CollegeBoard
Advanced Placement Program

AP® Microeconomics
2005 Free-Response Questions

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MICROECONOMICS

Section II

Planning time—10 minutes

Writing time—50 minutes

Directions: You have fifty minutes to answer all three of the following questions. 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. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. 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. Bestmilk, a typical profit-maximizing dairy firm, is operating in a constant-cost, perfectly competitive industry that is in long-run equilibrium.

   (a) Draw correctly labeled side-by-side graphs for the dairy market and for Bestmilk and show each of the following.

      (i) Price and output for the industry

      (ii) Price and output for Bestmilk

   (b) Assume that milk is a normal good and that consumer income falls. Assume that Bestmilk continues to produce. On your graphs in part (a), show the effect of the decrease in income on each of the following in the short run.

      (i) Price and output for the industry

      (ii) Price and output for Bestmilk

      (iii) Area of loss or profit for Bestmilk

   (c) Following the decrease in consumer income, what must be true for Bestmilk to continue to produce in the short run?

   (d) Assume that the industry adjusts to a new long-run equilibrium. Compare the following between the initial and the new long-run equilibrium.

      (i) Price in the industry

      (ii) Output of a typical firm

      (iii) The number of firms in the dairy industry

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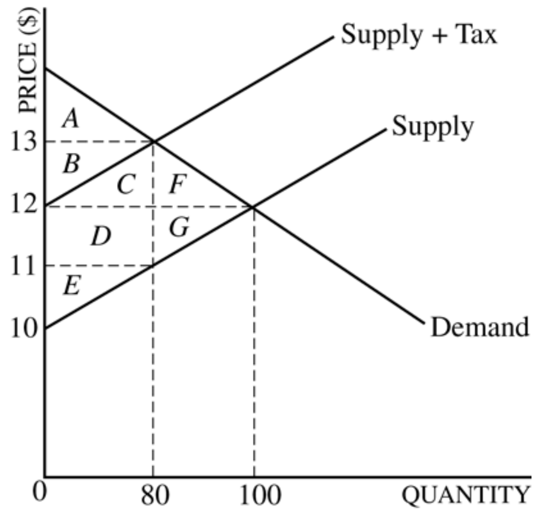

2. The graph above shows the market for a good that is subject to a per-unit tax. The letters in the graph represent the enclosed areas.

   (a) Using the labeling on the graph, identify each of the following.

      (i) The equilibrium price and quantity before the tax

      (ii) The area representing the consumer surplus before the tax

      (iii) The area representing the producer surplus before the tax

   (b) Assume that the tax is now imposed. Based on the graph, does the price paid by the buyers rise by the full amount of the tax? Explain.

   (c) Using the labeling on the graph, identify each of the following after the imposition of the tax.

      (i) The net price received by the sellers

      (ii) The amount of tax revenue

      (iii) The area representing the consumer surplus

      (iv) The area representing the deadweight loss

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3. P & L is a profit-maximizing shirt-manufacturing firm. The firm can sell all the shirts it can produce to retailers at a price of $20 each. P & L can hire all of the workers it wants at a market wage of $120 per day per worker. The table below shows the firm's short-run production function.

Number of Workers	Number of Shirts per Day
0	0
1	10
2	25
3	45
4	60
5	72
6	80
7	85
8	82

(a) In what kind of market structure does this firm sell its output? How can you tell?

(b) In what kind of market structure does this firm hire its workers? How can you tell?

(c) Calculate the marginal revenue product of the third worker. Show your work.

(d) How many workers should the firm hire to maximize profit? Explain.

END OF EXAM