

This paper has 4 pages (including the coversheet)

AUSTRALIAN GRADUATE SCHOOL OF MANAGEMENT

Microeconomic Analysis

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Reading Time: 15 minutes

Writing Time: 180 minutes

THIS IS AN OPEN BOOK TEST

1. During the reading time candidates may not write on the test paper.
2. Simple calculators can be used.
3. Answer ***all*** questions in the booklet provided and not on this paper.
4. The total marks for this test add to 100. Allocate your time accordingly.
5. **Good Luck!**

Answer all questions.

1. (20 marks)

The market for electronic diaries is perfectly competitive. The marginal cost (MC), average variable cost (AVC), and average total cost (ATC) for each firm are given in the table below. All firms are identical and q_i is production of firm i . The demand curve is given by

$$Q = 595 - P$$

where Q is the total demand for electronic diaries. Assume that if a firm is indifferent between two levels of output, it will choose the greater. (Note: you do not have to draw a graph to answer the following questions.)

q_i	ATC	AVC	MC
1	70	4	4
2	37.5	4.5	5
3	35	13	30
4	35	18.5	35
5	36	22.8	40
6	40	27	60
7	50	40.6	110

- (a) Suppose $P = 40$ in a short-run equilibrium. What output does each firm choose? How many firms must there be in the market?
- (b) Could $P = 5$ and $q_i = 2$ be a short-run equilibrium market price and quantity for each firm? Briefly explain.
- (c) What is the long-run price and quantity for each firm?
- (d) How many firms will there be in the long run?

2. (20 marks)

Imagine that you work as an economic adviser to an airline. Members of the airline's Board of Directors have been considering trying to reduce confusion amongst potential customers by offering a single standard of service and a single price on each route, in place of a mass of special deals and special conditions. You are invited to write a precis to the Board in which you present a critical appraisal of this proposal.

3. (20 marks)

You are one of two firms in the market for caffeinated beer. The market is sufficiently distinct from the coffee market, and from the beer market, for you to reasonably believe that you are in a duopoly. Suppose that the uncertainty in the demand for this product renders the inventory costs substantial, and as such, you operate as Cournot competitors. Further, the industry demand for caffeinated beer is given by

$$P = 100 - 1.5Q$$

Your total cost is $TC = 400 + 1q$, and thus your marginal cost is $MC = 1$.
While your competitor's $TC = 300 + 4q$, and hence its marginal cost is $MC = 4$.

- (a) Find the Cournot equilibrium quantity of output and price of each firm.
[yes...it is an expensive beverage!]
- (b) Draw the Cournot reaction functions and indicate what you would do to increase profits if you were a leader and the other firm was a follower.
[note: you need not calculate the new equilibrium values!]

Now suppose that new technology is available that drastically changes the magnitude of inventory expenditures to change the form of market competition to a Bertrand game.

- (c) If products are perfect substitutes, what are the equilibrium quantities and prices of each firm?
- (d) How would your answer to (c) change if this were a contestable market?
- (e) Suppose that the form of market competition is one of strategic complements but the products are differentiated. Explain (briefly) why evaluation of an investment in a new production facility that dramatically cuts your marginal costs of production will depend upon the degree of product differentiation.
[hint: a diagram may help]

4. (20 marks)

Brydrex introduces a new shampoo which is actually very good, but is believed by consumers to be good only with probability of 0.5. A consumer would pay \$10 for high quality and nothing for low quality, and the shampoo costs \$6 per unit to produce. The firm may spend as much as it likes on stupid TV commercials showing happy people washing their hair, but the potential market consists of 100 cold-blooded economists who are not taken in by psychological tricks. The market can be divided into two periods.

- (a) If advertising is banned, will Brydrex go out of business?

- (b) If there are two periods of consumer purchase, and consumers discover the quality of the shampoo if they purchase in the first period, then explain why Brydax may spend substantial amounts on stupid commercials.
- (c) What is the minimum and maximum that Brydax will spend on advertising if it spends a positive amount?

5. (20 marks)

Having performed so well in your economics courses during your MBA, you have been appointed to oversee the strategy function of one of the four major banks in Australia. In particular, you have been asked to broadly delineate the opportunities for expanding cooperative practices amongst the banks (such as sharing ATM networks, offices, branches, back room processing, etc.). Because a young upstart from Harvard is on the project with you, be sure to detail carefully the assumptions underlying your analysis, highlighting both benefits and costs of the proposed cooperative ventures, and any limitations to practical implementation.