

## QUIZ 8 VERSION B

### "Vertical Mergers and Vertical Restraints"

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) The view that vertical mergers may be a problem, because less-simple models, analyzed using game theory, show that they can sometimes both be profitable and decrease welfare, is called the

- a. Traditional or Harvard School view.
- b. Chicago School view.
- c. Post-Chicago view.
- d. Supply-side view.

(2) Suppose there are only three makers of a particular part which is used in smart phones. The market for parts is therefore not perfectly competitive. If one parts maker merges with a smart phone maker, the *other* smart phone makers' costs will

- a. not be affected because they did not merge.
- b. increase.
- c. decrease.
- d. Cannot be determined from information given.

(3) The government was most aggressive in preventing vertical mergers

- a. in the 1960s.
- b. in the 1980s.
- c. since 1995.
- d. The government has always treated vertical mergers extremely aggressively.

(6.5) Why might a manufacturer of a product require retailers to maintain a *minimum* retail price?

- a. To increase the quantity demanded by consumers.
- b. To prevent "double marginalization."
- c. To encourage retailers to provide marketing services like showrooms and personalized sales.
- d. To encourage discount retailers like Walmart to sell the product.

(5) Which practice did the courts hold to be *per se* illegal from the *Dr. Miles* case in 1911 until *Leegin v. PSKS Inc.* in 2007?

- a. vertical mergers.
- b. resale price maintenance.
- c. territorial restraints.
- d. exclusive dealing.

(6) Exclusive dealing arrangements, whereby a retailer agrees not to sell the products of a manufacturer's rivals, are generally

- a. illegal.
- b. legal.
- c. Cannot be determined from information given.

(7) Suppose Acme Printers makes computer printers and has some market power. Now Acme requires its customers to buy only its own brand of cartridges for those printers. If the explanation for this tying practice is price discrimination, then we would expect Acme's brand of cartridges to be priced

- a. below cost.
- b. at cost.
- c. above cost.
- d. cannot be determined from information given.

**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) [Motivations for vertical mergers: 12 pts] Check one answer to each question below.

a. Which structure can spread the risk of price fluctuations in intermediate goods?

- two separate firms.  single vertically-integrated firm.

b. Which structure can avoid the problem of "double marginalization"?

- two separate firms.  single vertically-integrated firm.

c. Which structure can better reduce inflexibility created by formal contracts?

- two separate firms.  single vertically-integrated firm.

d. Which structure creates greater incentives for each unit to minimize costs?

- two separate firms.  single vertically-integrated firm.

(2) [Tying; 21 pts] Suppose a monopoly cable TV service believes that representative households A, B, and C are willing to pay the following amounts for premium channels.

	Comedy channel	Sports channel	Nature channel
Household A	\$20	\$5	\$25
Household B	\$10	\$30	\$10
Household C	\$30	\$20	\$5

Suppose each channel were priced separately, and suppose the cable TV service wishes to maximize revenue.

a. What price should be charged for the comedy channel?

\$
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b. What price should be charged for the sports channel?

\$
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c. What price should be charged for the nature channel?

\$
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d. How much revenue would the cable TV service receive in total for all three channels and all three customers?

\$
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Suppose all three channels were bundled and priced as a single "premium package." Again assume the cable TV service wishes to maximize revenue.

e. What price should be charged for the package of three channels?

\$
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f. How much revenue would the cable TV service receive in total for all three customers?

\$
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g. Should the cable TV service sell the channels *separately* or as a *package*?

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(3) [Vertical integration for foreclosure with fixed proportions: 42 pts] Suppose an upstream monopoly firm produces a proprietary sauce that is used by a downstream industry to make pizzas. The upstream firm has constant marginal cost (equal to average cost) of  $MC_S = \$1$ . Each pizza requires exactly one unit of sauce and \$3 of other inputs in fixed proportion. Therefore the downstream industry has constant marginal cost (equal to average cost) of \$3 plus the price of sauce,  $P_S$ , which set by the upstream monopolist. The key assumptions are

Marginal and average cost of sauce:	$MC_S = AC_S = \$1.$
Marginal and average cost of pizzas:	$MC_P = AC_P = \$3 + P_S$
Demand for pizzas:	$P_P = 8 - (Q/500).$

- a. [3 pts] Find the equation for the marginal revenue curve for pizzas. [Hint: If demand is linear, marginal revenue has the same vertical intercept, but twice the slope, as the demand curve.]

$MR_P =$
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Now compare market outcomes under two scenarios: (i) upstream market is monopolized and downstream market is competitive, and (ii) upstream and downstream are served by a vertically-integrated monopoly.

- (i) First suppose the upstream market (sauce) is monopolized but the downstream market (pizzas) is perfectly competitive.

- b. [3 pts] Find the equation for the derived demand curve for sauce. [Hint: Since the market for pizzas is perfectly competitive, you may assume that  $MC_P = P_P$ .]

$P_S =$
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- c. [3 pts] Find the equation for the marginal revenue curve for sauce. [Hint: For linear demand curves, marginal revenue has the same vertical intercept, but twice the slope, as the demand curve.]

$MR_S =$
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Now compute the quantity of sauce (and thus pizzas) sold  $Q$ , the price of sauce  $P_S$ , the upstream sauce monopolist's profit, the price of pizzas  $P_P$ , and the downstream pizza firms' total profit. Insert your answers in column (i) in the **Table of Results** on the next page.

[Problem continues on next page.]

(ii) Second, assume the upstream and downstream industries are served by a vertically-integrated monopoly. The marginal cost of pizzas for the vertically-integrated monopoly is therefore  $MC = \$1 + \$3$ .

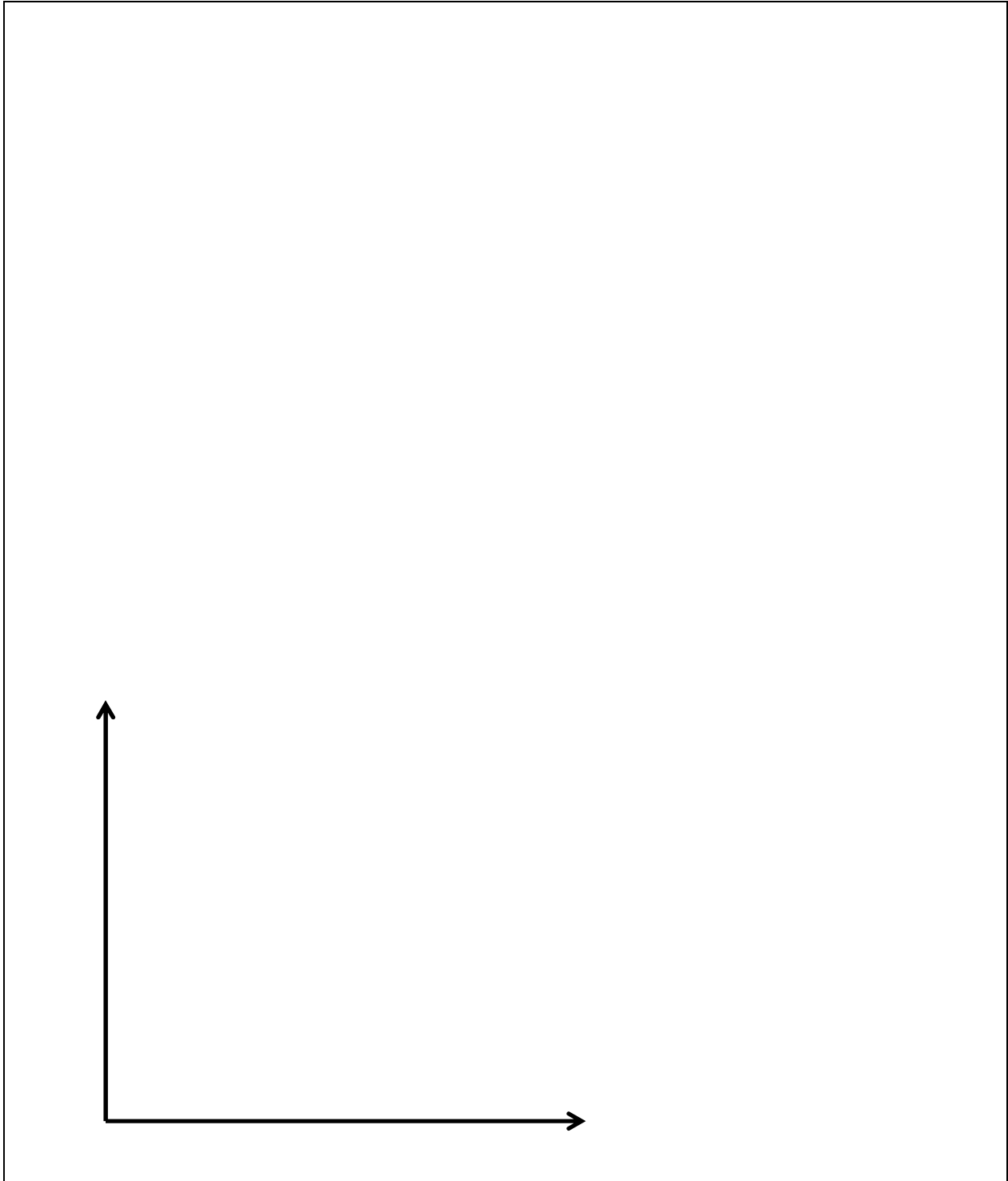
Now compute the quantity of pizzas, the price of pizzas  $P_p$ , and the integrated monopolist's profit. Insert your answers in column (ii) of the Table of Results below.

<b>Table of results</b> [27 pts]	<b>(i) Upstream market monopolized, downstream market competitive</b>	<b>(ii) Vertically integrated monopoly</b>
Q = quantity of sauce (and pizzas)		
$P_s$ = price of sauce	\$	
Profit of upstream firm	\$	
$P_p$ = price of pizzas	\$	\$
Total profit of downstream firms	\$	
Total upstream + downstream profits	\$	\$

(iii) Third, consider the policy implications.

d. [6 pts] Suppose initially that the upstream market (sauce) is monopolized and the downstream market (pizzas) is competitive. Then suppose the upstream firm proposed to merge with a downstream firm. Should the government try to block the merger? Why or why not?

**III. Critical thinking** [4 pts] Suppose a gasoline producer (like *Phillips* or *Shell*) merged with a gasoline distributor (like *Kum and Go* or *Casey's*). Assume both markets are competitive before and after the merger. Would the combined firms' profit likely increase or decrease? Why? Would social welfare increase or decrease? Why? Illustrate your answer with a supply-and-demand graph.



[end of quiz]