Examination: 5024 'Economics I' (Intermediate Microeconomics)

July 28, 2005

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Instructions:

- You have 120 minutes to answer *all four* questions.
- Use of non–programmable calculators is allowed.
- Please put your name on *all* sheets.
- Please hand in *all* exam materials.

Question 1

A private household has the following utility function with u giving the utility level and x_1, x_2 giving the quantities of the goods available:

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

The budget is given by m.

a) Derive the demand functions for both goods.

b) Given that initially, prices for good 1 and good 2 are given by $p_1 = 1$, $p_2 = 1$, respectively, the price for the first good changes to $p_1' = 4$.

   (a) Explain what an equivalent variation is. Compute the equivalent variation for the case given above.

   (b) Explain what a compensating variation is. Compute the compensating variation for the case given above.

Question 2

On a market, the demand function is

$$y = 4000 - 100\,p$$

with y giving the quantity and p giving the price. Producers' marginal costs are $c = 4$.

a) Find equilibrium price and equilibrium quantity on a competitive market.

b) Find are equilibrium price and equilibrium quantity on a monopolistic market.

c) Compute the deadweight loss for the monopoly in the given example.

Question 3

In a market with two suppliers, inverse demand is given by

$$p = 20 - y_1 - y_2$$

(p giving the price, y_1, y_2 giving the quantities supplied by the respective firms). Both firms have the same cost function

$$c(y_i) = 5y_i, \quad i \in \{1, 2\}.$$

a) Find the profit maximizing quantity for a single firm.

b) If there were three firms in the market, would the individual optimum quantity be higher, the same, or lower than in the two–firm case? Explain your answer.

c) Try to compute the optimum quantity for the three–firm case.

Question 4

For the simultaneous move game with the following payoff matrix, find all Nash equilibria (in pure strategies):

		Player B	
		b_1	b_2
Player A	a_1	0, 0	4, 1
	a_2	0, 5	2, 3