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Time: 2:00

INDUSTRIAL ORGANIZATION
(B.S. in Economics and B.S. in Management)

Final exam (resit season)

Answer each question on a separate sheet of paper. Good luck!

1. [15 minutes; 4 points] The following statement was recently made by a former student of this course:

> "One may observe an increase in the cost of an input that several firms use to produce a good that they all sell without any of them increasing the price at which they sell it. This is an unintended but desirable consequence of them tacitly colluding."

Comment in no more than ten lines (graphs, if any, excluded) while agreeing or disagreeing.

2. [15 minutes; 4 points] Jane Theory, the best student in her class, said:

> "If all (or most) consumers do not look for bargains, i.e., do not search for the firm that charges the lowest price in order to buy from it, firms will have an incentive to charge the monopoly price associated with 'their own' demand. We may say that dumb consumers get exploited."

Comment in no more than ten lines (graphs, if any, excluded) while agreeing or disagreeing.

3. [60 minutes; 7 points] An incumbent, denoted I, has been supplying a market for an homogeneous good whose demand equals $q = 10 - p$, which it produces at a constant marginal and average cost of 2. An entrant, denoted E, is seeking to enter the market. Firm E can produce the good at a constant marginal and average cost of 4. In addition, firm E has a capacity constraint of 2, i.e., it cannot produce more than 2 physical units of the good. Firms compete in quantities that they set sequentially, with firm I being the leader and firm E the follower.

  (i) Quantify firm E's best-reply function. [Note: the best-reply function has three branches.]

 (ii) Suppose that firm I were to accommodate E's entry. How much would each firm produce? How much would each earn? Quantify and explain.

(iii) Suppose that firm I were to try to prevent E's entry. How much would it produce? How much would it earn? Quantify and explain.

(iv) Will firm I prevent entry or accommodate it? Explain.

Suppose now that the game is still sequential, but firm E is now the leader and firm I the follower.

 (v) How much will firm E sell?

(vi) What quantity will firm I choose afterwards? How much will each firm earn? Quantify and explain.

(vii) Compare your answers to questions (iii) and (vi). Who gains and who loses (consumers included)? Explain.

4. [30 minutes; 5 points] Two firms, A and B, sell an homogeneous good whose *yearly* demand equals $q = 6 - p$. They both produce it at a constant marginal and average cost of 4. At the beginning of each year they set the price at which they are going to sell the good throughout the year. They expect to serve the market forever. [Note: denote the discount factor by δ.]

(i) Are these firms able to tacitly collude? Quantify.

(ii) What is the ideal (optimal) collusive price? Quantify.

A third firm, C, is about to enter this market. It too expects to serve it forever. Firm C's constant marginal and average cost of production equals 2.

(iii) Are these firms able to tacitly collude around the optimal collusive price computed in (ii)? Quantify and explain.