Choose the single best answer for each question. Do all of your scratch work in the margins or on the back of the last page.

1. Which of the following phrases best captures the notion of efficiency?
   a. absolute fairness.
   b. equal distribution.
   c. minimum waste.
   d. equitable outcome.

2. When an economy is operating at a point on its production possibilities frontier, then
   a. consumers are content with the mix of goods and services that is being produced.
   b. there is no way to produce more of one good without producing less of the other.
   c. productive resources are divided equally between production of the two goods.
   d. all of the above.

Questions 3, 4, and 5 are based on the following information. Two small countries, Ida and Sac, use their labor resources to produce goods of two types: manufactured goods and agricultural goods. The table below gives the number of hours of labor needed to produce one unit of each type of good in each country.

<table>
<thead>
<tr>
<th></th>
<th>Hours needed to produce one unit of</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>manufactured goods</td>
<td>agricultural goods</td>
</tr>
<tr>
<td>Ida</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>Sac</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

3. The opportunity cost of one unit of manufactured goods in Sac is
   a. 3 hours.
   b. 3 units of agricultural goods.
   c. 1.5 hours.
   d. 1.5 units of agricultural goods.

4. Which of the following is true?
   a. Sac has the absolute advantage in the production of manufactured goods.
   b. Ida has the comparative advantage in the production of agricultural goods.
   d. More than one of the above is true.
5. Suppose there are international markets in manufactured and agricultural goods. Under which of the following circumstances would Ida and Sac be able to engage in a mutually beneficial trade with each other? The trade price of one unit of manufactured goods is
   a. 5 units of agricultural goods.
   b. 3 units of agricultural goods.
   c. 1 unit of agricultural goods.
   d. 0.5 units of agricultural goods.

6. Buyers and sellers who have no influence on market price are referred to as
   a. market pawns.
   b. monopolists.
   c. price takers.
   d. price makers.

7. Which of the following could be responsible for a rightward shift in the supply of a good?
   a. an increase in the good's own price.
   b. an increase in the price of an input used to produce the good.
   c. a technological innovation that results in a reduction in the cost of producing the good.
   d. an increase in the demand for the good.

8. In the competitive market for a particular good, if supply increases while demand remains stable, we would expect to see equilibrium price
   a. increase and equilibrium quantity increase.
   b. increase and equilibrium quantity decrease.
   c. decrease and equilibrium quantity increase.
   d. decrease and equilibrium quantity decrease.

9. Suppose that scientists discover that eating avocadoes provides a significant health benefit and, at the same time, new government restrictions on the use of agricultural chemicals increase the cost of avocado production. What changes would you expect to see as a result in the competitive market for avocadoes? Equilibrium price
   a. will increase and equilibrium quantity could increase, decrease, or stay the same.
   b. will decrease and equilibrium quantity could increase, decrease, or stay the same.
   c. could increase, decrease, or stay the same, and equilibrium quantity will increase.
   d. could increase, decrease, or stay the same, and equilibrium quantity will decrease.

10. Demand is likely to be more elastic
    a. for a good that is a necessity than for a good that is a luxury.
    c. for beer than for Budweiser beer.
    d. in the short-run than in the long-run.
Questions 11, 12 and 13 are based on the following graph of supply and demand in the competitive market for widgets:

11. If a price floor at the level of $p_2$/widget were imposed on this market, the result would be
a. excess demand in the amount of $Q_4 - Q_2$ widgets/day.
b. excess supply in the amount of $Q_3 - Q_2$ widgets/day.
c. excess demand in the amount of $Q_4 - Q_3$ widgets/day.
* None of the above.

12. Which of the following could account for a change in this market's equilibrium to price $p_1$ and quantity $Q_1$?
a. an increase in demand.
b. an increase in supply.
c. a decrease in demand.
* a decrease in supply.

13. Which of the following could account for a change in this market's equilibrium to price $p_2$ and quantity $Q_3$?
a. increases in both demand and supply.
b. decreases in both demand and supply.
c. an increase in demand and a decrease in supply.
* an increase in supply and a decrease in demand.
14. In an effort to increase student attendance at basketball games, Midwestern State University (MSU) cuts the price of student tickets from $15 per game to $10 per game. As a result, average student attendance increases from 2500 students per game to 3000 students per game. Over this range of prices, the elasticity of demand (calculated by the midpoint method) for student tickets to MSU's basketball games is
* -0.45.
b. -0.83.
c. -1.67.
d. -2.20.

15. If demand is perfectly inelastic, then
a. a 5% increase in price will cause a 5% decrease in quantity demanded.
* a 5% increase in price will leave quantity demanded unchanged.
c. a 5% increase in price will leave consumer expenditure on the good unchanged.
d. the demand curve is horizontal.

16. In a competitive market, a decrease in supply leads to a 10% increase in equilibrium price and a 6% increase in seller revenue. From this information we can conclude that
* demand is inelastic.
b. demand is elastic.
c. supply is inelastic.
d. supply is elastic.

17. In a particular competitive market, the government imposes a price floor at the level of $5/unit. Which of the following events could transform the price floor from one that is binding to one that is not binding?
* an increase in demand.
b. a decrease in demand.
c. an increase in supply.
d. either a or c.

18. Which of the following would you expect to observe in a rental housing market subject to rent control?
a. high vacancy rates; that is, a high proportion of apartments are not rented.
* prospective tenants offering bribes to landlords in an effort to secure housing.
c. landlords investing in maintenance and property upgrades to attract tenants.
d. all of the above.

19. If a $1.00 per unit excise tax is imposed on a competitive market with elastic demand and inelastic supply, the price buyers pay will
a. increase by $1.00.
b. increase by less than $1.00 but more than $0.50.
* increase by less than $0.50.
d. remain unchanged.
20. Welfare economics is the study of
   a. the well-being of people who receive public assistance.
   b. government welfare programs for the needy in the United States.
   *. how the allocation of resources affects economic well-being.
   d. the effect of government income redistribution programs on work effort.

21. Suppose that Jill, Jianing, and Jerry each purchase exactly the same style of ISU sweatshirt at a price of $35. Jill's willingness to pay was $45, Jianing's willingness to pay was $42, and Jerry's willingness to pay was $38. Which of the following statements is correct?
   a. If the price of the sweatshirt had been $40, only Jill would have purchased the sweatshirt.
   b. At the $35 price, Jerry's consumer surplus is the greatest among the three individuals.
   *. At the $35 price, for the three individuals together, consumer surplus amounts to $20.
   d. All of the above are true.

Questions 22 and 23 refer to the following information. When a $1.00/unit excise tax is imposed on the competitive market for a particular good, the price buyers pay (inclusive of the tax) increases by $0.75/unit, the price sellers receive (net of the tax) decreases by $0.25/unit, and sales of the good decreases by 400 units/week.

22. Assuming that the supply and demand curves are straight lines, the deadweight loss of this tax is
   a. $100/week.
   *. $200/week.
   c. $300/week.
   d. $400/week.

23. Assuming that the supply and demand curves are straight lines, the tax has the effect of reducing consumer surplus by
   a. $100/week.
   b. $200/week.
   c. $300/week.
   *. Not enough information given for an answer.

24. A country that produces some sugar domestically and imports some sugar from abroad imposes a tariff on sugar imports. What effect will the tariff have on domestic sugar consumers and producers?
   a. Consumers and producers will both lose.
   b. Consumers and producers will both benefit.
   c. Consumers will benefit and producers will lose.
   *. Consumers will lose and producers will benefit.
25. When a country lifts its prohibition of international trade and adopts a free trade policy, the domestic price of cotton rises to the level of the world market price. As a result, the country becomes an
a. importer of cotton and total surplus in the domestic cotton market increases.
b. importer of cotton and total surplus in the domestic cotton market decreases.
*. exporter of cotton and total surplus in the domestic cotton market increases.
d. exporter of cotton and total surplus in the domestic cotton market decreases.

26. When the country of Isoland imposes a tariff on steel imports, the loss in domestic steel consumer surplus is $2,875,000/day, the gain in domestic steel producer surplus is $625,000/day, and the tariff revenue is $1,750,000/day. The tariff's deadweight loss is
*. $500,000/day.
b. $1,125,000/day.
c. $2,250,000/day.
d. not enough information given for an answer.

27. Gizmos are traded in a competitive market but the consumption of gizmos results in a positive externality. If the market is unregulated -- that is, there is no government intervention to internalize the externality -- the equilibrium quantity of gizmos will be
*. less than the socially optimal quantity and marginal social value will be greater than marginal social cost.
b. less than the socially optimal quantity and marginal social value will be less than marginal social cost.
c. greater than the socially optimal quantity and marginal social value will be greater than marginal social cost.
d. greater than the socially optimal quantity and marginal social value will be less than marginal social cost.

28. At the local park, there is a playground for children to use. While anyone is allowed to use the playground, it is often very busy, reducing the enjoyment of many of the children who use it. The playground is
a. a private good.
b. a public good.
c. an excludable good.
*. a common resource.

29. Consider a hypothetical income tax structure for which the first $20,000 of annual income is tax free, and each dollar of annual income over $20,000 is taxed at the rate of 20%. Starting from annual income of $20,000, as income increases, the marginal tax rate
a. increases and the average tax rate increases.
b. remains constant and the average tax rate decreases.
c. remains constant and the average tax rate remains constant.
*. none of the above.
Questions 30 and 31 refer to Schedule Y-1 from the 2008 Instruction booklet for federal individual income tax form 1040. Aaron and Francine, a married couple, used the "married, filing jointly" tax status to file their 2008 federal income tax returns. They reported taxable income of $145,632.

Schedule Y-1. Use if your filing status is married, filing jointly.

<table>
<thead>
<tr>
<th>If your taxable income is over</th>
<th>but not over</th>
<th>your tax is</th>
<th>of the amount over</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
<td>$16,050</td>
<td>10%</td>
<td>$0</td>
</tr>
<tr>
<td>16,050</td>
<td>65,100</td>
<td>$1,605</td>
<td>15%</td>
</tr>
<tr>
<td>65,100</td>
<td>131,450</td>
<td>8,962.50</td>
<td>25%</td>
</tr>
<tr>
<td>131,450</td>
<td>200,300</td>
<td>25,550</td>
<td>28%</td>
</tr>
<tr>
<td>200,300</td>
<td>357,700</td>
<td>44,828</td>
<td>33%</td>
</tr>
<tr>
<td>357,700</td>
<td></td>
<td>96,770</td>
<td>35%</td>
</tr>
</tbody>
</table>

30. The tax owed on Aaron and Francine's reported taxable income is
   a. $22,548.96.
   * $29,520.96.
   c. $36,806.96.
   d. $40,776.96.

31. Aaron and Francine's marginal tax rate is
   a. 25%.
   * 28%.
   c. 33%.
   d. impossible to determine without knowing Aaron and Francine's total income.

32. Susan used to work as an information technology resource person for an insurance company, earning $50,000 per year. She gave up that job to start her own webpage design company. In calculating the economic profit of her webpage design business, the $50,000 income that she gave up is counted as part of the firm's
   a. total revenue.
   b. explicit costs.
   * opportunity costs.
   d. accounting costs.

33. A firm's average total cost is $30/unit when 19 units of output are produced each day. The marginal cost of the 20th unit of output is $60. The firm's average total cost when it produces 20 units per day is
   * $31.50/unit.
   b. $33.00/unit.
   c. $37.50/unit.
   d. $45.00/unit.
34. A firm is currently producing at an output level at which marginal cost is greater than average total cost. At this output level,
* the firm's average total cost must be increasing.
b. the firm's average total cost must be decreasing.
c. the firm has an opportunity to increase profit by increasing output.
d. both a and c.

35. Free entry means that
a. the government pays any start-up costs for firms wanting to enter the market.
* no legal barriers prevent a firm from entering an industry.
c. each firm's marginal cost is zero.
d. market price exceeds the minimum average total cost of production.

36. A competitive firm faces a price of $3.00/unit for its product. It is currently operating where marginal cost is $2.25/unit and average total cost is $2.50/unit. To maximize profit (or minimize loss) in the short-run, the firm should
* increase output.
b. decrease output, but not shut down.
c. shut down.
d. impossible to determine without more information.

37. A monopolist sells 20 units of output per day when the price is $7.50/unit. In order to sell 21 units of output per day, the monopolist must reduce price to $7.00/unit. Marginal revenue for the 21st unit of output is approximately
a. $7.25/unit.
b. $3.50/unit.
c. -$0.50/unit.
* -$3.00/unit.

38. The benefit to society of patent and copyright laws is that those laws
a. help to keep prices down.
b. help to prevent a single firm from acquiring ownership of a key resource.
* encourage creative activity.
d. discourage excessive amounts of output of certain products.

39. At its current output level, a monopolist's price, marginal cost, and average total cost are all equal to $5/unit. Its marginal revenue is $3/unit. To maximize profit (or minimize loss) in the short-run, the monopolist should
a. maintain its current output level.
b. increase output.
* decrease output, but not shut down.
d. shut down.
40. The process of buying a good in one market at a low price and selling it in another market for a higher price is order to profit from the price difference is known as
a. collusion.
b. price discrimination.
c. barter.
*. arbitrage.

Questions 41 and 42 refer to the following information. Delilah's Diner and Carl's Cafe are the only two restaurants in town. Delilah and Carl are trying to decide whether or not to advertise. Each recognizes that advertising is costly but it might also attract more business, especially if the rival does not advertise. If both restaurants advertise, Delilah will have profit of $400,000 per year and Carl will have profit of $350,000 per year. If neither restaurant advertises, Delilah will have profit of $550,000 per year and Carl will have profit of $500,000 per year. If either restaurant advertises and the other does not, the advertiser will have profit of $600,000 per year and the non-advertiser will have profit of $300,000 per year.

41. In this advertising game,
*. for both restaurants, the dominant strategy is "Advertise."
b. for both restaurants, the dominant strategy is "Don't advertise."
c. only Delilah has a dominant strategy and it is "Advertise."
d. neither restaurant has a dominant strategy.

42. Which of the following is a Nash equilibrium of this game?
a. Delilah advertises and Carl doesn't advertise.
b. Carl advertises and Delilah doesn't advertise.
*. Both restaurants advertise.
d. Neither restaurant advertises.

43. There are only two firms producing widgets, a homogeneous product. market demand is given by the formula: \( P = 20 - 0.1Q \), where \( Q \) is market quantity in widgets/day and \( P \) is the price in $/widget. Each firm has zero fixed cost and marginal cost that is constant at $4/widget. If firm 1 produces 60 widgets/day and firm 2 produces 40 widgets/day, the profits for firms 1 and 2, \( \pi_1 \) and \( \pi_2 \) respectively, are
a. \( \pi_1 = $600/day, \pi_2 = $480/day. \)
b. \( \pi_1 = $400/day, \pi_2 = $960/day. \)
c. \( \pi_1 = $200/day, \pi_2 = $260/day. \)
*. \( \pi_1 = $360/day, \pi_2 = $240/day. \)
44. Workers in steel mills are hired in competitive labor markets. What effect will an increase in the price of steel have on the equilibrium wage and the equilibrium quantity of labor in the market for steel workers? The equilibrium wage will
*a. increase and the equilibrium quantity of labor will increase.
b. increase and the equilibrium quantity of labor will decrease.
c. decrease and the equilibrium quantity of labor will increase.
d. decrease and the equilibrium quantity of labor will decrease.

45. A firm hires labor at a fixed wage of $120/worker/day, and sells output at a fixed price of $8/widget. At its current labor employment level, the firm is making positive economic profit and its marginal product of labor is 18 widgets/worker/day. To maximize profit in the short-run, the firm should
*a. hire more workers.
b. maintain its current labor employment level.
c. lay off some workers.
d. impossible to determine without more information.

46. If I invest $1000 in a savings account that pays an annual interest rate of 2%, what will be the balance in the account in 5 years, rounded to the nearest whole dollar?
*a. $1104.
b. $1100.
c. $1007.
d. $1097.

47. A savings bond can be redeemed for its face value upon maturity. Suppose that purchase of a $100 face value bond that matures in 10 years represents an investment at an annual interest rate of 6%. What is the purchase price of the bond today?
*a. $55.84.
b. $58.28.
c. $62.50.
d. $65.62.

48. I take out an installment loan of $10,000 with an annual interest rate of 8%. The terms of the loan require repayment of principal and interest in three equal installments, due one year from today, two years from today, and three years from today. Rounded to the nearest whole dollar, what is the amount of each of the three installment payments?
a. $3806.
b. $3832.
c. $3854.
d. $3880.*
49. Vinny the loan shark agrees to loan me $5000 today with the understanding that I will repay principal and interest in a single payment of $6000 due in two weeks (or he will break my kneecaps). What is the weekly rate of interest implicit in the terms of this loan?
   a. 10.27%.
   b. 10.00%.
   c. 9.82%.
   * 9.54%.

50. Suppose that, in an effort to discourage child labor in developing countries, the developed countries of the world refuse to import goods that are made using child labor. Which of the following is true?
   * The policy is more likely to eliminate child labor in a country, the bigger is the country's export sector.
   b. The policy is more likely to eliminate child labor in a country, the smaller is the country's export sector.
   c. The policy is likely to eliminate child labor throughout the world.
   d. The policy is likely to "backfire" and actually make the problem of child labor worse.