



AP[®] Microeconomics Practice Exam

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AP[®] Microeconomics Exam

SECTION I: Multiple Choice

2013

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

At a Glance

Total Time

1 hour, 10 minutes

Number of Questions

60

Percent of Total Score

66.67%

Writing Instrument

Pencil required

Instructions

Section I of this exam contains 60 multiple-choice questions. Fill in only the circles for numbers 1 through 60 on your answer sheet.

Indicate all of your answers to the multiple-choice questions on the answer sheet. No credit will be given for anything written in this exam booklet, but you may use the booklet for notes or scratch work. After you have decided which of the suggested answers is best, completely fill in the corresponding circle on the answer sheet. Give only one answer to each question. If you change an answer, be sure that the previous mark is erased completely. Here is a sample question and answer.

Sample Question Sample Answer

Chicago is a

(A) ☒ (B) ☐ (C) ☐ (D) ☐ (E) ☐

(A) state

(B) city

(C) country

(D) continent

(E) village

Use your time effectively, working as quickly as you can without losing accuracy. Do not spend too much time on any one question. Go on to other questions and come back to the ones you have not answered if you have time. It is not expected that everyone will know the answers to all of the multiple-choice questions.

Your total score on the multiple-choice section is based only on the number of questions answered correctly. Points are not deducted for incorrect answers or unanswered questions.

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Form I
Form Code 4JBP4-S

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DO NOT seal answer sheet inside

MICROECONOMICS

Section I

Time—70 minutes

60 Questions

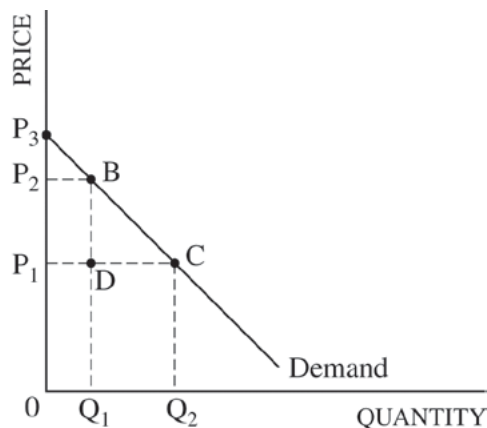
Directions: Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that is best in each case and then fill in the corresponding circle on the answer sheet.

1. After graduating from high school, Maria chose to go to college, while Omar chose to work full-time. Which of the following best describes the opportunity costs for these decisions?

(A) Maria's opportunity cost includes the salary she could have earned if she had gone to work.
(B) Maria's opportunity cost is her living expenses while attending college.
(C) Omar's opportunity cost is the salary he will earn from working.
(D) Omar's opportunity cost is the tuition and expenses he would have paid for college.
(E) Omar's opportunity cost is definitely greater than Maria's.

2. The basic economic problem of all economies is essentially one of deciding how to make the best use of

(A) unlimited resources to satisfy unlimited wants
(B) limited resources to satisfy unlimited wants
(C) unlimited resources to satisfy limited wants
(D) limited resources to satisfy limited wants
(E) limited resources to provide public goods



3. The diagram above shows the demand curve for a good. If the price increases from P_1 to P_2 , and quantity consumed decreases from Q_2 to Q_1 , consumer surplus decreases by the area

(A) BDC
(B) P_1P_2BC
(C) P_1P_2BD
(D) Q_1DCQ_2
(E) P_2P_3B

4. If the government imposes a tariff on imports of cheese, the price and quantity of imported cheese will most likely change in which of the following ways?

<u>Price</u>	<u>Quantity</u>
(A) Decrease	Decrease
(B) Decrease	Increase
(C) Increase	Not change
(D) Increase	Decrease
(E) Increase	Increase

5. According to the law of demand, an increase in the price of grape juice will result in
- (A) a rightward shift in the demand curve for grape juice
- (B) a leftward shift in the demand curve for grape juice
- (C) a decrease in the demand for orange juice, a substitute
- (D) a decrease in the quantity of grape juice demanded
- (E) an increase in the quantity of grape juice supplied

	Jill's Demand	All other consumers' Demand	Market Supply
Price	Quantity	Quantity	Quantity
\$8	140	5,200	5,750
\$7	150	5,400	5,550
\$6	160	5,600	5,350
\$5	170	5,800	5,150
\$4	180	6,000	4,950

6. The table above shows the demand schedules for Jill and for all other consumers, as well as the market supply schedule for the same good. The equilibrium price in this market is
- (A) \$8
- (B) \$7
- (C) \$6
- (D) \$5
- (E) \$4

7. Which of the following is true of the marginal cost curve?
- (A) It intersects the average variable cost curve and the average total cost curve at each curve's minimum point.
- (B) It intersects the average variable cost curve and the average fixed cost curve at each curve's minimum point.
- (C) It lies between the total cost curve and the total variable cost curve.
- (D) It increases initially, for a time, but begins to decline when the point of diminishing returns is reached.
- (E) It decreases, because average variable cost is less than marginal cost.
8. If the marginal cost of producing the first unit of some good is \$20 and the marginal cost of producing the second unit is \$30, the average variable cost of producing 2 units is
- (A) \$5
- (B) \$10
- (C) \$20
- (D) \$25
- (E) \$50
9. The use of game theory to explain strategic behavior among firms is most associated with which of the following market structures?
- (A) Perfect competition
- (B) Monopolistic competition
- (C) Oligopoly
- (D) Monopoly
- (E) Monopsony
10. All of the following are essential characteristics of a perfectly competitive industry EXCEPT:
- (A) All products produced by the firms in the industry are homogeneous.
- (B) All firms in the industry are price takers.
- (C) All consumers and firms are completely aware of the prices at which transactions take place in the industry.
- (D) There are barriers to entry into and exit from the industry.
- (E) Price is equal to marginal revenue for every firm in the industry.

11. The marginal revenue product of labor is the
- (A) product price times the wage rate
 - (B) additional revenue a firm earns when it employs an additional unit of labor
 - (C) increase in the average product of labor when the firm employs an additional unit of labor
 - (D) increase in the price of labor when the firm employs an additional unit of labor
 - (E) marginal revenue plus product price
12. For a competitive labor market, an increase in which of the following will lead to an increase in the demand for labor?
- (A) The supply of labor
 - (B) The minimum wage
 - (C) The cost of medical benefits provided to the labor hired by firms
 - (D) Labor union dues
 - (E) The demand for the good that labor produces
13. Which of the following indicates that a perfectly competitive firm is in long-run equilibrium?
- (A) Price equals marginal cost.
 - (B) Price equals average revenue.
 - (C) Price equals marginal cost, which equals average total cost.
 - (D) Price equals average revenue, which equals marginal revenue.
 - (E) Price equals average fixed cost.
14. Which of the following best represents a positive externality?
- (A) Purchasing a pass for an amusement park
 - (B) Dining at a favorite restaurant
 - (C) Being disturbed by neighboring construction noise
 - (D) Enjoying watching birds at a neighbor's bird feeder
 - (E) Dumping waste on someone else's property
15. Which of the following is a characteristic of a public good?
- (A) It is excludable.
 - (B) It is nonrival in consumption.
 - (C) It yields substantial spillover costs.
 - (D) The private sector would produce a larger than socially optimal quantity.
 - (E) Private-sector producers would realize too great a profit.
16. If a perfectly competitive firm is producing where marginal cost is rising and greater than marginal revenue, to maximize profits it should
- (A) increase the level of production
 - (B) decrease the level of production
 - (C) maintain current level of production
 - (D) increase price
 - (E) decrease price
17. If cotton is used to produce towels, an increase in the price of cotton will result in which of the following changes in the towel market?
- (A) A decrease in the demand for towels, which leads to a shortage of towels followed by upward pressure on the price of towels
 - (B) A decrease in the demand for towels, which leads to a surplus of towels followed by downward pressure on the price of towels
 - (C) A decrease in the supply of towels, which leads to a shortage of towels followed by upward pressure on the price of towels
 - (D) An increase in the supply of towels, which leads to a surplus of towels followed by downward pressure on the price of towels
 - (E) An increase in both the demand and supply of towels, which leads to a surplus of towels followed by upward pressure on the price of towels

18. Assume that an economy produces televisions and shoes. Which of the following would cause the production possibilities curve for this economy to shift outward?

- (A) An increase in the labor force
- (B) An increase in the prices of both goods
- (C) An increase in the prices of resources used to produce both goods
- (D) A decrease in the demand for shoes
- (E) A change in consumers' tastes in favor of televisions

Goods	Price	Quantity Purchased (units)	Marginal Utility (utils)
Soda	\$1	10	10
Apples	\$2	5	25

19. Jane spends all her weekly allowance to buy only two goods: soda and apples. According to the table above, if her preferences are characterized by the law of diminishing marginal utility, then which of the following statements is correct?

- (A) Jane is maximizing her utility.
- (B) Jane can buy more apples and less soda to maximize her utility.
- (C) Jane can buy more soda and fewer apples to maximize her utility.
- (D) Jane can buy more apples and the same amount of soda to maximize her utility.
- (E) Jane can buy more soda and the same amount of apples to maximize her utility.

20. If a firm is experiencing economies of scale, which of the following will decrease as output increases?

- (A) Fixed cost
- (B) Long-run total cost
- (C) Long-run average total cost
- (D) Marginal cost
- (E) Marginal revenue

21. The table below shows a production function for a firm.

Units of Variable Input	Total Product
1	10
2	22
3	40
4	60
5	68
6	74
7	76
8	68
9	50
10	20

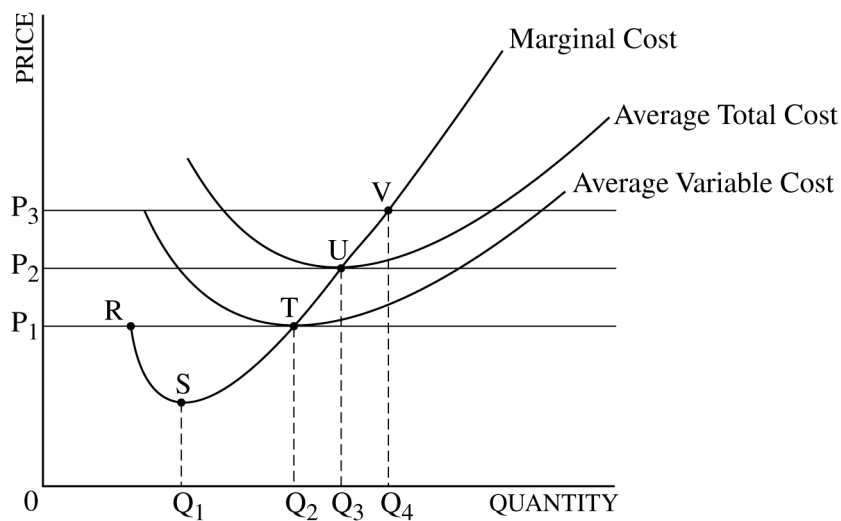
All of the following can be concluded from the information in the table EXCEPT:

- (A) Diminishing marginal returns set in after the fourth unit of the variable input.
- (B) Marginal product is positive if total product is increasing.
- (C) This is a production function for a perfectly competitive firm.
- (D) A profit-maximizing firm would never voluntarily employ the eighth unit of the variable input.
- (E) Total product starts to decrease when marginal product changes from positive to negative.

22. The cross-price elasticity of demand between good X and good Z measures the percentage change in the quantity demanded of good X in response to a percentage change in

- (A) the price of good X
- (B) income
- (C) the price of good Z
- (D) the supply of good Z
- (E) total expenditures on good Z

Question 23 is based on the graph below, which shows the cost curves for a perfectly competitive firm.



23. Which of the following segments of the marginal cost curve lies entirely on the firm's short-run supply curve?

- (A) TUV
- (B) STU
- (C) RSTU
- (D) RSTUV
- (E) RS

24. Assuming a downward-sloping demand curve and an upward-sloping supply curve, which of the following will occur as a result of an increase in the sales tax on a good?
- (A) Supply will increase.
 - (B) Demand will increase.
 - (C) Quantity supplied will increase.
 - (D) Quantity demanded will decrease.
 - (E) The price paid by consumers will decrease.
25. Assume that, for a perfectly competitive firm, marginal cost equals average variable cost at \$10, marginal cost equals average total cost at \$15, and marginal revenue equals marginal cost at \$12. On the basis of this information, the firm should
- (A) close down in the short run
 - (B) operate in the short run, even though it will sustain a loss
 - (C) operate in the short run, because it will make an economic profit of \$3 per unit
 - (D) operate in the long run, because it will make an economic profit of \$3 per unit
 - (E) operate in the short run, but decrease output to decrease its cost
26. Which of the following is true for a monopolistically competitive firm in long-run equilibrium?
- (A) It earns a normal profit.
 - (B) It sets price equal to marginal cost.
 - (C) It is allocatively efficient.
 - (D) It is a price taker.
 - (E) It produces at minimum average total cost.
27. A monopolist introduces a technological innovation that lowers the marginal cost and average cost of production. The price of the good and the level of output are most likely to change in which of the following ways?

<u>Price</u>	<u>Level of Output</u>
(A) Remain constant	Remain constant
(B) Remain constant	Increase
(C) Increase	Decrease
(D) Decrease	Increase
(E) Decrease	Remain constant

28. Marginal resource (factor) cost can be defined as
- (A) the change in total resource cost caused by the production of one more unit of output
 - (B) the change in total revenue caused by the addition of one more unit of a resource
 - (C) the change in total resource cost caused by the addition of one more unit of a resource
 - (D) the total resource cost divided by the number of inputs used
 - (E) total resource cost divided by output
29. If the government imposes a per-unit tax on the output of a monopoly with a downward-sloping demand curve, the burden of the tax will be
- (A) borne entirely by consumers
 - (B) borne entirely by the monopolist
 - (C) borne entirely by the government
 - (D) shared by the monopolist and the government
 - (E) shared by consumers and the monopolist
30. Which of the following is true when there are negative externalities associated with the production of a good?
- (A) The market will adjust automatically to equate marginal social costs and marginal social benefits.
 - (B) Marginal social costs will exceed marginal private costs unless businesses are forced to internalize the external costs.
 - (C) Marginal private costs will exceed marginal social costs, but the government can correct the problem.
 - (D) Producers should be subsidized so that they will produce more of the good.
 - (E) Consumers should be subsidized so that they will consume more of the good.

	Brazil	Spain
Corn	2 hours of labor	4 hours of labor
Shoes	8 hours of labor	12 hours of labor

31. The table above shows the amount of labor required to produce a unit of corn and a unit of shoes in Brazil and Spain. If both countries have equal numbers of workers, what pattern of international trade between Brazil and Spain is most likely to emerge?

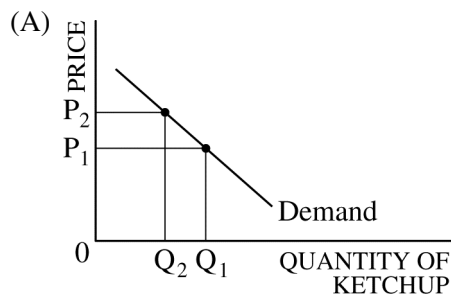
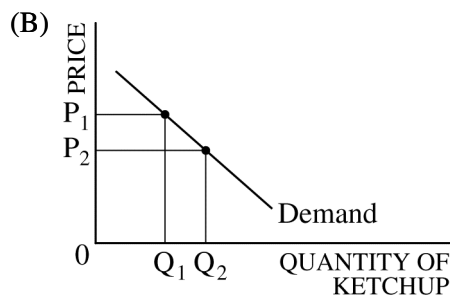
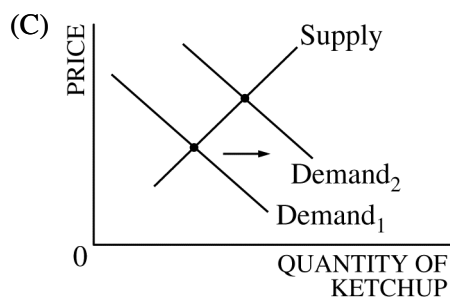
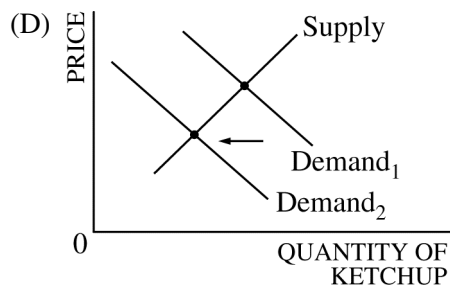
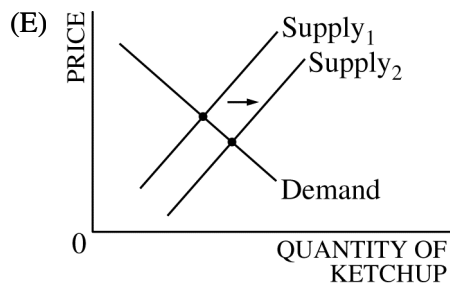
(A) Brazil will export both corn and shoes.
 (B) Spain will export both corn and shoes.
 (C) No mutually beneficial trade can occur.
 (D) Brazil will export corn and import shoes.
 (E) Brazil will import corn and export shoes.

32. Which of the following changes in the demand for and the supply of a good would necessarily lead to a decrease in the equilibrium quantity of the good in the market in the short run?

Demand Supply

(A) Increase Decrease
 (B) Increase No change
 (C) Decrease Increase
 (D) Decrease Decrease
 (E) No change Increase

33. Assume that mustard and ketchup are considered substitutes by consumers. If the price of mustard increases, which of the following graphs represents the most likely response in the ketchup market?



34. Which of the following is a result of increasing returns to scale?

- (A) Upward-sloping short-run marginal cost curve
- (B) Downward-sloping marginal physical product of labor curve
- (C) Downward-sloping long-run average total cost curve
- (D) Diseconomies of scale
- (E) Diminishing returns

35. Moving from left to right along a downward-sloping linear demand curve, price elasticity varies in which of the following ways?

- (A) First unit elastic, then inelastic throughout
- (B) First unit elastic, then elastic throughout
- (C) First inelastic, then unit elastic throughout
- (D) First elastic, then unit elastic, and finally inelastic
- (E) First inelastic, then unit elastic, and finally elastic

36. At its current employment level of labor and capital, a firm observes the following.

- Marginal product of labor = 30 units
- Marginal product of capital = 60 units
- Price of labor = \$3 per unit
- Price of capital = \$15 per unit

Which of the following actions should the firm take in order to achieve the least-cost combination of labor and capital and produce the same level of output?

<u>Labor</u>	<u>Capital</u>
(A) Increase	Increase
(B) Increase	Decrease
(C) Decrease	Increase
(D) Decrease	Decrease
(E) No change	No change

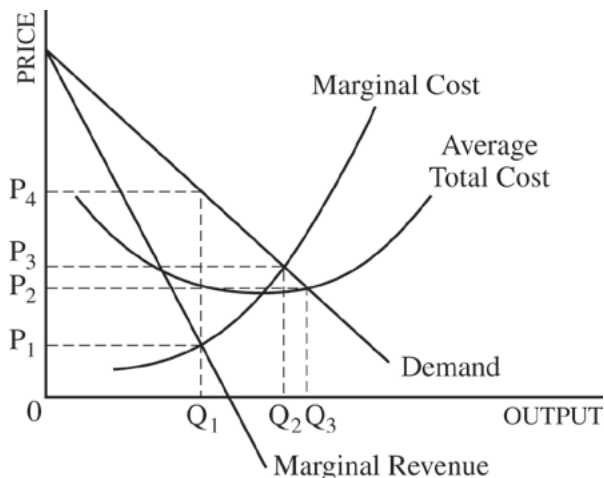
Question 37 is based on the information below.

The table below shows the profits associated with the strategies of two oligopolistic firms, Lock and Star, that must choose between a high price and a low price for their products. The first entry in each box is the profits received by Lock, and the second entry is the profits received by Star.

		Star	
		High Price	Low Price
Lock	High Price	\$70 \$70	-\$20 \$50
	Low Price	\$50 -\$20	\$40 \$40

37. If Lock chooses to charge the low price, the best course of action for Star would be to charge the
- (A) low price and earn a profit of \$40
 - (B) low price and earn a profit of \$50
 - (C) high price and earn a profit of \$50
 - (D) high price and earn a profit of \$70
 - (E) high price and incur a loss of \$20

38. One difference between a firm in a perfectly competitive market and an unregulated monopoly is that the
- (A) perfectly competitive firm can increase the quantity it sells at the market price, whereas the monopoly must lower its price to sell more
 - (B) perfectly competitive firm sells differentiated products, whereas the monopoly sells a homogeneous product
 - (C) price elasticity of demand for a monopoly is much higher than that for a perfectly competitive firm
 - (D) monopolist seeks to maximize profits, whereas the perfectly competitive firm maximizes revenues
 - (E) monopolist can never change a price, whereas the perfect competitor can
39. Assume that olive oil is produced in a constant-cost, perfectly competitive industry, which is currently in long-run equilibrium. If the current price of olive oil is \$5 per quart and the demand for olive oil increases, then the price of olive oil will change in which of the following ways in the short run and long run?
- | | <u>Short Run</u> | <u>Long Run</u> |
|-----|------------------|------------------|
| (A) | Be more than \$5 | Be more than \$5 |
| (B) | Be more than \$5 | Be equal to \$5 |
| (C) | Be equal to \$5 | Be equal to \$5 |
| (D) | Be less than \$5 | Be less than \$5 |
| (E) | Be less than \$5 | Be equal to \$5 |
40. Which of the following is always true of a monopoly that is producing a level of output such that marginal revenue is negative?
- (A) It is experiencing economies of scale in production.
 - (B) It is maximizing total revenue.
 - (C) It is producing where demand is price elastic.
 - (D) It could lower price to increase profits.
 - (E) It could decrease output to increase profits.
41. A cartel is difficult to maintain for which of the following reasons?
- (A) Consumers substitute away from the good when the price increases.
 - (B) Individual cartel members are tempted to cheat on the agreement.
 - (C) Although the total gain to cartel members is positive, all members lose when everyone sticks to the agreement.
 - (D) Some firms will reduce output in an effort to lower costs of production.
 - (E) Oligopolistic behavior is generally predictable.
42. Economists argue that most professional athletes earn economic rent because they
- (A) make additional income through commercial endorsements of products
 - (B) are able to participate in sports for only a limited number of years before changing occupations
 - (C) earn far more as professional athletes than they could earn in their next-best occupation
 - (D) participate in sporting events only about six months during a year
 - (E) work less than 40 hours a week during the sport season



43. For the firm shown in the graph above, which combination of output and price will maximize its profit?

	<u>Output</u>	<u>Price</u>
(A)	Q_1	P_4
(B)	Q_1	P_1
(C)	Q_2	P_3
(D)	Q_2	P_2
(E)	Q_3	P_2

44. A monopolist is inefficient from society's point of view because

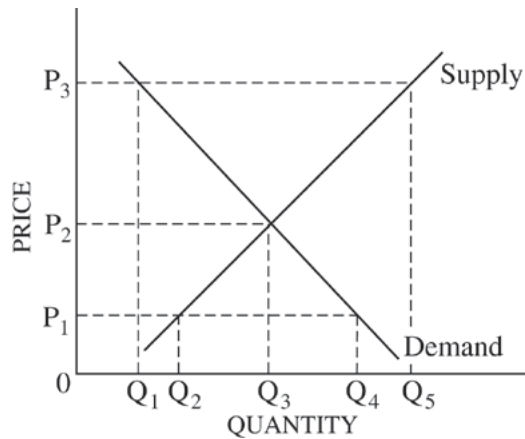
- (A) it overproduces output and charges a price above marginal cost
- (B) it underproduces output and charges a price above marginal cost
- (C) it sometimes colludes with other firms to obtain higher prices
- (D) the price the monopolist charges is too low and it does not advertise
- (E) consumers must pay whatever price the monopolist charges

45. Suppose that at the current output level the marginal social cost of producing a good is greater than its marginal private cost, and that the marginal social benefit associated with production of the good is equal to its marginal private benefit. Which of the following government actions would most likely increase efficiency?

- (A) Taxing the production of the good
- (B) Taxing the production of substitute goods
- (C) Giving tax rebates to people who purchase the good
- (D) Subsidizing production of complementary goods
- (E) Subsidizing consumption of the good

46. Suppose that in one week Sam can knit 5 sweaters or make 4 blankets and Rob can knit 10 sweaters or make 6 blankets. Which of the following is true?

- (A) Sam has an absolute advantage in making blankets.
- (B) Sam has an absolute advantage in knitting sweaters.
- (C) Sam has a comparative advantage in making blankets.
- (D) Sam has a comparative advantage in knitting sweaters.
- (E) Sam has neither a comparative nor an absolute advantage in knitting sweaters or making blankets.



47. If the market depicted in the diagram above is initially in equilibrium, which of the following will result from the government's setting a price ceiling at P_3 ?
- (A) Quantity demanded will exceed quantity supplied.
 - (B) Quantity supplied will exceed quantity demanded.
 - (C) Market price will increase.
 - (D) Market price will be unaffected.
 - (E) Market price will decrease.
48. An increase in the supply of coffee could be caused by
- (A) a decrease in the price of cream, which is a complement to coffee
 - (B) a decrease in the cost of labor used to produce coffee
 - (C) an increase in consumer income
 - (D) an increase in the demand for coffee
 - (E) an increase in the price of coffee
49. Which of the following explains why a decrease in the price of a normal good will lead to an increase in the quantity demanded of the good?
- (A) A lower price will increase consumers' purchasing power.
 - (B) A lower price will increase consumers' marginal utility.
 - (C) A lower price will increase demand for the good.
 - (D) A lower price will increase demand for substitute goods.
 - (E) A lower price will decrease demand for complementary goods.
50. If SteveR Incorporated is a monopolistic producer of diamonds, the firm's demand curve is downward sloping because
- (A) the number of diamonds SteveR Incorporated offers for sale affects the price of diamonds
 - (B) marginal revenue is negative throughout the range of the demand curve
 - (C) marginal revenue is positive throughout the range of the demand curve
 - (D) the diamond industry consists of a few firms selling similar diamonds
 - (E) the demand for diamonds is inelastic

51. Over the past 5 years, 50 new restaurants have opened and 30 have closed in the city of Zuni. Currently there are 110 restaurants operating in the city. Which of the following best represents the market structure, barriers to entry, and economic profits in the long run?

	<u>Market Structure</u>	<u>Barriers to Entry</u>	<u>Long-Run Economic Profits</u>
(A)	Perfect competition	Low	Negative
(B)	Perfect competition	High	Positive
(C)	Monopolistic competition	Low	Zero
(D)	Monopolistic competition	High	Positive
(E)	Monopolistic competition	High	Zero

52. For a perfectly competitive, increasing-cost industry, an increase in the industry's demand will lead to which of the following in the long run?

- (A) An upward shift in each firm's long-run average cost curve
- (B) An increase in each firm's profit
- (C) A decrease in the price of an input and a decrease in total industry profits
- (D) A decrease in total industry sales
- (E) A decrease in total producer surplus and an increase in total consumer surplus

53. If a good is available free of charge, an individual will consume it until

- (A) marginal utility is zero
- (B) average utility is zero
- (C) total utility is zero
- (D) marginal utility equals average utility
- (E) marginal utility equals total utility

54. If a competitive firm pays its workers the value of the marginal product of the last worker hired, which of the following is true?

- (A) The firm will not earn any economic profits.
- (B) Workers will look for employment elsewhere.
- (C) The wage will be less than the marginal product.
- (D) The firm will not maximize profits.
- (E) The contribution of the last worker hired to the firm's profit will be zero.

55. Which of the following is necessary for a firm to practice price discrimination?

- (A) The government strictly enforces antitrust laws.
- (B) The firm is a member of a cartel.
- (C) The firm can prevent resale of its goods.
- (D) The demand curve for the product is perfectly inelastic.
- (E) The demand curve for the product is perfectly elastic.

56. A monopolistically competitive firm's demand curve will be highly elastic if which of the following exists?

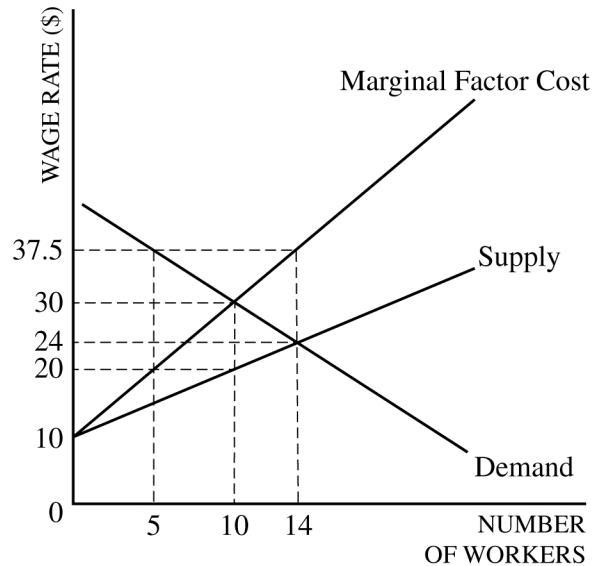
- (A) A high degree of product differentiation
- (B) A highly elastic supply curve for the firm
- (C) High barriers to entry in this industry
- (D) A high degree of product substitutability
- (E) A small number of competitors

57. Country A has a Gini coefficient of 0.5, and Country B has a Gini coefficient of 0.3. Which of the following statements is definitely true?

- (A) Country A has higher average income than Country B.
- (B) Country B has higher average income than Country A.
- (C) Income is more evenly distributed in Country A than in Country B.
- (D) Income is more evenly distributed in Country B than in Country A.
- (E) Country A has more deadweight loss than Country B.

58. If labor is the only variable input of a firm and the marginal product of labor is falling, the firm will always produce

- (A) more than the profit-maximizing level of output
- (B) less than the profit-maximizing level of output
- (C) at a level of output where average total cost is at a minimum
- (D) at a level of output where marginal costs are rising
- (E) at a level of output where average variable costs are falling



59. The graph above shows the conditions that a monopsonist faces in a labor market. How many workers would this monopsonist hire and what wage rate would it pay?

	<u>Number of Workers</u>	<u>Wage Rate</u>
(A)	5	\$37.50
(B)	10	30
(C)	10	20
(D)	14	24
(E)	14	37.50

60. Public goods are underproduced in a competitive market because the free-rider problem causes which of the following?

- (A) Fixed supply
- (B) Effective price ceilings
- (C) Reduced market demand
- (D) Negative externalities
- (E) Increased imports

END OF SECTION I

**IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY
CHECK YOUR WORK ON THIS SECTION.**

DO NOT GO ON TO SECTION II UNTIL YOU ARE TOLD TO DO SO.

MAKE SURE YOU HAVE DONE THE FOLLOWING.

- **PLACED YOUR AP NUMBER LABEL ON YOUR ANSWER SHEET**
- **WRITTEN AND GRIDDED YOUR AP NUMBER CORRECTLY ON YOUR ANSWER SHEET**
- **TAKEN THE AP EXAM LABEL FROM THE FRONT OF THIS BOOKLET AND PLACED IT ON YOUR ANSWER SHEET**

MICROECONOMICS

Section II

Planning time—10 minutes

Writing time—50 minutes

Directions: You have 10 minutes to read all of the questions in this booklet, to sketch graphs, to make notes, and to plan your answers. You will then have 50 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.

Question 1 begins on page 4.

Question 2 begins on page 10.

Question 3 begins on page 14.

THIS PAGE MAY BE USED FOR TAKING NOTES AND PLANNING YOUR ANSWERS.

NOTES WRITTEN ON THIS PAGE WILL NOT BE SCORED.

WRITE ALL YOUR RESPONSES ON THE LINED PAGES.

GO ON TO THE NEXT PAGE.

1. Rice is produced in a perfectly competitive industry. Grand Farm is a typical firm in the rice industry earning a positive economic profit.
- (a) Using correctly labeled side-by-side graphs for the rice industry and Grand Farm, show each of the following in the short run.
- (i) The industry price and quantity, labeled P_M and Q_M
 - (ii) Grand Farm's demand curve and marginal revenue curve, labeled D_F and MR_F
 - (iii) Grand Farm's quantity of output, labeled Q_F
 - (iv) Grand Farm's profit, shaded completely
- (b) In the long run, what happens to each of the following?
- (i) The number of firms in the industry. Explain.
 - (ii) The equilibrium price; does it increase, decrease, or remain the same relative to P_M ?
- (c) Suppose Lori's Quick Eats sells fried rice in a monopolistically competitive fast-food industry. Lori's Quick Eats is earning positive economic profits in the short run. Using a correctly labeled graph for this monopolistically competitive firm, show each of the following in the short run.
- (i) The demand and marginal revenue curves, labeled D_L and MR_L
 - (ii) The marginal cost and average total cost curves, labeled MC and ATC
 - (iii) The profit-maximizing price and quantity, labeled P_L and Q_L
- (d) Draw a correctly labeled graph for Lori's Quick Eats in long-run equilibrium showing the demand curve and the long-run average total cost curve.

THIS PAGE MAY BE USED FOR TAKING NOTES AND PLANNING YOUR ANSWERS.

NOTES WRITTEN ON THIS PAGE WILL NOT BE SCORED.

WRITE ALL YOUR RESPONSES ON THE LINED PAGES.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Question 1 is reprinted for your convenience.

1. Rice is produced in a perfectly competitive industry. Grand Farm is a typical firm in the rice industry earning a positive economic profit.
 - (a) Using correctly labeled side-by-side graphs for the rice industry and Grand Farm, show each of the following in the short run.
 - (i) The industry price and quantity, labeled P_M and Q_M
 - (ii) Grand Farm's demand curve and marginal revenue curve, labeled D_F and MR_F
 - (iii) Grand Farm's quantity of output, labeled Q_F
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 - (b) In the long run, what happens to each of the following?
 - (i) The number of firms in the industry. Explain.
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 - (i) The demand and marginal revenue curves, labeled D_L and MR_L
 - (ii) The marginal cost and average total cost curves, labeled MC and ATC
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WRITE ALL YOUR RESPONSES ON THE LINED PAGES.

[illegible]

[illegible]

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2. Attaburger and Beefsteak are the only two fast-food hamburger restaurants in a small town. Each firm can choose to set a high price or a low price for a hamburger meal. The payoff matrix below shows the daily profits for any combination of strategies the two restaurants can choose. The payoff for Attaburger is listed first; the payoff for Beefsteak is listed second. Assume both restaurants have complete information.

		Beefsteak	
		High Price	Low Price
Attaburger	High Price	\$10, \$13	\$6, \$14
	Low Price	\$12, \$8	\$9, \$7

- If Attaburger selects a high price, what strategy will Beefsteak select? Explain using the dollar values in the payoff matrix.
- Does Beefsteak have a dominant strategy? Explain using the dollar values in the payoff matrix.
- Assume that Attaburger and Beefsteak collude, both agreeing to choose high prices in order to maximize their joint profit at \$23. If such an agreement is not legally enforceable, does Attaburger have an incentive to break the agreement? Explain using specific values.
- Instead of colluding, the firms simultaneously select their prices. In the Nash equilibrium, what are the daily profits for each of the following?
 - Attaburger
 - Beefsteak

THIS PAGE MAY BE USED FOR TAKING NOTES AND PLANNING YOUR ANSWERS.

NOTES WRITTEN ON THIS PAGE WILL NOT BE SCORED.

WRITE ALL YOUR RESPONSES ON THE LINED PAGES.

[illegible]

[illegible]

[illegible]

3. Umbrellas are produced by a perfectly competitive, constant-cost industry. In the short run, the equilibrium price is \$7 per umbrella and the typical firm is operating with a loss. The typical firm has the total cost function shown in the table below.

Daily Output	Total Cost per Day
0	\$10
1	\$13
2	\$18
3	\$24
4	\$32
5	\$45
6	\$60

- (a) Using a correctly labeled graph, draw the demand curve for a typical firm in this industry.
- (b) Using the data above, determine each of the following for the typical firm.
- (i) Total fixed cost
 - (ii) The loss-minimizing level of output
 - (iii) The value of losses at the output level you found in part (b)(ii)
- (c) Explain why the typical firm chooses to operate despite incurring a loss in the short run.
- (d) If the total cost per day remains unchanged in the long run, what is the long-run equilibrium price for umbrellas?

THIS PAGE MAY BE USED FOR TAKING NOTES AND PLANNING YOUR ANSWERS.

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WRITE ALL YOUR RESPONSES ON THE LINED PAGES.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[illegible]

[illegible]

STOP

END OF EXAM

THE FOLLOWING INSTRUCTIONS APPLY TO THE COVERS OF THE SECTION II BOOKLET.

- **MAKE SURE YOU HAVE COMPLETED THE IDENTIFICATION INFORMATION AS REQUESTED ON THE FRONT AND BACK COVERS OF THE SECTION II BOOKLET.**
- **CHECK TO SEE THAT YOUR AP NUMBER LABEL APPEARS IN THE BOX(ES) ON THE COVER(S).**
- **MAKE SURE YOU HAVE USED THE SAME SET OF AP NUMBER LABELS ON ALL AP EXAMS YOU HAVE TAKEN THIS YEAR.**

AP Microeconomics

2013

APPENDIX - ANSWERS

Matching multiple-choice answers and free-response scoring follow.

**Answer Key for AP Microeconomics
Practice Exam, Section I**

Question 1: A	Question 31: D
Question 2: B	Question 32: D
Question 3: B	Question 33: C
Question 4: D	Question 34: C
Question 5: D	Question 35: D
Question 6: B	Question 36: B
Question 7: A	Question 37: A
Question 8: D	Question 38: A
Question 9: C	Question 39: B
Question 10: D	Question 40: E
Question 11: B	Question 41: B
Question 12: E	Question 42: C
Question 13: C	Question 43: A
Question 14: D	Question 44: B
Question 15: B	Question 45: A
Question 16: B	Question 46: C
Question 17: C	Question 47: D
Question 18: A	Question 48: B
Question 19: B	Question 49: A
Question 20: C	Question 50: A
Question 21: C	Question 51: C
Question 22: C	Question 52: A
Question 23: A	Question 53: A
Question 24: D	Question 54: E
Question 25: B	Question 55: C
Question 26: A	Question 56: D
Question 27: D	Question 57: D
Question 28: C	Question 58: D
Question 29: E	Question 59: C
Question 30: B	Question 60: C

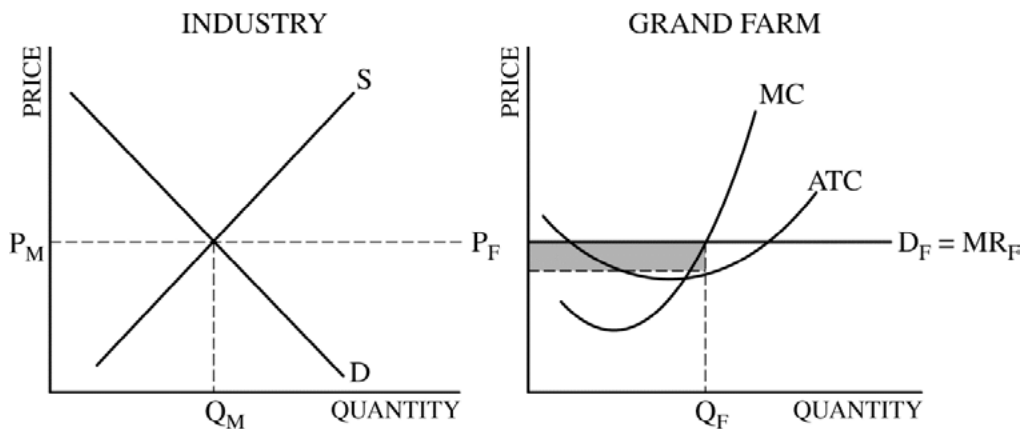
Free-Response Scoring Guidelines

The following contains the scoring guidelines
for the free-response questions in this exam.

**AP[®] MICROECONOMICS
2013 SCORING GUIDELINES**

Question 1

11 points (4+2+4+1)



(a) 4 points:

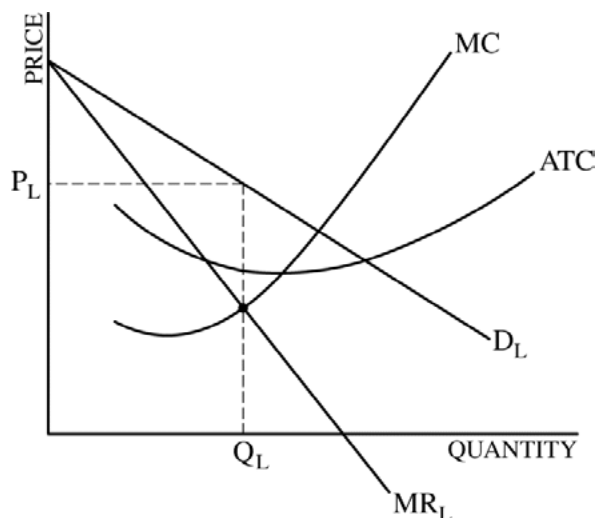
- One point is earned for a correctly labeled graph of the market with a downward-sloping demand curve and upward sloping supply curve with the equilibrium identified as Q_M and P_M .
- One point is earned for showing a horizontal D and MR curve for the firm labeled D_F and MR_F
- One point is earned for showing the profit-maximizing quantity, Q_F at $MC=MR$
- One point is earned for showing the area representing economic profit, shaded

(b) 2 points:

- One point is earned for stating that the number of firms will increase and for explaining that new firms will enter the market.
- One point is earned for stating that the equilibrium price decreases or is lower than P_M .

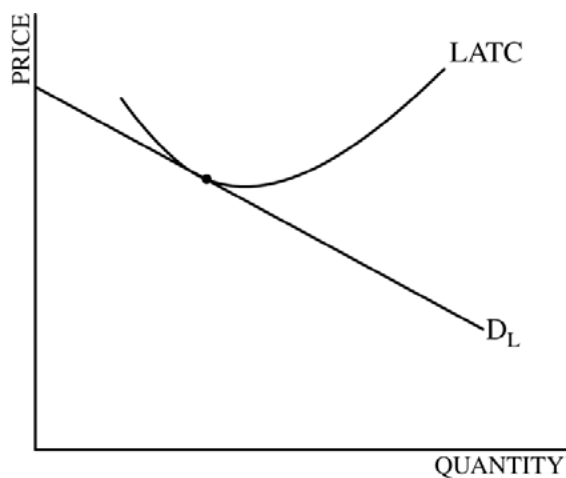
**AP[®] MICROECONOMICS
2013 SCORING GUIDELINES**

Question 1 (continued)



(c) 4 points:

- One point is earned for drawing a correctly labeled graph with a downward sloping demand curve, D_L with the marginal revenue curve MR_L below it.
- One point is earned for drawing the average total cost curve, ATC , with the upward sloping marginal cost curve, MC passing through the lowest point of the ATC curve.
- One point is earned for identifying the profit maximizing quantity, Q_L at $MC=MR$.
- One point is earned for identifying the price, P_L on the demand curve at Q_L and above ATC .



(d) 1 point:

- One point is earned for a correctly labeled graph showing a long-run average total cost curve tangent to a downward-sloping demand curve.

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2013 SCORING GUIDELINES

Question 2

4 points (1+1+1+1)

(a) 1 point:

- One point is earned for stating that charging a low price is better for Beefsteak because it makes greater profit: $\$14 > \13 .

(b) 1 point:

- One point is earned for stating that Beefsteak does not have a dominant strategy. If Attaburger selects high, Beefsteak does better by selecting low ($\$14 > \13), and if Attaburger selects low, Beefsteak does better by selecting high ($\$8 > \7).

(c) 1 point:

- One point is earned for stating that Attaburger has an incentive to break the agreement, since it can earn higher profit ($\$12$) by charging a lower price.

(d) 1 point:

- One point is earned for stating that Attaburger earns $\$12$, and Beefsteak earns $\$8$.

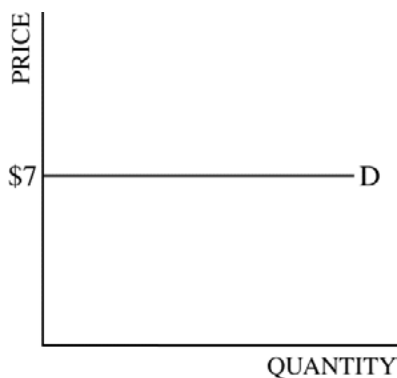
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2013 SCORING GUIDELINES

Question 3

6 points (1+3+1+1)

(a) 1 point:

- One point is earned for a correctly labeled graph showing a horizontal demand curve, D, for the firm at \$7.



(b) 3 points:

- One point is earned for identifying the total fixed cost, \$10.
- One point is earned for stating that the loss-minimizing output is 3.
- One point is earned for stating the dollar value of the loss, $\$21 - \$24 = -\$3$.

(c) 1 point:

- One point is earned for stating that the firm continues to produce because it is covering its variable cost, or $P > AVC$ or $TR > TVC$ or $\text{Losses} < TFC$.

(d) 1 point:

- One point is earned for stating that the long-run equilibrium price for umbrellas is \$8.