ECON 120 - Regulation & Antitrust Policy
Drake University, Spring 2026
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EXAMINATION 2 VERSION A
"Antitrust Theory"
March 10, 2026

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: Please circle the one best answer to each question. [1 pt each, 16 pts total]

(1) An industry is a natural monopoly if
a. the industry became a monopoly without government interference.
b. the only seller in the market sells a natural or "green" product.
c. one firm owns all the key natural resources required to produce the product.
d. a firm's average cost is negatively related to its quantity.

(2) Suppose a sandwich stand sells 10 sandwiches per hour if the price is $5, and sells 11 sandwiches if the price is lowered to $4.75. The stand's marginal revenue of the 11th sandwich is therefore
a. $0.25 .
b. $2.25 .
c. $2.50 .
d. $4.75 .
e. $5.00 .
f. $10.00 .

(3) For a monopolist, marginal revenue is always
a. greater than price.
b. equal to price.
c. less than price.
d. zero.

(4) A monopoly causes social deadweight loss because
a. it creates a concentration of power.
b. some buyers, willing to pay the marginal cost, do not get served.
c. it redistributes income from the poor to the rich.
d. big corporations are bad for society.

(5) The "Structure-Conduct-Performance" paradigm is simplistic because it assumes that
a. performance does not depend on structure.
b. performance does not depend on conduct.
c. structure does not depend on conduct.
d. conduct does not depend on structure.

(6) An action by a firm that is *per se* illegal
a. is always illegal regardless of circumstances.
b. may be illegal if it appears to lessen competition.
c. may be illegal if it increases the firm's profit.
d. may be illegal if it decreases other firms' profits.

(7) U.S. antitrust laws are enforced through
a. lawsuits brought by private parties claiming damages.
b. orders of the Federal Trade Commission.
c. prosecution in federal court by the Department of Justice.
d. All of the above.

(8) Which of the following characterizes a Nash equilibrium of a game?
a. The sum of the payoffs for both players is maximized.
b. Neither player wants to change strategies unilaterally.
c. Neither player can be made better off without the other player being made worse off.
d. Each player is receiving the highest possible payoff in the game.

(9) The Cournot model of duopoly assumes that each firm maximizes its profit while taking the other firm's
a. cost as given.
b. price as given.
c. output quantity as given.
d. all of the above.

(10) Suppose all firms in an industry have the same marginal cost. According to the Cournot model of oligopoly, the equilibrium price will be higher,
a. the more firms in the industry.
b. the fewer firms in the industry.
c. The price does not depend on the number of firms in the industry.

(11) The "joint marginal cost" curve under the model of joint profit maximization is the same as the
a. marginal revenue curve under monopoly.
b. supply curve under price competition.
c. market demand curve under Cournot oligopoly.
d. none of the above.

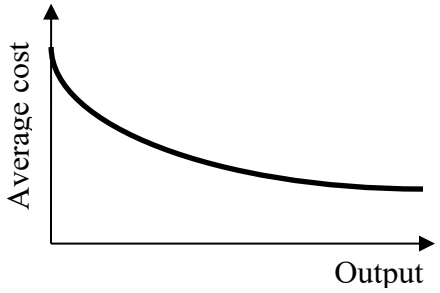
(12) Most cartels in the real world have
a. fewer than 10 member firms.
b. 10 to 20 member firms.
c. 20 to 40 member firms.
d. more than 40 member firms.

(13) Which market model predicts the largest quantity of total output?
a. Price competition.
b. Collusion to maximize joint profits.
c. Cournot oligopoly.
d. All models predict the same quantity of output, if all use the same assumptions about market demand and marginal cost.

(14) 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.

(15) Although profits are greater in more highly concentrated industries, social welfare may also be greater in such industries, according to the
a. permanent income hypothesis.
b. collusion hypothesis.
c. differential efficiency hypothesis.
d. Bertrand model of price competition.

(16) 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.



II. Problems: Insert your answer to each question in the box provided. Use 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) [Monopoly, markup formula, Lerner index: 4 pts] Slippery Ski Hill enjoys a local monopoly. Its marginal cost per customer is $8.00. The management believes the elasticity of demand for admission is -5.

a. What admission price should Slippery set, to maximize profit?

$

b. Compute Slippery's Lerner index of market power [(P-MC)/P].

(2) [Antitrust statutes: 8 pts] Insert one of the following statutes in each box. You may insert the same statute into more than one box.

Sherman Act Section 1 *Sherman Act Section 2*
Clayton Act Section 7 *Federal Trade Commission Act Section 5*

a. "No corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock … of another corporation engaged also in commerce, where ... the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly."	
b. "Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce … is declared to be illegal."	
c. "Unfair methods of competition in or affecting commerce, and unfair or deceptive acts or practices in or affecting commerce, are declared unlawful."	
d. "Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce … shall be deemed guilty of a felony…"	

(3) [Measures of concentration: 4 pts] The U.S. Bureau of Transportation Statistics reported the following market share data on airlines' domestic passengers in a recent year.

Airline	Market share
Delta	18 %
American	17 %
Southwest	17 %
United	16 %
Alaska	6 %

Airline	Market share
JetBlue	5 %
Spirit	4 %
Frontier	4 %
SkyWest	3 %
Hawaiian	2 %

The total sums to 92%, but you may assume the remaining airlines are very small and can be ignored in the following calculations.

a. Compute the four-firm concentration ratio.	%
c. Compute the Hirschman-Herfindahl Index.	

(4) [Cournot duopoly: 14 pts] Suppose a market is served by only two firms: Acme Products Company and Best Products Company. Suppose the two firms form a *symmetric Cournot duopoly*, each firm setting its own quantity while taking the other firm's quantity as given. Let q_A = Acme's quantity and q_B = Best's quantity, so that total market quantity $Q = q_A + q_B$. The market demand curve is **$P = 15 – (Q/5)$.** Each firm has constant marginal and average cost equal to **$3**. Circle your final answers. Use the space at the bottom of the next page for scratch work.

a. Find an expression for Acme's revenue, as a function of its own quantity and the quantity produced by the other firm: $TR_A(q_A,q_B)$. [Hint: By definition, $TR_A = P\ q_A$. Here, replace P by the equation for the demand curve, and then replace Q by $(q_A + q_B)$.]

b. Find an expression for Acme's marginal revenue, as a function of its own quantity and the quantity produced by the other firm: $MR_A(q_A,q_B)$. [Hint: $MR_A = dTR_A / dq_A$.]

c. Find an expression for Acme's reaction function (or best reply function), showing how much Acme will produce for any given level of quantity set by the other firm: $q_A^* = f(q_B)$. [Hint: Set $MR_A = MC$ and solve for q_A as a function of q_B .]

d. Assume the equilibrium is symmetric (that is, assume $q_A^* = q_B^*$) and compute Acmes's equilibrium quantity q_A^*.

Question continues on next page.

e. Compute total market quantity Q* and the equilibrium price P*.

f. Compute the Lerner index (or "price-cost margin," (P-MC)/P).

g. Compute the social deadweight loss from Cournot duopoly.

(5) [Joint profit maximization: 10 pts] Suppose the two firms in the previous problem form a cartel to maximize the sum of their profits. Show your work and circle your final answers.

a. Find the cartel's marginal revenue function.

b. Compute the cartel's profit-maximizing level of output Q*.

c. Compute the cartel's profit-maximizing price P*.

d. Compute the cartel's Lerner index (or "price-cost margin," (P-MC)/P).

e. Compute the social deadweight loss from the cartel.

(6) [Equilibrium entry: 14 pts] Suppose annual demand for wheelbarrows is given by P = 70 – Q, marginal and average cost is **$10**, and the market is a symmetric Cournot oligopoly. It can be shown that the equilibrium market quantity depends on the number of firms as follows.

Number of firms	Equilibrium market quantity	Equilibrium market price	Quantity per firm	Annual profit per firm	PDV profit per firm
1	30	$40	30	$	$
2	40	$30	20	$	$
3	45	$25	15	$	$
4	48	$22	12	$	$
5	50	$20	10	$	$

a. [5 pts] Compute the annual profit per firm when the number of firms ranges from 1 through 5. Insert your answers in the table above.

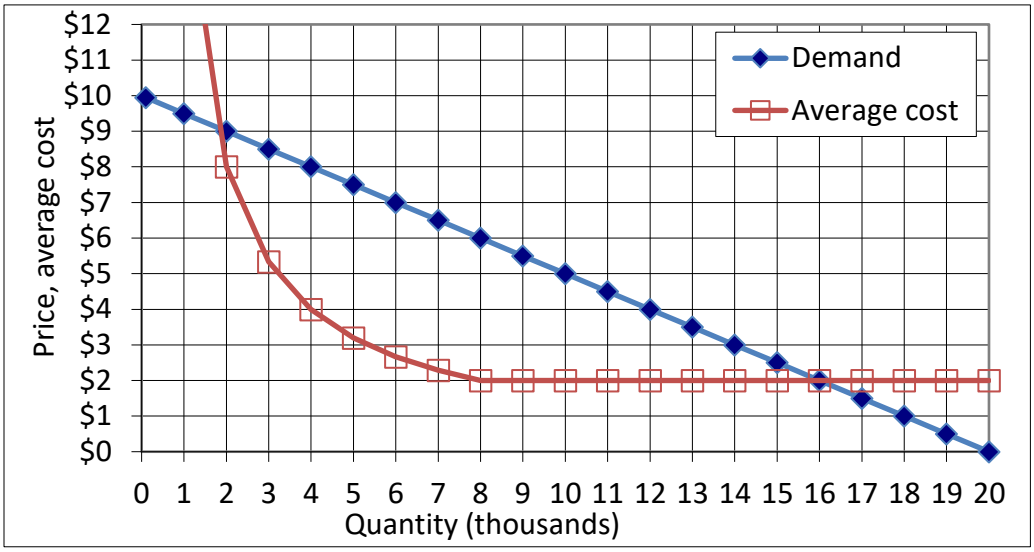
b. [5 pts] Suppose this annual profit continues indefinitely and the firms' discount rate is **10%**. Compute the present discounted value of profit per firm when the number of firms ranges from 1 through 5. Insert your answers in the table above. [Hint: The present discounted value of a perpetual annual payment of X at discount rate r is given by X/r.]

c. [2 pts] What is the equilibrium number of firms in this industry when the upfront cost of entry is $3000?

d. [2 pts] What is the equilibrium number of firms in this industry when the upfront cost of entry is $1200?

	firms
	firms

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



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

First, suppose a second firm enters the market and produces **four** thousand units of output. Assume the *Bain-Sylos postulate*: the incumbent firm keeps its output level fixed at ten thousand 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?	$ thousand

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?	thousand
i. What is the entrant's average cost?	$
j. Does the entrant make a profit or a loss?	
k. How much?	$ thousand
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).	

III. Critical thinking: Write a one-paragraph essay answering *one* question below (your choice). [4 pts]

(1) Would a monopolist ever set price and quantity on the *inelastic* ($|\varepsilon| < 1$) part of its demand curve? Why or why not? [Hint: Show that marginal revenue is negative (so, surely less than marginal cost) if demand is inelastic. Then explain how, when marginal revenue is less than marginal cost, the monopolist could increase its profit by changing its output quantity.]

(2) Suppose a market is currently served by only one firm, Firm A, whose average and marginal cost is \$5, but whose price is currently \$8. Firm B, with similar costs, is considering entering the market. To preserve its monopoly, Firm A tells Firm B that if Firm B enters the market, then Firm A will lower the price to \$4 to make sure that Firm B loses money.

a. Define the term *credible threat*.
b. Is Firm A's threat *credible?* Why or why not?

Please circle the question you are answering. Write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.

[end of exam]