

ECO 2145 – MICROECONOMIC THEORY II

MID-TERM EXAMINATION

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Professor Vicky Barham

NOTE: You have the right to use a calculator. No reference to textbooks or other reference materials is permitted.

TRUE/FALSE (10 points). Indicate whether the statement is true, false or uncertain, and provide a one (or two) sentence explanation. Your grade is based on the quality of your explanation.

1. A profit-maximizing monopolist with two plants divides output equally between each plant.
2. A profit-maximizing monopsonist hires fewer workers than would be hired in a perfectly competitive industry.
3. Second-degree price discrimination increases social welfare with respect to monopoly with uniform pricing.
4. Consider two profit-maximizing monopolists (in different industries) with the same price-elasticity of demand. One has a much higher advertising/sales ratio. What can explain this?
5. If $Q_1 = 100 - P_1 + 0.5P_2$ then the Bertrand reaction function is upward sloping.

PROBLEMS (30 points). Please solve the following problems. Show all of your work.

6. Suppose that the monopolist's inverse market demand is given by $P = 100 - 2Q$ and that the total cost function is $C(Q) = Q^2/4 + F$.
 - a. Calculate the profit-maximising price and quantity under the assumption of uniform pricing.
 - b. Calculate the price and quantity that would be supplied in a perfectly competitive market if the market supply curve in the competitive market were $P = Q/2$.
 - c. Compare consumer surplus **only** under monopoly versus marginal cost pricing. (2 bonus points if you also compare producer surplus!)
7. Consider a monopolist selling resort vacations to two different groups of clients: bargain and high-end travellers. The respective demand curve for bargain travellers (B) and high-end travellers (H) are:

$$Q_B = 400 - 4P_B$$

$$Q_H = 500 - 2P_H$$

where P_B, P_H denote the prices charged to bargain and high-end travellers respectively. Assume that $C(Q) = 20Q$.

- a. Determine the overall market demand curve for the resort. Determine the price at which services would be sold if the firm cannot engage in price discrimination.
 - b. Assuming that the resort can engage in third-degree price discrimination, find the profit maximising price for each segment. What fraction of the consumers are bargain travellers?
 - c. Assume that the resort does not know, *a priori*, who is a bargain traveller and who is a high-end traveller. What will happen if the resort posts the different prices calculated in (b)? What advice would you provide to the resort if you were called in as a consultant to provide guidance on increasing profitability?
8. Two firms, Apricot and Bansung, compete in the MP3 player industry. Their products are horizontally differentiated. The demand functions for the two firms are:

$$Q_A = 150 - 10P_A + 9P_B$$

$$Q_B = 150 - 10P_B + 9P_A$$

where the subscripts A, B indicate Apricot and Bansung respectively. Each firm has a total cost function: $TC(Q) = 10Q + F$.

- a. Find the equilibrium prices/quantities if the firms are Bertrand competitors.
- b. Find the equilibrium price/quantities if the firms are Stackelberg competitors, and firm 1 is the leader.