1. Which of the following would be considered a common resource good?
   a. cable television
   b. bottled natural mineral water
   c. uncongested toll roads
   d. fish in the ocean
   e. all of the above

2. On hot summer days, electric-generating capacity is sometimes stretched to the limit. At these times, electric companies sometimes ask people to voluntarily cut back on their use of electricity. An economist might say that
   a. every customer has an incentive to prevent the system from overloading, so this voluntary approach is the most efficient.
   b. it would be more efficient if the electric company raised its rates for electricity at peak times.
   c. it would be more efficient to have a lottery to decide who had to cut back their use of electricity at peak times.
   d. it would be more efficient to force everyone to cut their usage of electricity by the same amount.

3. Assuming that Ron's Bicycle Shop operates in a perfectly-competitive market for bicycles, which of the following statements is(are) true?
   (i) He chooses the price at which he sells his bicycles.
   (ii) He chooses the quantity of bicycles that he sells.
   (iii) His market is characterized by one or more barriers to entry.

   a. (i) only
   b. (ii) only
   c. (i) and (ii) only
   d. (ii) and (iii) only

4. For a monopolist, marginal revenue is
   a. positive when the demand effect is greater than the supply effect.
   b. positive when the monopoly effect is greater than the competitive effect.
   c. negative when the price effect is greater than the output effect.
   d. negative when the output effect is greater than the price effect.
   e. negative for the quantity on the elastic portion of its demand curve.

5. Which of the following statements is true?

   (i) When a perfectly-competitive firm sells an additional unit of output, its revenue increases by an amount less than the price.
   (ii) When a monopoly firm sells an additional unit of output, its revenue increases by an amount less than the price.
   (iii) Average revenue is the same as price for both competitive and monopoly firms.

   a. (i) only
   b. (iii) only
   c. (i) and (ii)
   d. (ii) and (iii)

6. What is the monopolist's profit under the following conditions? The profit-maximizing price charged for goods produced is $16. The intersection of the marginal revenue and marginal cost curves occurs where output is 10 units and marginal cost is $8. Average total cost for 10 units of output is $6.

   a. $20
   b. $80
   c. $100
   d. $160
   e. $180

7. For a monopoly firm, the level of output at which marginal revenue equals zero is also the level of output at which

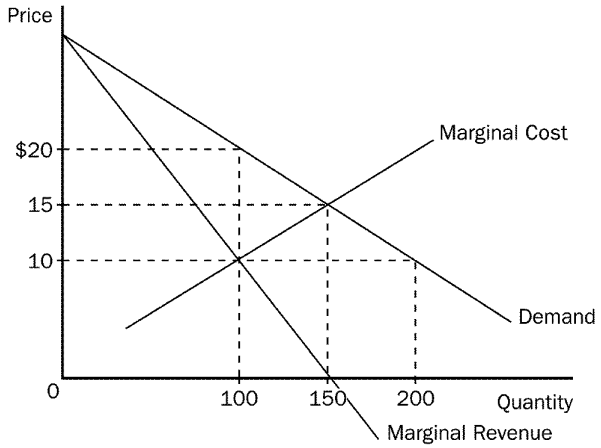
   a. average revenue is zero.
   b. profit is maximized.
   c. total revenue is maximized.
   d. marginal cost is zero.
   e. average fixed cost is a minimum.

8. A reduction in a monopolist's fixed costs would

   a. decrease the profit-maximizing price and increase the profit-maximizing quantity produced.
   b. increase the profit-maximizing price and decrease the profit-maximizing quantity produced.
   c. not affect the profit-maximizing price or quantity.
   d. possibly increase, decrease or not affect profit-maximizing price and quantity, depending on the elasticity of demand.

9. Which of the following statements is correct?
   a. The benefits that accrue to a monopoly firm's owners are equal to the costs that are incurred by consumers of that firm's product.
   b. The deadweight loss that arises in monopoly stems from the fact that the profit-maximizing monopoly firm produces a quantity of output that exceeds the socially-efficient quantity.
   c. The deadweight loss caused by monopoly is similar to the deadweight loss caused by a tax on a product.
   d. The main social problem caused by monopoly is monopoly profit.

Figure 1: Refer to Figure 1 to answer questions 10-12.



10. **Refer to Figure 1**. To maximize total surplus, a benevolent social planner would choose which of the following outcomes?
   a. 100 units of output and a price of $10 per unit
   b. 100 units of output and a price of $20 per unit
   c. 150 units of output and a price of $10 per unit
   d. 150 units of output and a price of $15 per unit
   e. 200 units of output and a price of $10 per unit

11. **Refer to Figure 1**. To maximize its profit, a monopolist would choose which of the following outcomes?
   a. 100 units of output and a price of $10 per unit
   b. 100 units of output and a price of $20 per unit
   c. 150 units of output and a price of $15 per unit
   d. 200 units of output and a price of $20 per unit

12. **Refer to Figure 1**. The deadweight loss caused by a profit-maximizing monopoly amounts to
    a. $150.
    b. $200.
    c. $250.
    d. $300.
    e. $500.

13. A monopolist faces the following demand curve:

Price	Quantity Demanded
$8	300
$7	400
$6	500
$5	600
$4	700
$3	800
$2	900
$1	1000

    The monopolist has fixed costs of $1000 and has a constant marginal cost of $2 per unit. If the monopolist were able to perfectly price discriminate, how many units would it sell?
    a. 400
    b. 500
    c. 700
    d. 800
    e. 900

14. As the number of firms in an oligopoly increases,
    a. each seller starts to have a larger impact on the market price.
    b. the output effect decreases.
    c. the quantity of output becomes closer to the socially efficient quantity.
    d. All of the above are correct.

15. Suppose that a firm in a ***monopolistically competitive*** industry produces an output level at which MR = MC = ATC. The profits of the firm are ___ and firms will ___the industry.
    a. zero; neither enter nor exit
    b. positive; enter
    c. zero; exit
    d. negative; exit
    e. zero; enter

16. What happens when the prisoners' dilemma game is repeated numerous times in an oligopoly market?

(i) The firms may well reach the monopoly outcome.
(ii) The firms may well reach the competitive outcome.
(iii) Buyers of the oligopolists' product will likely be worse off as a result.

a. (i) and (ii)
b. (ii) and (iii)
c. (i) and (iii)
d. All of the above are correct.

17. In a monopolistically competitive industry, price is

a. equal to marginal cost since each firm is a price taker.
b. below marginal cost since each firm is a price taker.
c. above marginal cost since each firm is a price setter.
d. always a fraction of marginal cost since each firm is a price setter.

18. A monopolistically competitive firm chooses

a. the quantity of output to produce, but not the price at which it will sell its output.
b. the price, but competition in the market determines the quantity.
c. price, but output is determined by a cartel production quota.
d. the quantity of output to produce and the price at which it will sell its output.

19. When a profit-maximizing firm in a monopolistically competitive market is in long-run equilibrium,

a. the demand curve will be perfectly elastic.
b. price exceeds marginal cost.
c. marginal cost is falling.
d. marginal revenue exceeds marginal cost.

20. "In a long-run equilibrium, price is equal to average total cost." This statement applies to

a. perfectly-competitive markets, but not to monopolistically competitive markets or monopolies.
b. perfectly-competitive and monopolistically competitive markets, but not to monopolies.
c. perfectly-competitive and monopolistically competitive markets and to monopolies.
d. None of the above are correct.

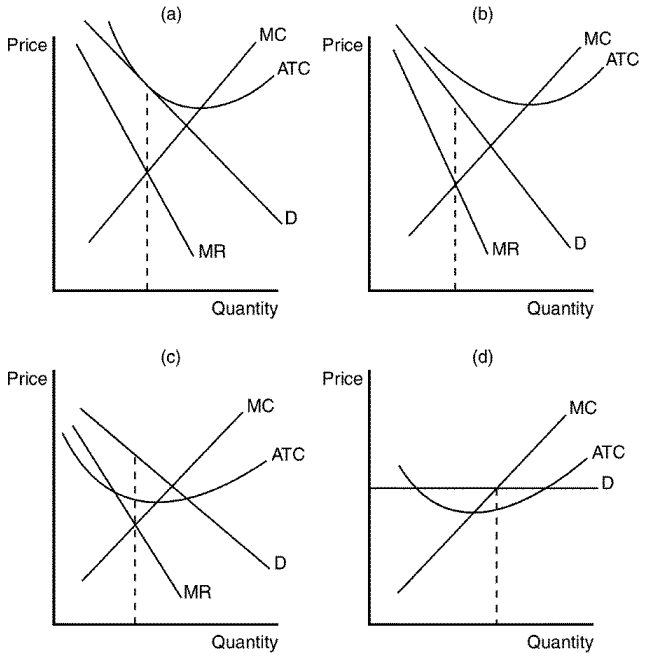


Figure 2

21. **Refer to Figure 2**. Which of the panels shown could characterize long-run equilibrium for a firm in a monopolistically competitive market?
    a. panel a
    b. panel b
    c. panel c
    d. panel d

A monopolistically competitive firm faces the following demand curve for its product:

Price ($)	10	9	8	7	6	5	4	3	2	1
Quantity	2	4	6	9	10	12	14	16	18	20

22. The firm has total fixed costs of $20 and a constant marginal cost of $5 per unit. The firm will
    a. produce two units; firms will exit the market in the long run.
    b. produce four units; firms will exit the market in the long run.
    c. produce six units; firms will exit the market in the long run.
    d. produce eight units; firms will enter the market in the long run.
    e. produce twelve units; firms will enter the market in the long run.

23. The firm has total fixed costs of $40 and a constant marginal cost of $2 per unit. We can conclude:
    a. firms will exit this market.
    b. firms will enter this market.
    c. this market is in long-run equilibrium.
    d. this firm is operating at efficient scale.

24. For a perfectly-competitive firm, the value of the marginal product
    (i) increases when the price of output decreases.
    (ii) changes when marginal product changes.
    (iii) diminishes as the number of workers rises.

    a. (i) and (ii)
    b. (i) and (iii)
    c. (ii) and (iii)
    d. All of the above are correct.

25. When labour is the only input a firm uses, the marginal cost of a unit of output can be defined as
    a. the marginal revenue minus the wage.
    b. the marginal product of labour minus the wage.
    c. the wage divided by marginal product of labour.
    d. the marginal product of labour divided by wage.

26. Charles owns one of many bakeries in New York City. Which of the following events will lead to a decrease in Charles's demand for the services of bakers?
    a. Hollywood glamorization of a new movie about a baker leads hundreds of high-school students in New York City to apply for a job at Dan's.
    b. The price of baked goods falls.
    c. The local bakers form a union.
    d. All of the above are correct.

27. Aurora Custom Cabinets produces and sells custom kitchen cabinets. The firm has determined that if it hires 10 workers, it can produce 4 sets of cabinets per day. Alternatively, if it hires 11 workers, it can produce 4.2 sets of cabinets per day. It sells each set of cabinets for $2,000, and it pays each of its workers $200 per day.
    a. For the 11th worker, the value of the marginal product of labour is $500.
    b. For the 11th worker, the marginal revenue product is $400.
    c. The firm is maximizing its profit.
    d. If the firm is employing 11 workers, then its profit would increase if it cut back to 10 workers.

28. If the price of airline tickets falls, what will happen to the demand curve for flight attendants?
    a. It will shift upward.
    b. It will shift to downward
    c. It will remain unchanged; price changes do not shift demand curves.
    d. None of the above are correct.

29. Which of the following statements is correct? An individual worker's labour supply curve
    a. can never slope downward.
    b. slopes downward if that person responds to a higher wage by taking fewer hours of leisure per week.
    c. slopes downward if that person responds to a higher opportunity cost of leisure by working fewer hours per week.
    d. is horizontal if that person works the same number of hours per week, regardless of the opportunity cost of leisure.

Use the following figure to answer questions 30 and 31.

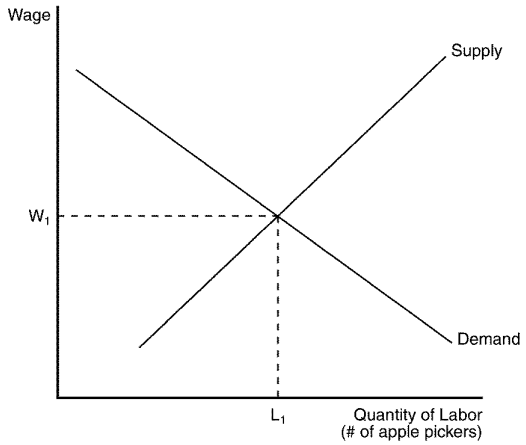


Figure 3

30. **Refer to Figure 3**. If the marginal product of labour falls and the price of apples remains unchanged,
    (i) the value of the marginal product of labour will fall.
    (ii) the quantity of labour demanded will increase above L_1.
    (iii) the labour supply curve will remain unchanged.

    a. (i) and (ii)
    b. (ii) and (iii)
    c. (i) and (iii)
    d. All of the above are correct.

31. **Refer to Figure 3**. If the price of apples increases, the wage will
    a. increase and more apple pickers will be hired.
    b. decrease and more apple pickers will be hired.
    c. increase and fewer apple pickers will be hired.
    d. decrease and fewer apple pickers will be hired.

32. Suppose medical research provides evidence that eating bananas provides far greater health benefits than was previously thought. The resulting increase in the demand for bananas
    a. increases the marginal product of banana pickers for any given number of banana pickers.
    b. increases the value of the marginal product of banana pickers for any given number of banana pickers.
    c. increases the supply of banana pickers.
    d. All of the above are correct.

33. Common resource goods are
    a. excludable but not rival.
    b. rival but not excludable.
    c. both excludable and rival.
    d. neither excludable nor rival.

34. In deciding whether something is a public good, one must determine the
    a. number of beneficiaries.
    b. value of external benefits which accrue to resource owners.
    c. excludability of the beneficiaries.
    d. both a and c are correct
    e. all of the above are correct.

35. The privately-owned school system in Smalltown has a virtually unlimited capacity. It accepts all applicants and operates on both tuition and private donations. Although every resident places value on having an educated community, the school's revenues have suffered lately due to a large decline in private donations from the elderly population. Since the benefit each citizen receives from having an educated community is a public good, which would NOT be true?
    a. The free-rider problem causes the private market to undersupply education to the community.
    b. The government can potentially help the market reach a socially optimal level of education.
    c. A tax increase to pay for education could potentially make the community better off.
    d. None of the above are correct.

36. Suppose that Martin owns a lighthouse and Lewis owns a nearby port. Martin's lighthouse benefits only those ships that enter Lewis's port. Which of the following statements is NOT true?
    a. Martin's lighthouse may be considered a private good.
    b. Martin can reduce the free-rider problem by charging Lewis a usage fee.
    c. Martin can exclude Lewis's port from benefiting from the lighthouse by simply turning the power off.
    d. Martin's lighthouse would be considered a common resource.

37. Suppose that installing an overhead pedestrian walkway would cost a college town $100,000. If the walkway is expected to reduce the risk of fatality by 2 percent and the cost of a human life was estimated at $10 million, the town would
    a. install the walkway because the estimated benefit is twice the cost.
    b. install the walkway because the estimated benefit equals the cost.
    c. not install the walkway, since the cost is twice the estimated benefit.
    d. install the walkway, since the cost of even a single life is too great.

38. The Ogallala aquifer is a large underground pool of fresh water under several western states in the United States. Any farmer with land above this pool of water can at pump water out of it. Which of the following statements about the aquifer is most likely to be true?
    a. The aquifer is a public good which must be publicly owned to be used efficiently.
    b. The aquifer is a private good which must be privately owned to be used efficiently.
    c. The aquifer is a common property resource, which will be overused if nobody owns it.
    d. The aquifer is a natural monopoly, which should be left as it is.
    e. None of the above are correct.

39. A stairwell in a certain office building is always congested at 12:00 p.m. and 5:00 p.m. The congestion is so bad that people have been complaining to the building's owner. Which of the following methods would be the most efficient way of reducing congestion?
    a. Charge everyone who uses the stairwell when it is congested a fee based on their income, with richer people paying more than poorer people.
    b. Encourage people to voluntarily keep off the stairwell during peak times.
    c. Charge everyone who uses the stairwell when it is congested the same fee. People who value the use of the stairs the most will be the ones who use the stairwell at peak times.
    d. Hold a lottery to determine who wins the right to use the stairwell at peak times.
    e. None of the above are correct.

40. Private markets usually fail to provide lighthouses because
    a. lighthouses cost too much to build relative to their benefits.
    b. government intervention makes it hard for private lighthouse owners to compete in the market.
    c. ship captains have incentives to use lighthouses without paying.
    d. lighthouses are valued very little by ship captains these days.

41. Which of the following comparisons best illustrates a compensating differential?
    a. John's wage is higher than Jane's because the value of John's marginal product is higher than Jane's.
    b. Beth's wage is higher than Bill's because Beth is very personable and Bill is very gruff.
    c. Karl's wage is higher than Kay's because Karl's job may well cause long-term health problems and Kay's job will not impair her health.
    d. All of the above are good illustrations of compensating differentials.

42. As more and more companies rely on computer databases and less on filing cabinets, the
    (i) demand for computer programmers will rise.
    (ii) wage paid to filing clerks will rise.
    (iii) wage paid to computer programmers will rise.

    a. (i) and (ii)
    b. (ii) and (iii)
    c. (i) and (iii)
    d. All of the above are correct.

43. Effective minimum-wage laws will most likely result in
    (i) an increased demand for labour.
    (ii) a surplus of labour.
    (iii) higher incomes for **all** unskilled workers.

    a. (i) only
    b. (ii) only
    c. (i) and (iii)
    d. (ii) and (iii)

44. If firms are competitive, then labour-market discrimination is
    a. certain to be nonexistent in the short run and in the long run.
    b. certain to be more of a problem than if the market were monopolistic or imperfectly competitive.
    c. likely not to be a long-run problem unless customers exhibit discriminatory preferences or government maintains discriminatory policies.
    d. likely to be more of a problem in the long run than in the short run, due to the zero-profit condition that characterizes long-run equilibrium for competitive firms.

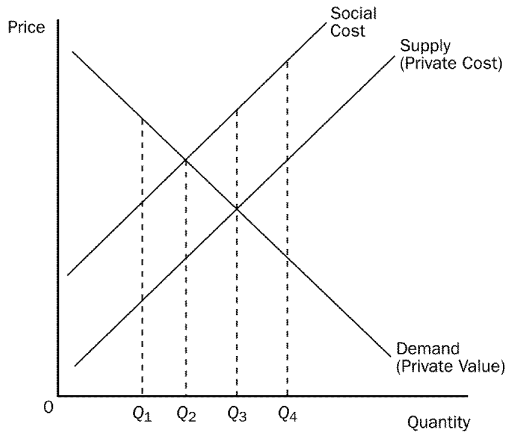


Figure 4

45. **Refer to Figure 4.** At Q_3
    a. the marginal consumer values this product less than the social cost of producing it.
    b. every consumer values this product less than the social cost of producing it.
    c. the cost to society is equal to the value to society.
    d. the marginal consumer values this product more than the private cost.

46. **Refer to Figure 4.** If this market currently produces Q_3, total economic well-being would be increased if
    a. production decreased to Q_2.
    b. production increased to Q_4.
    c. this product were no longer produced.
    d. Since well-being is maximized at Q_3 it cannot be increased.

47. Suppose that at present there are no laws to restrict pollution produced by the widget industry. The market price of a widget is $20. If the government imposes a tax equal in value to the cost of the pollution, then firms would continue to produce widgets if
    a. the cost imposed by the pollution is less than $20 per widget produced.
    b. the private cost of producing a widget equals the cost of the pollution generated per widget.
    c. $20 minus the private cost of producing a widget is greater than the cost of the pollution generated per widget.
    d. $20 minus the private cost of producing a widget is less than the cost of the pollution generated per widget.

48. Chad's maple tree hangs over Amy's fence and drops leaves into her yard each autumn. Chad has the legal right to have trees on his property. The benefit to Chad of lower utility bills is about $300. The cost to Amy of having her lawn cleaned and reseeded is $350. Based on the Coase theorem

    a. Amy should pay Chad $325 to cut down the tree.
    b. Chad should pay Amy $350 to have her lawn repaired and cleaned.
    c. Chad should pay Amy $400 to keep the tree.
    d. Amy should build a higher fence.

49. Reaching an efficient bargain is difficult when the

    a. externality is large.
    b. number of interested parties is large.
    c. externality is negative.
    d. government becomes involved.
    e. a company is involved.

50. Two firms, A and B, each currently dump 50 tons of chemicals into the local river. The government has decided to reduce the pollution and from now on will require a pollution permit for each ton of pollution dumped into the river. The government gives each firm 20 pollution permits, which it can either use or sell to the other firm. It costs Firm A $100 for each ton of pollution that it eliminates before it reaches the river and it costs Firm B $50 for each ton of pollution that it eliminates before it reaches the river. After the two firms buy or sell pollution permits from each other, we would expect that Firm A will dump

    a. 10 fewer tons of pollution into the river and Firm B will dump 50 fewer tons of pollution into the river.

    b. 50 fewer tons of pollution into the river and Firm B will dump 10 fewer tons of pollution into the river.

    c. 30 fewer tons of pollution into the river and Firm B will dump 30 fewer tons of pollution into the river.

    d. 10 more tons of pollution into the river and Firm B will dump 50 fewer tons of pollution into the river.

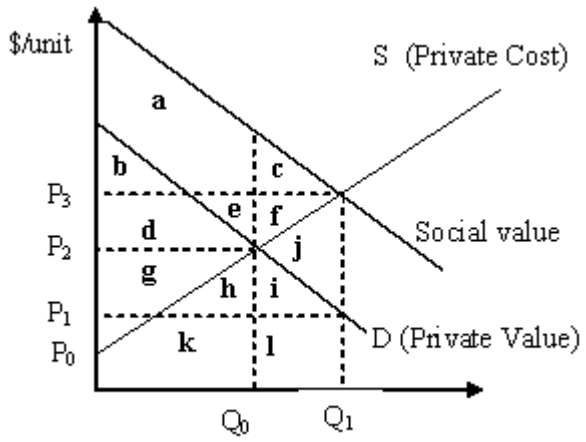


Figure 5

51. **Refer to Figure 5.** What is the consumer surplus derived from the most efficient outcome?

a. a + b
b. a + b + c + d + e
c. b +d
d. d +e + f
e. a + b + c

52. **Refer to Figure 5.** What is the size of the subsidy needed to achieve the most efficient outcome?

a. f + j + i
b. d + g + e + h
c. e + f + j + i + h
d. d + e +f + j + i + h + g
e. c + f + j + i + l