EXAM ON INDUSTRIAL ORGANIZATION  
PhD. PROGRAM IN LAW AND ECONOMICS  
ERASMUS UNIVERSITY ROTTERDAM  

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Lecturers:  
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Instructions: Read carefully the following information. This exam has 6 questions, each counting 20 points. You can answer a total of five questions. The first three are obligatory; choose two out of the three remaining questions. Base your answers on the contexts, models and/or graphs discussed during the lectures. Avoid speculative answers.

Question 1:  
Wolfram Research sells Mathematica, a computer program that does symbolic, graphical and numerical mathematics. Students (upon showing a student identity card) can acquire the software for $139.95 while the price for teachers and professors is $895.00.

a. Explain the rationale behind this pricing practice.

b. From a welfare point of view, is this type of pricing policy desirable?

Question 2:  
Consider a market served by two firms. Demand for their product is estimated to be $P(Q) = 100 - Q$, with $Q = q_1 + q_2$. Assume that production costs are symmetric and given by $C(q) = 10q$.

a. Assume these firms compete a la Cournot. Show that the total amount sold in the market is greater than if the two firms merged. Show also that the two firms have indeed an incentive to merge. Discuss.

b. Suppose firm 1 was given the opportunity to commit to its output level before firm 2 chooses its quantity. Show that firm 1 has indeed an incentive to become a market leader by setting its quantity first. In this case, do the two firms have the same incentives to merge?

Question 3:  
In the late 1990s, several large airlines considered changes in company policies that would have placed tighter limits on the number of items passengers are allowed to carry on their planes. The rationale for the proposed changes is obvious: Passengers who carry multiple bags into a plane slow down the boarding process. This delays departure time, aggravates flight attendants, annoys other passengers, and ultimately hurts carriers’ bottom lines. On the other hand, if a single airline imposed tighter limits and forced passengers to check their extra baggage, their bottom line would be hurt because passengers could easily switch to a “friendly carrier” with a more lenient policy.

AMR, the parent of American Airlines, adopted a unique approach to this dilemma. Rather than imposing baggage limitations on their own, it asked the Federal Aviation Administration to impose tighter regulations to limit the number of bags a passenger can carry into a plane’s cabin. Why do you think AMR adopted this approach?
Question 4:
Many European countries have a fixed book price. The regulation implies that publishers determine the price at which booksellers are allowed to sell their books. Apply the economics of this type of price fixing to the specifics of the book market (relatively high fixed cost, low marginal cost, possible market power of authors and/or publishers) and answer the following questions:

a. Do you think there is an economic argument to allow publishers to fix prices?
b. Would your answer change if the fixed book price were in fact a minimum price imposed by the publishers?
c. Would your answer change if the fixed book price were in fact a maximum price imposed by the publishers?

Question 5:
Suppose that in the consumer market for gasoline all gasoline sellers are private, independent companies. They buy their gasoline from a number of oil companies at a fixed price per liter if the sellers stick to the advisory price of the oil company. However, if gasoline sellers price under the advisory price in reaction to a price cut by their competitors, then oil companies give a reduction on the price of gasoline they charge. (Note that the first gasoline seller that lowers prices cannot buy at lower prices). The competition authorities argue that this type of policy supports collusive behavior on the part of the gasoline sellers.

a. What argument might the competition authority use to support its claim?
b. If you were giving economic advise on behalf of the gasoline sellers, what type of argument would you bring against the argument of the competition authority.

Question 6:
OPEC is a cartel founded in 1960 by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela, which currently counts with 11 members. In OPEC’s webpage (www.opec.org) one can read the purpose of the cartel: “OPEC’s 11 members are all developing countries whose economies are heavily reliant on oil export revenues. They therefore seek stable oil prices that are fair and reasonable for both producers and consumers of oil.”

a. Discuss the statement of purpose of OPEC from an economic point of view.
b. The Figure below shows the evolution of oil prices as well as real interest rates from 1970-1987. One can distinguish a trend of increasing oil prices from 1970 to 1981 and a trend of decreasing prices afterwards. Explain why oil prices may have followed such trends.