all the Nash equilibria (in pure and mixed strategies) to the following game in strategic form :

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

9. Is there a **separating equilibrium** to the following game, that is a sequential equilibrium in which player 1's private information is revealed fully to player 2? Explain briefly.



10. Explain why there can be no pooling equilibrium (in which all customers are offered the same contract) in a perfectly competitive insurance market in which customers know their loss probabilities better than insurance firms.