ECON 180 - Regulation & Antitrust Policy
Drake University, Spring 2013
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Signature: _____

Printed name: _____

QUIZ 6 VERSION A
"Market Structure"

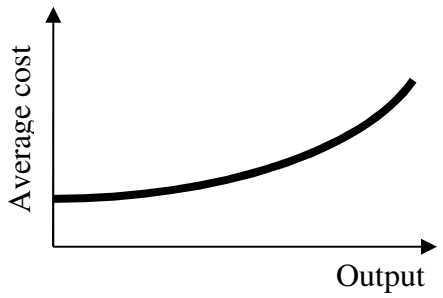
INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Mobile phones or other wireless devices are NOT permitted. Points will be subtracted for illegible writing or incorrect rounding. Point values for each question are noted in brackets.

I. Multiple choice: Circle the one best answer to each question. [3 pts each: 21 pts total]

(1) If an industry consists of 2 firms of equal size, its Hirschman-Herfindahl Index (HHI) is
a. 4.
b. 250.
c. 400.
d. 2000.
e. 2500
f. 5000.

(2) Which hypothesis claims that higher industry concentration is associated with a loss of social welfare?
a. collusion hypothesis.
b. differential efficiency hypothesis.
c. Both of the above.
d. None of the above.

(3) The average cost curve in the graph below shows
a. economies of scale.
b. diseconomies of scale.
c. neither economies nor diseconomies of scale.
d. Cannot be determined from information given.



(4) Suppose an industry is a Cournot oligopoly but entry is possible after firms pay a fixed, sunk entry cost. The higher that entry cost, the
a. greater the number of firms, in long-run equilibrium.
b. smaller the number of firms, in long-run equilibrium.
c. The entry cost is unrelated to the entry cost.
d. Cannot be determined from information given.

(5) Suppose a dominant firm shares a market with a competitive fringe of smaller firms. If the dominant firm lowers the price,
a. total market quantity demanded increases and the fringe's quantity supplied increases.
b. total market quantity demanded increases and the fringe's quantity supplied decreases.
c. total market quantity demanded decreases and the fringe's quantity supplied increases.
d. total market quantity demanded decreases and the fringe's quantity supplied decreases.

(6) According to the model of "dynamic limit pricing," a dominant firm can slow the rate of entry of competitive rivals by setting a
a. low price.
b. high price.
c. The dominant firm's price has no effect on the entry of competitive rivals.
d. Cannot be determined from information given.

(7) One model says that an incumbent firm can deter entry by a second firm if it threatens to cut prices and to force both firms to make a loss. This model has been criticized because

a. cutting prices would actually increase profit.
b. the incumbent firm's threat is not credible.
c. the entrant firm will incur sunk costs and stay in the market regardless of the price.
d. cutting prices would increase total quantity demanded, which would only encourage the entrant.

II. Problems: Insert your answer to each question below in the box provided. Use the margins and graphs for scratch work—only the answers in the boxes will be graded. Work carefully—partial credit is not normally given for questions in this section.

(1) [Measuring industry concentration: 18 pts] Suppose two industries each consist of seven firms with the following market shares.

Industry A		Industry B	
Firm #1	20%	Firm #1	30%
Firm #2	20%	Firm #2	20%
Firm #3	20%	Firm #3	10%
Firm #4	20%	Firm #4	10%
Firm #5	10%	Firm #5	10%
Firm #6	5%	Firm #6	10%
Firm #7	5%	Firm #7	10%

a. Suppose Industry B is a Cournot oligopoly. Which firm must have *higher* marginal cost—Firm #1 or Firm #3?

b. Compute Industry A's four-firm concentration ratio (4CR).

c. Compute Industry B's four-firm concentration ratio (4CR).

d. Which industry is more concentrated according to the 4CR?

e. Compute Industry A's Hirschman-Herfindahl index of concentration (HHI).

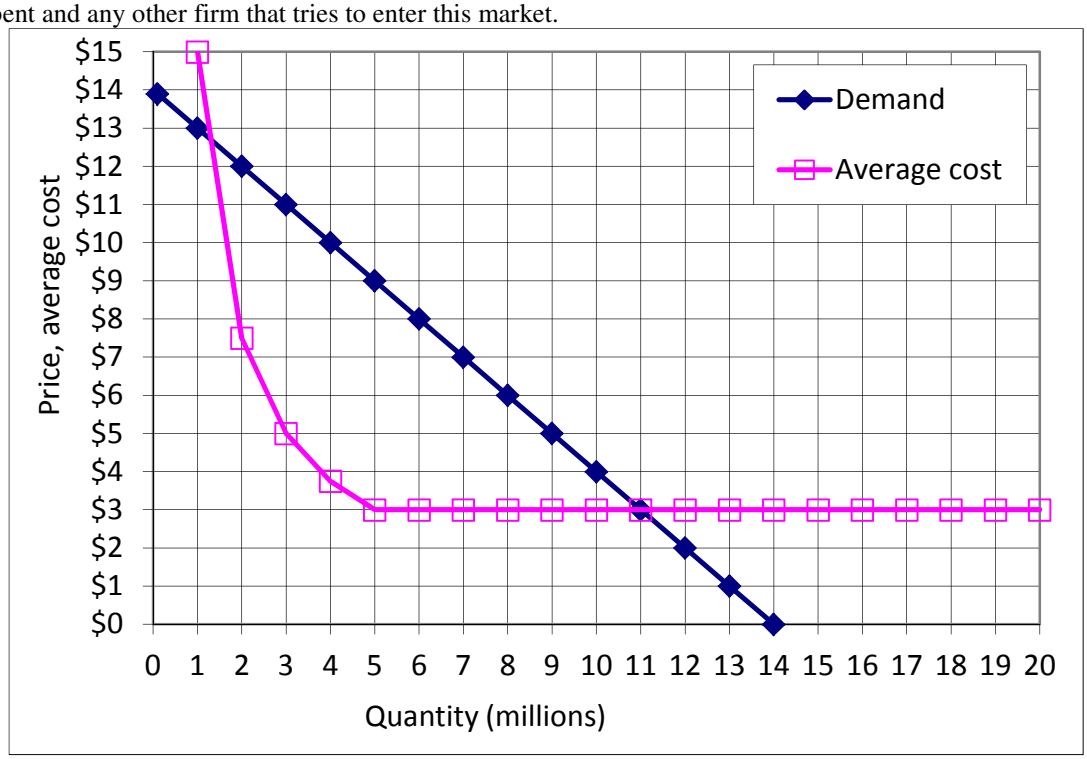
f. Compute Industry B's Hirschman-Herfindahl index of concentration (HHI).

g. Which industry is more concentrated according to the HHI?

h. Assume Industry A is a Cournot oligopoly and that the industry's elasticity of demand is -2. Compute its average Lerner index (or "price-cost margin"). [Hint: Recall the formula: avg L = HHI / (10,000 |ε|) .]

i. Assume Industry B is also a Cournot oligopoly and that the industry's elasticity of demand is also -2. Compute its average Lerner index.

(2) [Entry barriers and contestable markets: 26 pts] The graph below shows a market where the incumbent firm now produces nine million units of output and charges a price of $5. The average cost curve applies to both the incumbent and any other firm that tries to enter this market.



a. What is minimum average cost?	$
b. What is the minimum efficient scale?	million
c. Assume MC=AC and compute the incumbent's Lerner index (or "price-cost margin"). [Hint: By definition, the Lerner index = (P-MC)/P.]	

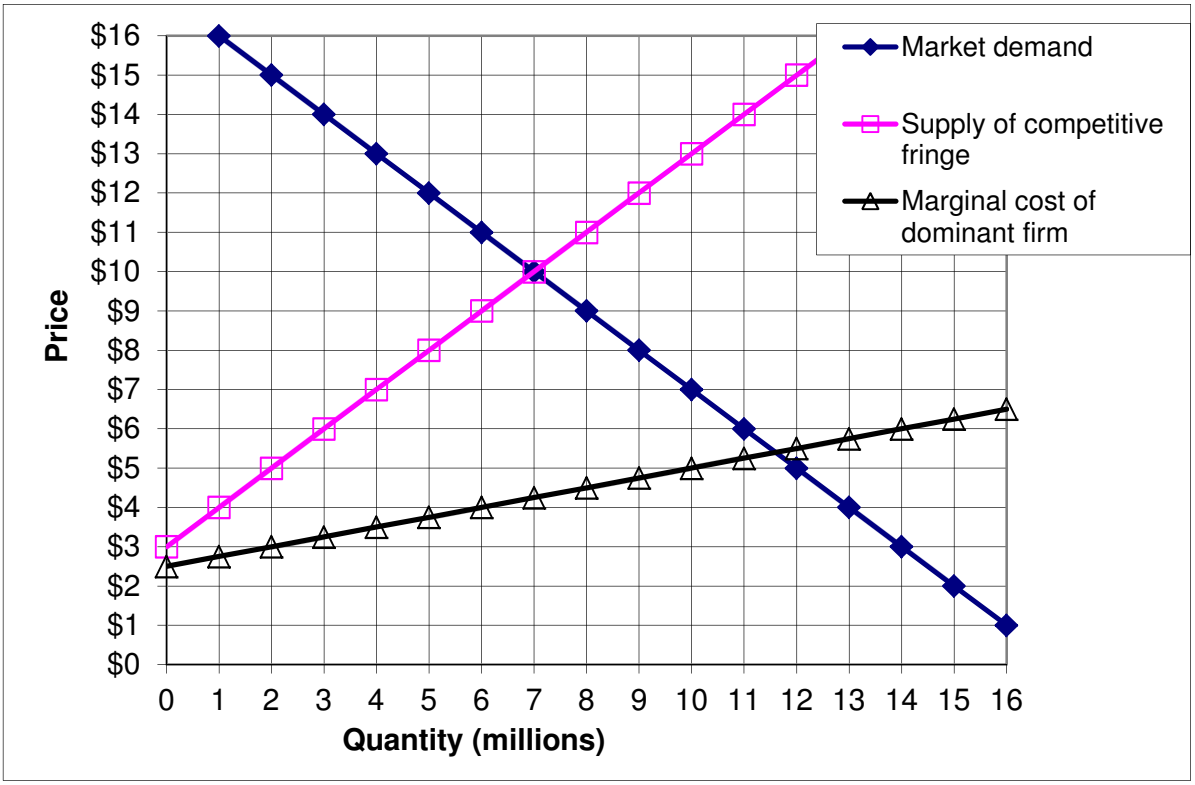
First, suppose a second firm enters the market and produces three million units of output. Assume the *Bain-Sylos postulate*: the incumbent firm keeps its output level fixed at nine million and lets the market price fall.

d. What is the new market price?	$
e. What is the entrant's average cost?	$
f. Does the entrant make a profit or a loss?	
g. How much?	$ million

Alternatively, suppose a second firm enters the market and offers a price of $4. Do not assume the Bain-Sylos postulate. Instead assume the market is *contestable* and the incumbent firm keeps its price fixed at $5.

h. What is the entrant's quantity?	million
i. What is the entrant's average cost?	$
j. Does the entrant make a profit or a loss?	
k. How much?	$ million
l. What price *should* the incumbent set to prevent entry?	$
m. Compute the incumbent's Lerner index (or "price-cost margin") assuming it sets price as in part (l).	

(3) [Dominant-firm price leadership: 30 pts] Big Corporation is the dominant firm in its industry. The following diagram shows total market demand, the supply curve of the follower firms or "competitive fringe," and the marginal cost for Big Corporation. Assume the "competitive fringe" firms take price as given.



a. What is the highest price at which the competitive fringe would supply zero output? $____

b. At what price would the quantity supplied by the competitive fringe be sufficient to supply the entire quantity demanded by the market? $____

Suppose the market price were **$ 8** for some unknown reason.

c. How much output would the competitive fringe supply? ____ million

d. How much output would be left for the dominant firm? ____ million

Now suppose the dominant firm sets the market price to maximize profit.

e. Draw and label the *residual demand curve* available to the dominant firm, using a straightedge.

f. Draw and label the *residual marginal revenue curve* available to the dominant firm, using a straightedge.

g. What quantity will the dominant firm seek to produce to maximize its profit? ____ million

h. What price will the dominant firm set in the market? $____

i. What quantity will the competitive fringe firms supply as a result? ____ million

j. Compute the dominant firm's Lerner index (or "price-cost margin"). [Hint: By definition, the Lerner index = (P-MC)/P.]

III. Critical thinking [5 pts]

Return to problem (3) on dominant-firm price leadership. Find the *efficient* total quantity of output--that is, the quantity that *maximizes social welfare*. Also find the quantity that should be produced by the dominant firm and the quantity that should be produced by the competitive fringe. Explain your reasoning.

[end of quiz]