

# **2018 AP® MICROECONOMICS FREE-RESPONSE QUESTIONS**

## **MICROECONOMICS**

### **Section II**

**Total Time—1 hour**

**Reading Period—10 minutes**

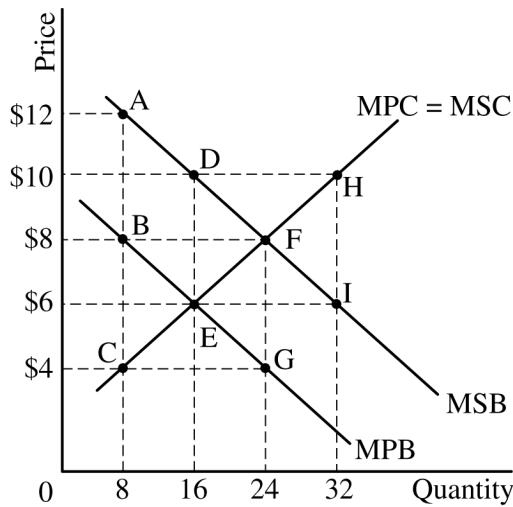
**Writing Period—50 minutes**

**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. In the early twentieth century, limited transportation options and the lack of effective substitutes gave Single Cinema monopoly power in a small town. Assume that Single Cinema is a profit-maximizing firm and currently operates at a negative economic profit in the short run.
  - (a) Draw a correctly labeled graph for Single Cinema, and show each of the following.
    - (i) The profit-maximizing price and quantity of tickets, labeled as  $P_m$  and  $Q_m$ , respectively
    - (ii) The area representing the negative economic profit, shaded completely
  - (b) Explain why Single Cinema continues to operate in the short run despite earning negative economic profit in the short run.
  - (c) Would Single Cinema's total revenue increase, decrease, or stay the same if it decides to sell one fewer ticket than  $Q_m$ ? Explain.
  - (d) Single Cinema hires workers in a perfectly competitive labor market with a downward-sloping demand curve. Suppose the number of workers available in the market decreases.
    - (i) What will happen to the wage rate? Explain.
    - (ii) What will happen to the marginal revenue product of the last worker hired? Explain.

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2. Modern-day word processing software gives consumers the ability to create and save documents in different file formats that can then be accessed by multiple computer operating systems. The graph below depicts a perfectly competitive market for word processing software. In the graph, MSB is the marginal social benefit, MPB is the marginal private benefit, MPC = MSC is the marginal private cost, and MPB is the marginal social cost.



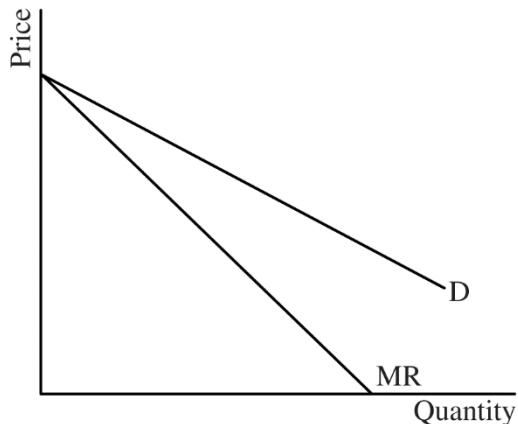
- (a) Identify the type of market failure illustrated by the graph. Explain.
- (b) Using the numbers on the graph, identify the market equilibrium price and quantity.
- (c) Using the labeling on the graph, identify the area representing the deadweight loss at the quantity identified in part (b).
- (d) Suppose the government is considering granting a subsidy to correct the market failure. What is the dollar value of the per-unit subsidy that would achieve the socially optimal quantity?
- (e) Suppose the government does not grant the subsidy and instead imposes a price floor at \$8.
  - (i) How many units will consumers and producers exchange at the price floor?
  - (ii) Does the price floor correct the market failure? Explain.

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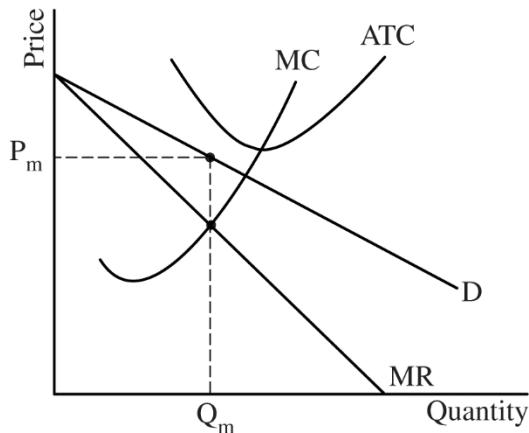
**Question 1**

**9 points (5 + 1 + 1 + 2)**

(a) 5 points:



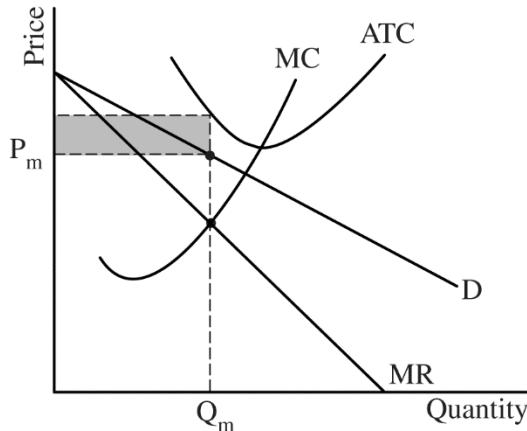
- One point is earned for drawing a correctly labeled graph for a monopoly showing a downward sloping demand (D) curve with the marginal revenue (MR) curve below the demand curve.



- One point is earned for showing the marginal cost (MC) curve rising and passing through the minimum of the average total cost (ATC) curve.
- One point is earned for showing the profit-maximizing quantity,  $Q_m$ , where  $MR = MC$ .
- One point is earned for showing the price,  $P_m$ , from the demand curve at  $Q_m$ .

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**Question 1 (continued)**



- One point is earned for completely shading the area representing negative economic profit and showing the ATC curve above the demand curve for all quantities.

(b) 1 point:

- One point is earned for stating that the price must be greater than average variable cost, OR total revenue must be greater than total variable cost, OR the firm's current economic loss is less than its fixed cost, which is equal to the firm's loss if it shuts down.

(c) 1 point:

- One point is earned for stating that total revenue will decrease and explaining with one of the following reasons.
  - The monopolist is operating on the elastic portion of the demand curve.
  - The quantity effect is greater than the price effect.
  - The percentage change in quantity demanded is greater than the percentage change in price.
  - MR is positive.

(d) 2 points:

- One point is earned for stating or graphically showing that the wage rate will increase because the market supply of labor decreases (shifts left).
- One point is earned for stating the marginal revenue product (MRP) of the last worker hired will increase and explaining with one of the following reasons.
  - The firm is hiring fewer workers now and therefore the marginal product of the last worker hired increases (diminishing marginal product).
  - The market wage (marginal factor cost or MFC) increased and the profit-maximizing firm will hire where  $MRP = MFC$ .
  - There is an upward movement along the firm's MRP curve as wage or MFC increases (shifts up).

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**Question 1 (continued)**

