

2018

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# AP Microeconomics

## Free-Response Questions

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# 2018 AP<sup>®</sup> MICROECONOMICS FREE-RESPONSE QUESTIONS

## MICROECONOMICS

### Section II

Total Time—1 hour

Reading Period—10 minutes

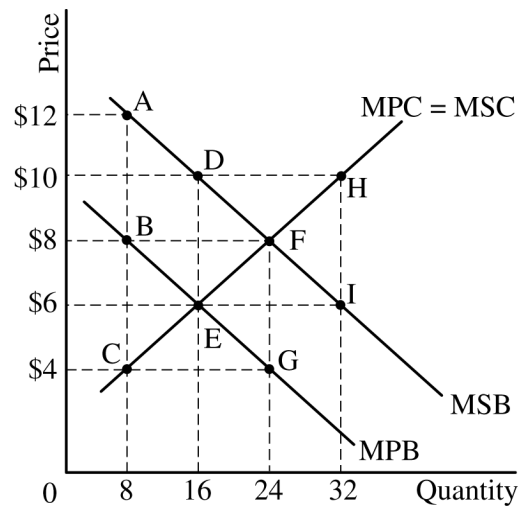
Writing Period—50 minutes

**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 is the marginal private cost, and MSC 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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3. Nirali is a student at the University of Ainsley. She has 5 hours to study for two exams today. The tables below show Nirali's expected scores given the amount of time she studies for each exam.

Number of Hours Spent Studying Microeconomics	Expected Score on Microeconomics Exam (100-point scale)
5	100
4	96
3	90
2	82
1	60
0	0

Number of Hours Spent Studying History	Expected Score on History Exam (100-point scale)
0	0
1	40
2	60
3	72
4	77
5	80

- (a) Nirali spends 3 hours studying microeconomics and 2 hours studying history. Calculate her gain from the second hour spent studying history.
- (b) Calculate Nirali's opportunity cost of the second hour spent studying history.
- (c) Assume Nirali increases the time she allocates to studying history. What happens to the opportunity cost of studying history? Explain.
- (d) Assume that Nirali has a goal of maximizing the sum of her test scores (the score on microeconomics plus the score on history). How many hours should she study for each exam?
- (e) Nirali learns that her tennis practice has been canceled, freeing up an additional hour for studying. Given your answer to part (d), will Nirali allocate the additional hour to studying microeconomics or to studying history to maximize the sum of her test scores? Explain using marginal analysis.

**STOP**

**END OF EXAM**