ECON 120 - Regulation & Antitrust Policy
Drake University, Spring 2023
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Signature: _____

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EXAMINATION 1 VERSION A
"Review of Perfect Competition"

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, 24 pts total]

(1) The purpose of antitrust policy is primarily to
a. promote competition.
b. control monopoly.
c. limit externalities.
d. remedy problems of asymmetric information.

(2) "Positive analysis" of regulation asks
a. what regulatory policy should be.
b. why regulation occurs in some industries and not others.
c. whether regulation is a "net plus" for society.
d. All of the above.

(3) A demand curve for laptop computers shows how the quantity of laptop computers people want to buy is affected by
a. the laptop computer's features.
b. the income of consumers.
c. the price of laptop computers.
d. the price of substitutes, like desktop computers.

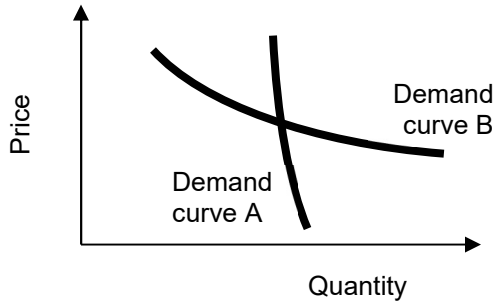
(4) A supply curve for steel shows how the quantity of steel that steel producers want to produce and sell is affected by
a. the cost of inputs like iron ore.
b. the price of steel.
c. the price of alternative materials, like aluminum.
d. environmental regulations.

(5) Corn oil is made from corn, so if the price of corn rises, then the
a. demand for corn oil will shift left.
b. demand for corn oil will shift right.
c. supply of corn oil will shift left.
d. supply of corn oil will shift right.

(6) Equilibrium in a competitive market occurs when
a. the price is zero.
b. the quantity demanded equals the quantity supplied.
c. the price is affordable to most people.
d. the revenue received by sellers is maximized.

(7) Some people believe there is excess supply in the housing market. If they are right, then the price of houses can be expected to
a. rise.
b. fall.
c. remain constant.
d. Price movements are not related to excess supply.

(8) Which demand curve below is *less* elastic?
a. Demand curve A.
b. Demand curve B.
c. Both have the same elasticity because they pass through the same point.
d. Cannot be determined from information given.



(9) If the price elasticity of demand for a good is large in absolute value, then buyers
a. are not very sensitive to price.
b. are very sensitive to price.
c. buy the same amount of the good, regardless of price.
d. Cannot be determined from information given.

(10) It takes time for consumers to adjust their lifestyles to changes in electricity prices. Therefore, the long-run demand for electricity is
a. more elastic than the short-run demand.
b. less elastic than the short-run demand.
c. just as elastic as the short-run demand.
d. Elasticity of demand is not related to time for adjustment.

(11) Price times a firm's quantity of output equals the firm's
a. total revenue.
b. average revenue.
c. marginal revenue.
d. total cost.

(12) The increase in a firm's total revenue from producing and selling one more unit of output by definition equals the firm's
a. total revenue.
b. average revenue.
c. marginal revenue.
d. total cost.
e. average cost.
f. marginal cost.

(13) All money paid by a firm for inputs equals by definition the firm's
a. total revenue.
b. average revenue.
c. marginal revenue.
d. total cost.
e. average cost.
f. marginal cost.

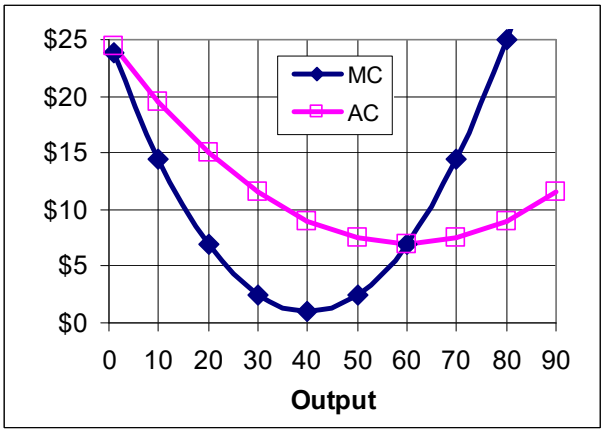
(14) The slope of the firm's total cost curve by definition equals the firm's
a. total revenue.
b. average revenue.
c. marginal revenue.
d. total cost.
e. average cost.
f. marginal cost.

(15) A firm's total cost divided by its total output by definition equals the firm's
a. total revenue.
b. average revenue.
c. marginal revenue.
d. total cost.
e. average cost.
f. marginal cost.

(16) If a firm takes the market price as given, its *marginal revenue* curve is
a. a downward-sloping line.
b. a horizontal line.
c. an upward-sloping line through the origin.
d. a downward-sloping curve with increasing slope.
e. an upward-sloping curve with decreasing slope.

(17) A small firm in a big market maximizes its profit by
a. adjusting its price so that price equals marginal cost.
b. adjusting its output quantity so that price equals marginal cost.
c. shifting its marginal cost curve up or down so that price equals marginal cost at its desired output level.
d. all of the above.

(18) ABC Company is a small firm in a big market and therefore takes the market price as given. Its marginal cost (MC) and average cost (AC) curves are shown below. To maximize profit, ABC Company should set its output at
a. zero.
b. 40 units.
c. 60 units.
d. 80 units.
e. Cannot be determined without knowing market price.



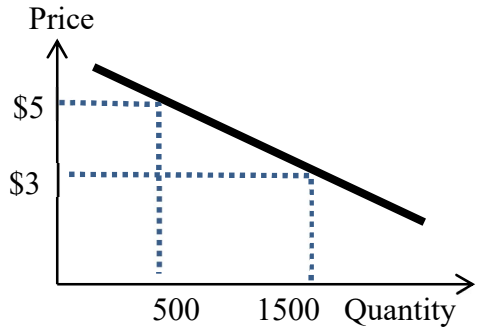
(19) In the *short run*, a firm should continue operating if its revenue is sufficient to pay at least its
a. fixed cost.
b. variable cost.
c. total cost.
d. accounting cost.

(20) A cost that you cannot avoid no matter what action you take is called
a. an opportunity cost.
b. a marginal cost.
c. a variable cost.
d. a sunk cost.
e. an average cost.

(21) To pass the *compensation test of Kaldor and Hicks*, a change in the economy must result in
a. winners but no losers.
b. gains to winners that exceed any losses to losers.
c. at least some winners.
d. cost savings for the government.
e. a rise in wages, salaries, and other compensation.

(22) At any point on the supply curve for wheat, the height of the supply curve equals
a. consumer surplus on that bushel of wheat.
b. consumers' willingness to pay for that bushel of wheat.
c. marginal cost of producing that bushel of wheat.
d. producer surplus on that bushel of wheat.

The next two questions refer to the following graph of the demand for hamburgers.



(23) How much are consumers willing to pay for the 1500th hamburger?
a. zero.
b. $2.
c. $3.
d. $4.
e. $5.

(24) If the market price of hamburgers rises from $3 to $5, then total consumer surplus
a. decreases by $1000.
b. decreases by $2000.
c. decreases by $3000.
d. increases by $1000.
e. increases by $2000.
f. increases by $3000.

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) [Using price elasticity of demand: 10 pts] Suppose the price elasticity of demand for vitamins is **-1.2**. Suppose vitamin producers cooperate to **decrease output by 6%.** Assume the demand curve does not shift.

a. Is demand for vitamins elastic, inelastic, or unitary-elastic?	
b. Will the price of vitamins *increase or decrease*?	
c. ... by about how much?	%
d. Will revenue received by vitamin producers *increase or decrease?*	
e. ... by about how much?	%

(2) [Profit maximization: 10 pts] Suppose a firm's total revenue function is given by $TR(q) = 4q$, and its total cost function is given by $TC(q) = (1/80)\, q^2 + 2q$. Find the following, showing your work and circling your final answers.

a. Find the firm's marginal revenue function $MR(q)$.

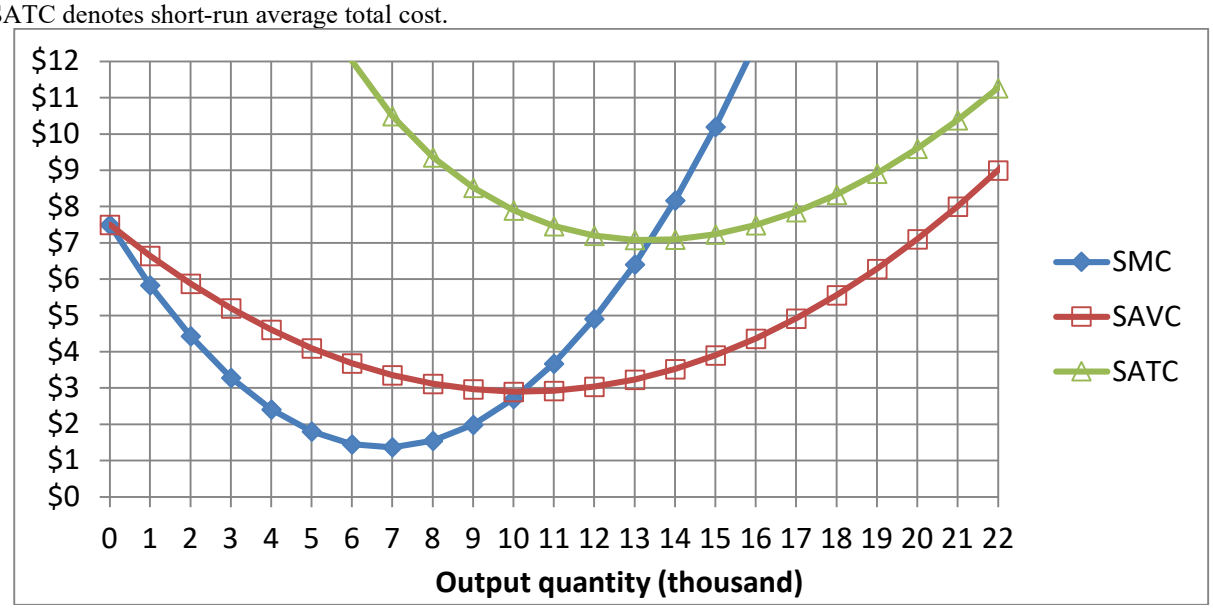
b. Does this firm take price as given? Why or why not?

c. Find the firm's marginal cost function $MC(q)$.

d. Compute the firm's profit-maximizing level of output q^*. Show your work and circle your final answer.

e. Compute the firm's total profit. Show your work and circle your final answer.

(3) [Short-run cost curves and supply: 24 pts] General Products Company is a small firm in a big market, and therefore takes its output price as given. In the short run, the company faces weekly cost curves as shown in the following diagram. Here, SMC denotes short-run marginal cost, SAVC denotes short-run average variable cost, and SATC denotes short-run average total cost.



Suppose the company were currently producing 10 thousand units of output, for some unknown reason.

a. Compute the company's short-run total cost, to the nearest thousand. $ thousand

b. Compute the company's short-run variable cost, to the nearest thousand. $ thousand

c. Compute the company's short-run fixed cost, to the nearest thousand. $ thousand

Suppose the company were currently producing 5 thousand units of output, for some unknown reason.

d. If the company produced one more unit, by how much would its total cost increase? That is, what would be the *change in total cost* as the company increased output from 5000 to 5001 units? (Give an answer to the nearest dollar.) $

e. What is the company's break-even price—that is, the lowest price at which the company can avoid losses? (Give an answer to the nearest dollar.) $

f. What is the company's shut-down price—that is, the lowest price at which it will remain in operation in the short run? (Give an answer to the nearest dollar.) $

g. Suppose the price of output is $8. How many units will the company produce? (Give an answer to the nearest hundred.) thousand

h. Will the company make a *profit* or a *loss* at a price of $8, or will it *break even?*

i. Suppose the price of output is $2. How many units will the company produce? (Give an answer to the nearest hundred.) thousand

j. Will the company make a *profit* or a *loss* at a price of $2, or will it *break even?*

k. Suppose the price of output is $5. How many units will the company produce? (Give an answer to the nearest hundred.) thousand

l. Will the company make a *profit* or a *loss* at a price of $5, or will it *break even?*

(4) [Long-run cost and supply: 10 pts] Suppose XYZ Manufacturing Company has the following long-run cost function:

$$TC(q) = (1/100)\, q^3 - q^2 + 35\, q$$

a. Find an expression for the company's marginal cost function.

MC(q) =

b. Find an expression for the company's average cost function.

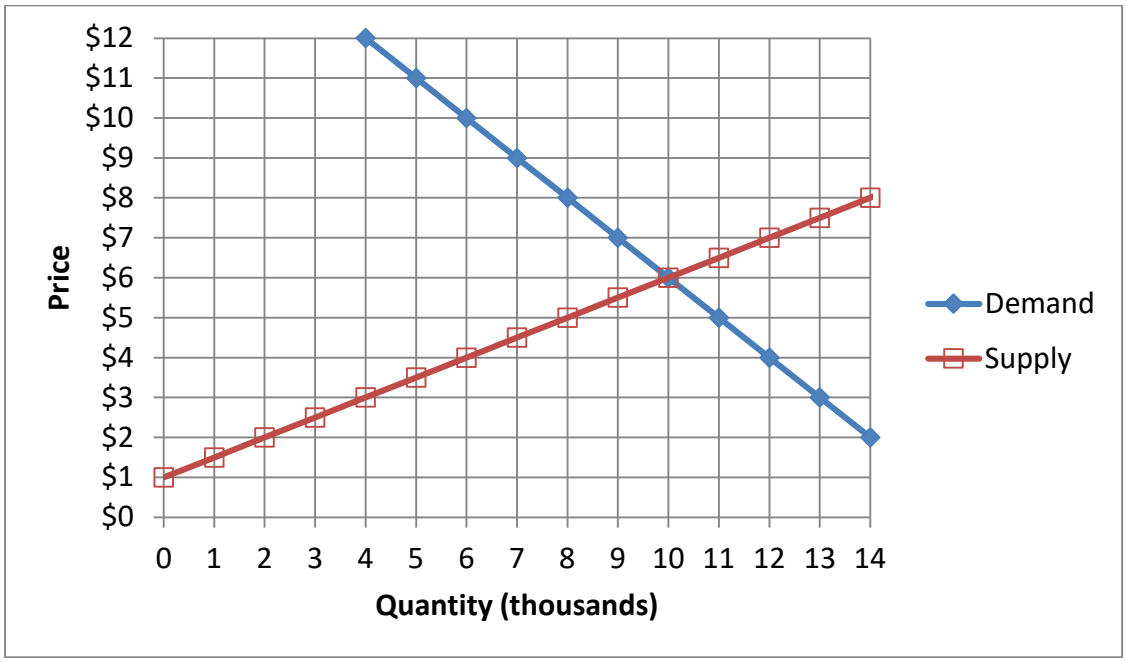
AC(q) =

c. Compute the company's efficient scale q_{ES}. Show your work and circle your final answer.

d. Compute the company's breakeven price—the minimum price at which it can avoid losses. Show your work and circle your final answer.

e. Suppose all firms in this industry have these same costs. If the market price is **$5**, will new firms try to *enter* the industry, or will existing firms try to *exit* the industry? Why?

(5) [Welfare analysis of price controls: 18 pts] The following graph shows the market for flashdrives.



a. Find the equilibrium price without government intervention. $

Suppose the government imposes a price floor (or legal minimum price) of **$ 8** . No flashdrives may be sold for a price less than the price floor.

b. How many flashdrives will actually be sold? thousand

c. Will there be *excess demand, excess supply*, or *neither*?

d. How much? thousand

e. Does consumer surplus *increase, decrease,* or *remain constant* because of the price floor, as compared to the market without government intervention?

f. By how much? $ thousand

g. Does producer surplus *increase, decrease,* or *remain constant* because of the price floor, as compared to the market without government intervention? (Assume optimistically that flashdrives are sold by those producers with the lowest cost.)

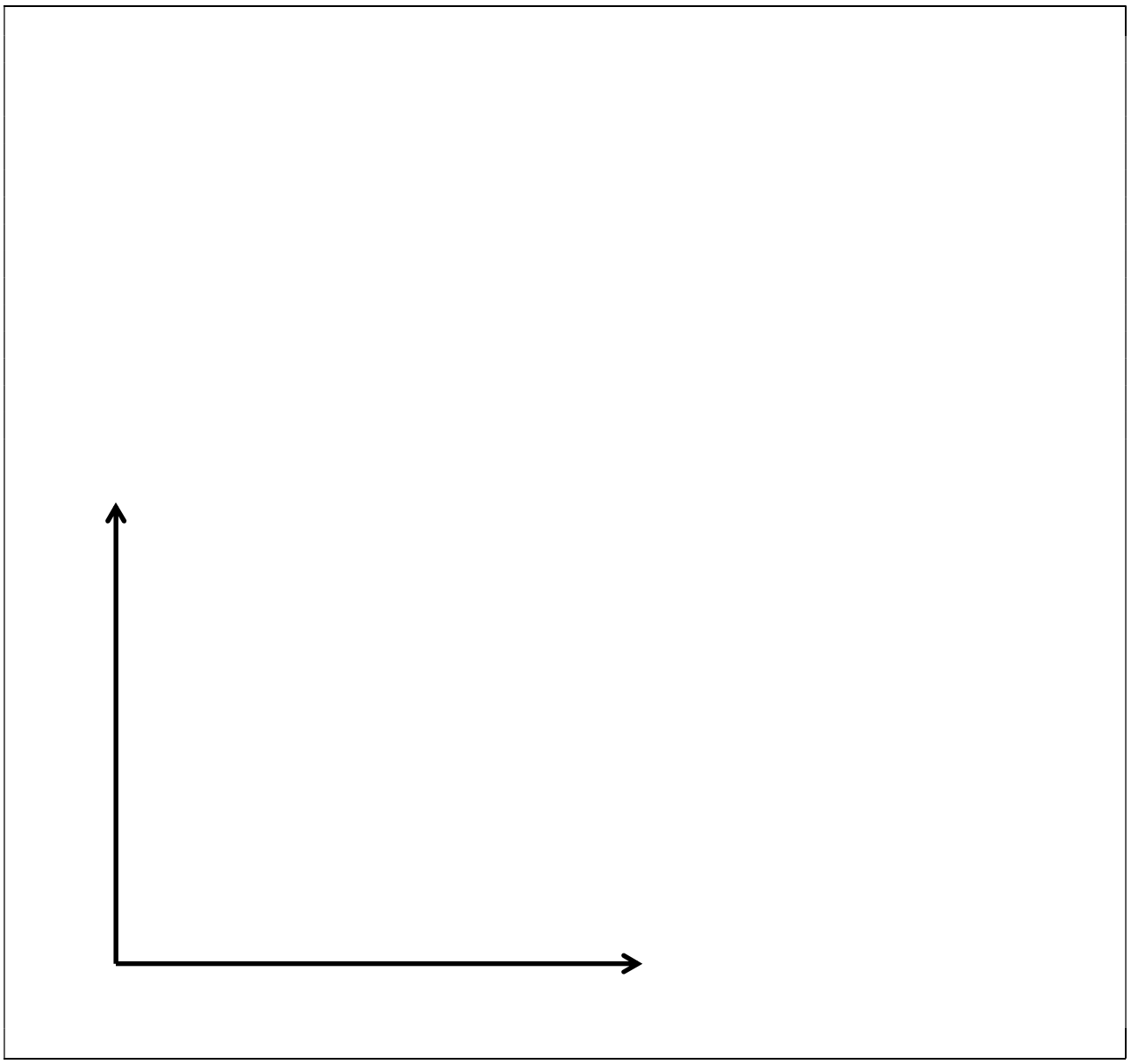
h. By how much? $ thousand

i. Compute the deadweight social loss caused by the price floor. $ thousand

III. Critical thinking: Write a one-paragraph essay answering *one* question below (your choice). Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling. [4 pts]

(1) Suppose your company is currently producing 1,000 units of output. Its marginal cost is $20, its average cost is $10, and its marginal revenue is $17. Do you recommend that your company increase its output, decrease its output or keep its output constant? Explain your reasoning. (Ignore the graph below.)

(2) Suppose that manufacturers of a particular electronic part collude to raise the price. The price then rises from $10 to $15, and the quantity purchased falls from 1000 to 800. Compute the change in total revenue and the change in consumer surplus. Explain your reasoning and draw a graph illustrating your calculations.



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