

## 2000 AP® MICROECONOMICS FREE-RESPONSE QUESTIONS

2. Assume that a firm produces output using one fixed input, capital, and one variable input, labor. The firm can sell all of the output it produces at a market price of \$3 each, can hire all of the workers it wants at a market wage rate of \$11 each, and has fixed costs of \$10. It faces the following production schedule.

<u>Number of Employees</u>	<u>Total Output</u>
0	0
1	14
2	26
3	35
4	42
5	46
6	48

- (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 employees? How can you tell?
- (c) Using marginal revenue product analysis, how many employees should this firm hire to maximize short-run profits? How can you determine that?
- (d) Based on your answer in part (c), how many units of output will this firm produce?
- (e) At the level of output you identified in part (d), is the firm earning an economic profit, a normal profit, or suffering a loss? How can you tell?

3. Assume all of the following about imported and domestically produced shoes.

- They are sold in two separate and perfectly competitive markets.
- They are close substitutes.
- The demand for both is price elastic.

Now assume that a tariff is imposed on imported shoes.

- (a) Using a correctly labeled graph, show the impact of the tariff on each of the following in the market for imported shoes.
- (i) Price
  - (ii) Output
- (b) Using a new correctly labeled graph, show the impact of the tariff on each of the following in the market for domestically produced shoes.
- (i) Price
  - (ii) Output
- (c) Given that the demand for imported shoes is price elastic, will expenditures on imported shoes by consumers increase, decrease, or remain the same? How do you know?

**END OF EXAMINATION**

**Part (f)**

Q2 ( 1 point)

- If this answer is incorrect the student receives no credit *even if it is consistent with part e)*

**Part (g)**

A per-unit subsidy. Merely the word “subsidy” is sufficient. (1 point).

ii) An explanation that the subsidy either (1 point)

- 1) lowers MC, or
- 2) raises MR, or
- 3) shifts the demand curve out.

- **A statement that output increases is not sufficient.**

**Scoring Guideline for Microeconomics Question 2:****Question 2 [1+1+2+1+1 = 6 Points]****Part (a)**

(1 point) Perfect competition (or pure competition) since price of output is given to the firm

- “Because the firm is a price-taker” is also acceptable.

**Part (b)**

(1 point) Perfect competition since the wage rate is given to the firm (1 point)

- “Because the firm is a wage-taker” is also acceptable.

**Part (c)**

(2 points) 1 point for 5 workers; 1 point for the explanation

The  $MRP > w$  for 5 workers but not for 6.

- It is **not** sufficient to point out that the firm earns a profit (or its greatest profit) at 5 workers; some reference must be made to the fact that MRC (MFC, *MC of labor*, or wages) is closest to MRP and is still greater than MRP at that level of output.
- The student must use MRP in the answer; MR is not sufficient.

**Part (d)**

(1 point) for 46 units of output. The output level must be consistent with the units of labor selected in part c. In this case, a student who has the wrong number of labor in part c. may still earn the point here if the output level is consistent with that quantity of labor indicated by the student in part c.