YORK UNIVERSITY Faculty of Graduate Studies

Final Examination December 13, 2005

Economics 5010 AF3.0 : 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

$$u(x_1, x_2) = \sqrt{x_1} + \sqrt{x_2}$$

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's utility–of–wealth function were

$$u(W) = A - \frac{B}{W}$$

how would her coefficients of relative risk aversion **and** absolute risk aversion vary with her wealth?

If she had to divide her wealth between an asset with a certain return, and an asset with a risky return, how would her asset allocation depend on the total amount of wealth that she had to invest?

3. Could a firm's conditional demand for some input be an increasing function of the price of that input? Explain briefly.

continued

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

$$TC(q) = 30q^3 - 120q^2 + 170q$$

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

$$Q = \frac{5000}{p}$$

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

5. What is the relation between the price elasticity of demand for the output of a single–price monopoly, and the amount which the mark–up of price above cost?

6. Give an example of an allocation in an exchange economy, which is Pareto–optimal, and which is preferred by each person to her original endowment, but which is **not** in the core.

7. Find a Walrasian equilibrium price vector to the following exchange economy.

There are 2 million people, each of whom has an endowment of 1 unit of good 1, and 1 unit of good 2.

People differ in their preferences : there are 1 million of them whose preferences can be represented by the utility function

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

and 1 million of them whose preferences can be represented by the utility function

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

where x_j^i is the consumption of good j by person i.

continued

8. Find all the Nash equilibria to the game depicted below in strategic form.

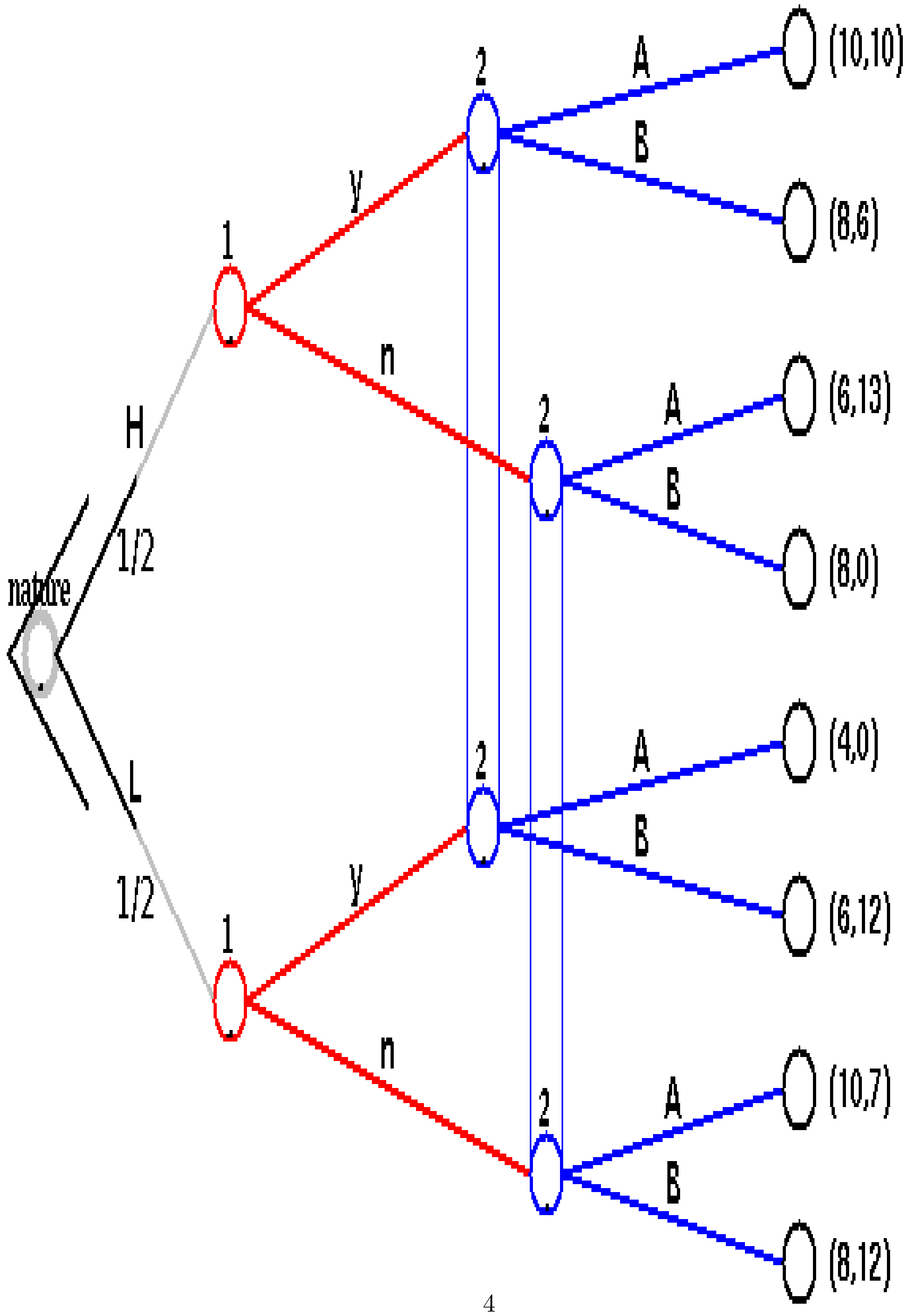
	L	R
t	$(12, 6)$	$(6, 4)$
m	$(2, 2)$	$(8, 4)$
b	$(0, 8)$	$(7, 12)$

9. The accompanying figure (on the next page) shows a two–person game of incomplete information, in which “nature” moves first, choosing ”H” or ”L”, each with probability 1/2, in which player 1 moves next, choosing “y” or “n” after she has observed nature’s move, and in which player 2 moves last, choosing “A” or “B” after he has observed player 1’s move, but without having observed nature’s move.

Find every perfect Bayesian equilibrium to this game.

10. Suppose a prize is to be auctioned off, using a first–price, sealed bid auction. There are 2 buyers. Each buyer’s value for the prize is an independent draw from the same distribution, $U[0, 1]$ (that is, the uniform distribution over the interval $[0, 1]$).

What is the expected revenue from the auction?



nature
H
1/2
L
1/2
1
1
y
n
y
n
2
2
2
2
A
B
A
B
A
B
A
B
(10,10)
(8,6)
(6,13)
(8,0)
(4,0)
(6,12)
(10,7)
(8,12)