

QUIZ 12 VERSION A

"Regulation and Deregulation of Telecommunications"

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. [2 pts each: 18 pts total]

(1) Interstate long-distance telephone rates were first regulated by the federal government in

- a. 1876.
- b. 1894.
- c. 1910.
- d. 1934.
- e. 1956.

(2) In the early 1900s, AT&T

- a. resisted government regulation as an unwarranted interference in the affairs of a private business.
- b. welcomed government regulation as protection from competition and from antitrust liability.
- c. repeatedly brought antitrust suits against its rivals.
- d. None of the above.

(3) Since 1934, telecommunications have been regulated at the federal level by the

- a. Interstate Commerce Commission.
- b. Federal Trade Commission.
- c. Federal Communications Commission.
- d. Department of Commerce.

(4) AT&T's tariffs long prohibited customers from attaching equipment made by other manufacturers. This prohibition was first successfully challenged in the

- a. Modification of Final Judgment, effective 1984.
- b. Telecommunications Act of 1996.
- c. Hush-a-Phone case of 1956.
- d. MCI case of 1969.

(5) In 1969, the FCC decided that private-line service could be offered between St. Louis and Chicago by

- a. AT&T.
- b. Sprint.
- c. MCI.
- d. WorldCom.

(6) Competitors to AT&T first entered the long-distance market in

- a. low-density routes.
- b. high-density routes.
- c. both of the above simultaneously.
- d. cannot be determined from information given.

(7) The DOJ Antitrust Division filed suit against AT&T in 1974, accusing AT&T of

- a. monopolizing long-distance telecommunications markets by making it difficult for competitors to connect to the local network.
- b. violating the 1956 Final Judgment by entering unregulated markets, such as computers.
- c. predatory pricing.
- d. price-fixing.
- e. All of the above.

(8) The 1982 consent decree (or "Modification of Final Judgment") allowed the seven regional companies to

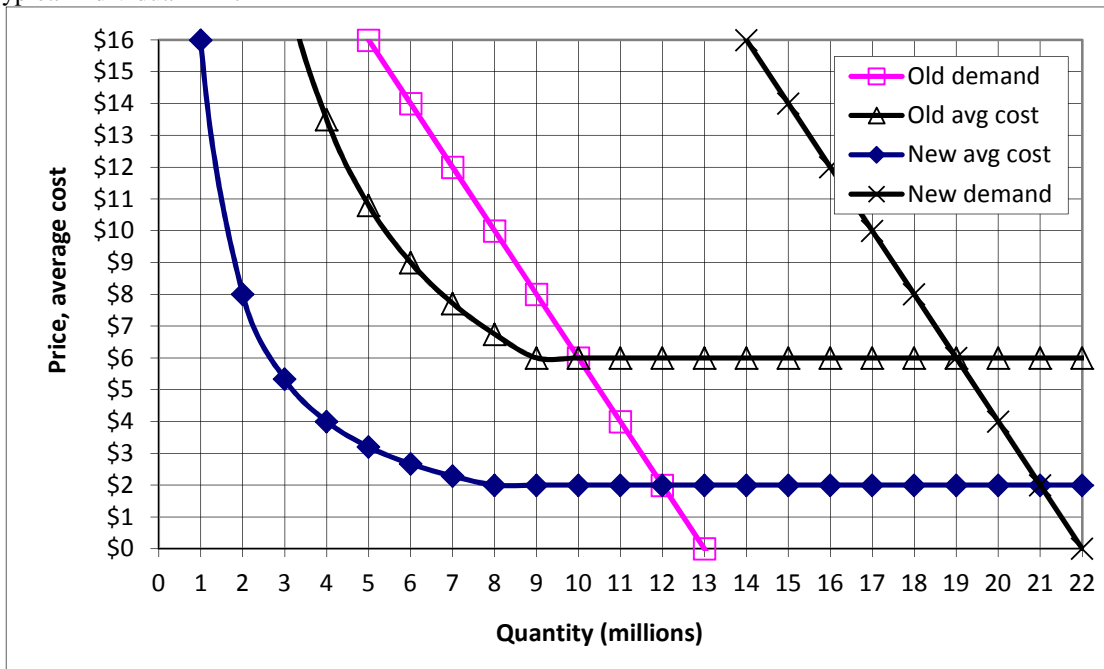
- a. offer long-distance service.
- b. sell telephone equipment.
- c. offer local phone service.
- d. All of the above.

(9) Today, long-distance telephone rates are regulated through

- a. rate-of-return regulation.
- b. price caps.
- c. entry restrictions.
- d. Long-distance rates are unregulated today.

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) [Transformation of natural monopoly: 25 pts] The graph below shows industry demand and average cost curves for a typical individual firm.



Suppose the average cost curve for a typical firm is given by "Old avg cost" and demand is given by "Old demand."

a. What is the minimum efficient scale? million

b. [4 pts] Is this industry a natural monopoly? Why or why not?

First suppose the demand curve shifts to "New demand" as a result of rising incomes.

c. Is this industry now a natural monopoly? Answer *yes* or *no*.

Alternatively, suppose demand does not shift, but the average cost curve for a typical firm falls to "New avg cost."

d. What is now the minimum efficient scale? million

e. Is this industry now a natural monopoly? Answer *yes* or *no*.

Now suppose both curves shift.

f. If the firms in this industry engage in price competition and there is free entry and exit, what will be the equilibrium market price? \$

g. What will be the equilibrium market quantity under price competition? million

h. What is the maximum number of firms that this industry can support under price competition? firms

(2) [Multiproduct cost functions: 32 pts] Tasty Bakery makes two products: cakes and pies. Let Q_C denote the quantity of cakes, and let Q_P denote the quantity of pies. The total cost $C(Q_C, Q_P)$ of producing the products at various levels of output are given by the following table.

$C(Q_C, Q_P)$		Q_P				
		0	10	20	30	40
Q_C	0	\$0	\$190	\$268	\$329	\$379
	10	\$253	\$423	\$493	\$547	\$592
	20	\$358	\$519	\$586	\$637	\$681
	30	\$438	\$593	\$658	\$707	\$748
	40	\$506	\$656	\$718	\$765	\$805

a. Does Tasty Bakery enjoy *economies of scope*? Why or why not? Give a numerical example.

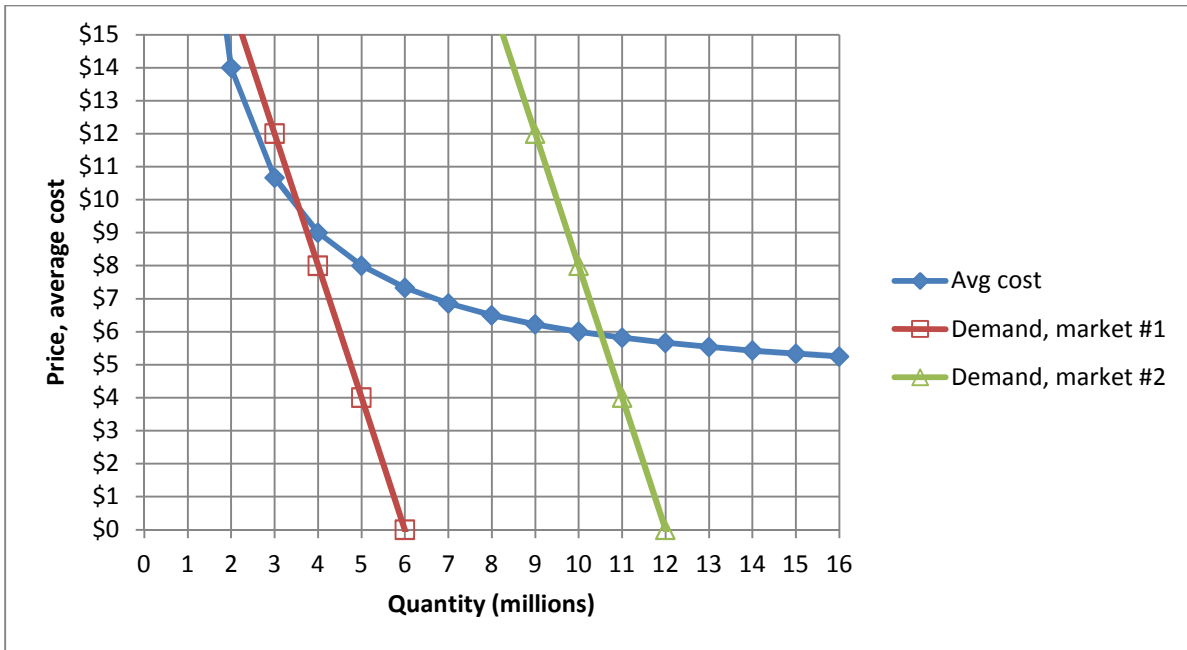
b. Compute the *incremental cost* of pies, given that the firm will produce 30 cakes, and place your answers in the table below.

c. Compute the *average incremental cost* of pies, given that the firm will produce 30 cakes, and place your answers in the table below. Round answers to the nearest whole dollar.

Q_P	IC(Q_P) given $Q_C=30$	AIC(Q_P) given $Q_C=30$
10	\$	\$
20	\$	\$
30	\$	\$
40	\$	\$

d. Does Tasty Bakery enjoy *product-specific economies of scale* for pies? Why or why not?

(3) [Cross-subsidization: 20 pts] Suppose that Superior Communications, a regulated firm, operates in two markets with different demand curves, but with the same average cost curve in each market, as shown below. (There are no economies of scope.)



a. Is Superior Communications a natural monopoly in each market? Why or why not?

Suppose the regulator imposes a price of \$4 in market #1 and \$8 in market #2.

- b. What quantity will be demanded in each market?
- c. Will Superior Communications enjoy a *profit* or a *loss* in each market?
- d. How much?

	Market #1	Market #2
	million	million
\$	million	\$ million

Suppose another firm has an average cost curve that is \$1 *higher* than Superior Communications' average cost curve shown in the graph above. Further suppose that the regulator permits free entry into both markets.

e. Will the other firm enter market #1, market #2, both markets or neither market? Why?

III. Critical thinking [5 pts]

Return to problem (2) above on “multiproduct cost functions.” Suppose Tasty Bakery is regulated. The regulator has set prices at $P_C = \$20$ and $P_P = \$4$ and the quantities demanded are $Q_C = 30$ and $Q_P = 30$, so Tasty Bakery roughly breaks even. Which product (pies or cakes) will be vulnerable to “cream-skimming”—that is, entry by firms producing only one product? Why?

Please write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.

[end of quiz]