AP® Microeconomics
2003 Free-Response Questions
Form B

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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.

1. Market structures differ from one another in many respects. Consider two profit-maximizing firms that earn short-run economic profits. One is a perfectly competitive firm and the other is a monopoly.

   (a) For each firm, draw a correctly labeled graph showing the following.

   (i) Price

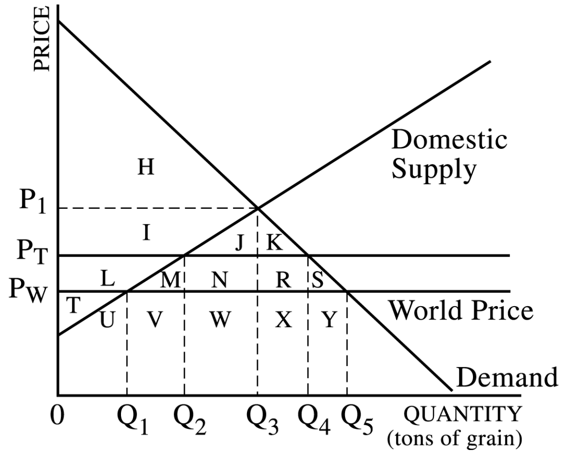
   (ii) Quantity of output

   (iii) Area of economic profits

   (b) For each firm, explain the relationship between price and marginal revenue.

   (c) For each firm, explain how the economic profits would most likely change in the long run.

   (d) Label the area that represents the deadweight loss on the graph for the monopoly firm drawn in (a). Explain what this deadweight loss represents.



2. The diagram above illustrates the domestic market for grain in Country X before and after international trade. The letters inside the diagram represent areas, not points.

   (a) Using the labeling of the graph, identify each of the following before any trade occurs.

      (i) Equilibrium price and quantity

      (ii) Area of consumer surplus

      (iii) Area of producer surplus

   (b) Using the labeling of the graph, identify the amount of grain that Country X will import if it engages in trade and the world price of grain is at P_W.

   (c) Now assume that Country X imposes a tariff that raises the price of grain from the free-trade case to P_T. Using the labeling of the graph, identify the change in each of the following.

      (i) Domestic production

      (ii) Domestic consumption

      (iii) Consumer surplus

      (iv) Producer surplus

3. Leadmill Company is a perfectly competitive pencil-manufacturing firm. Leadmill can sell all of the pencils it produces at a market price of $2 per dozen and can hire all the workers it needs at a wage rate of $8 per hour. The output of the workers at Leadmill is given in the table below.

Number of Workers	Output (dozens)
0	0
1	8
2	15
3	21
4	26
5	30
6	33
7	35
8	36

(a) Using marginal analysis, state the condition for employing the profit-maximizing number of workers.

(b) How many workers should Leadmill hire to maximize profit? Explain how you derived that number.

(c) If the wage rate decreased to $6 dollars per hour, how many workers would Leadmill employ?

(d) If the wage rate was $6 per hour and the price of pencils decreased to $1 per dozen, how many workers would Leadmill employ?

END OF EXAMINATION