

1. Voda Reservoir is a profit-maximizing firm and the only producer of bottled water in a country. Currently, Voda Reservoir is earning negative economic profit.
- A. Draw a correctly labeled graph for Voda Reservoir and show each of the following.
- The profit-maximizing quantity, labeled Q_M
 - The profit-maximizing price, labeled P_M
 - The average total cost curve consistent with Voda Reservoir earning negative economic profit, labeled ATC
 - The area of deadweight loss, shaded completely
- B. Suppose the government requires Voda Reservoir to produce the socially optimal quantity of bottled water. On your graph in part A, show the socially optimal quantity of bottled water, labeled Q_S .
- C. Suppose instead the government grants a per-unit subsidy to Voda Reservoir. What will happen to Voda Reservoir's profit-maximizing quantity of bottled water? Explain.
- D. Suppose new producers have entered the bottled-water market and Voda Reservoir continues to operate in the bottled-water market. Will the demand for Voda Reservoir's bottled water become more elastic, become less elastic, or stay the same as new producers enter the market?
- E. Voda Reservoir hires workers in a perfectly competitive labor market.
- If the demand for bottled water increases, what will happen to Voda Reservoir's demand for labor? Explain.
 - The government implements a new regulation that increases the minimum age required for a worker to be employed in a bottled-water factory. What will happen to the market wage in the short run? Explain.

3. In the local market for Good X, there are four individual buyers: Emily, Wu, Omar, and Fernanda. The quantities that each individual buyer would be willing and able to purchase at different prices are included in the table provided.

Price	Quantity of Good X			
	Emily	Wu	Omar	Fernanda
\$1	5	4	4	3
\$2	4	3	4	3
\$3	4	3	3	2
\$4	3	2	3	2
\$5	3	2	2	1
\$6	2	1	2	1
\$7	2	1	1	0
\$8	1	0	1	0

- (a) The local market for Good X has a perfectly elastic supply. Draw a correctly labeled graph for the local market for Good X with a market equilibrium price of \$5. Label the equilibrium price as \$5, and label the equilibrium quantity for the market with a specific value based on the data provided in the table.
- (b) Assume the cost of production increases, which causes the price of Good X to increase from \$5 to \$7.
- Calculate the price elasticity of demand for Good X as the price increases from \$5 to \$7. Show your work.
 - Identify whether the demand for Good X is elastic, inelastic, or unit elastic in that range of prices.
- (c) Could Emily's marginal benefit for the second unit of Good X equal \$4.50 ? Explain.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

STOP

END OF EXAM

MICROECONOMICS**Section II****Total Time—60 minutes****Reading Period—10 minutes****Writing Period—50 minutes**

Directions: You are advised to spend the first 10 minutes reading all of the questions and planning your answers. You will then have 50 minutes to answer all three of the following questions. You may begin writing your responses before the reading period is over. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

1. Corn is used as food and as an input in the production of ethanol, an alternative fuel. Assume corn is produced in a perfectly competitive market.
 - (a) Draw correctly labeled side-by-side graphs for the corn market and a representative corn farmer. On your graphs show each of the following.
 - (i) The equilibrium price and quantity in the corn market, labeled P_M and Q_M , respectively
 - (ii) The profit-maximizing quantity of corn produced by the representative farmer earning zero economic profit, labeled Q_F
 - (b) Assume the demand for ethanol increases. On your graphs in part (a) show what will happen to each of the following in the short run.
 - (i) The market price and quantity of corn, labeled P^* and Q^*
 - (ii) The area of the profit or loss earned by the representative corn farmer, shaded completely
 - (c) Relative to your answer in part (b), state what will happen to the market equilibrium price and quantity of corn in the long run. Explain.
 - (d) Soybeans are produced in a perfectly competitive market. Assume farmers can grow either corn or soybeans on the same land. What happens to the price of soybeans in the next planting season if the price of corn increases? Explain.
 - (e) Assume instead that the government sets a binding price ceiling in the corn market. Draw a new correctly labeled graph for the corn market and show each of the following.
 - (i) The binding price ceiling, labeled P_c
 - (ii) The quantity purchased by consumers in the corn market, labeled Q_p