38. Which of the following describe costs over the range from 14,000 pans to 16,500 pans per day?
   a. dis-economies of scale  
   b. economies of scale  
   c. parabolic scale effects  
   d. hyperbolic scale effects  
   e. constant returns to scale

Use the graphs below to answer questions 39 and 40.

![Graphs](image-url)

39. Which of the graphs (above) best illustrates a typical (short-run) average fixed costs curve?
40. Which of the graphs (above) best illustrates a typical (short-run) marginal costs curve?
30. What is the **total fixed costs** of the 3rd unit?
   a. $400  
   b. $500  
   c. $700  
   d. $900  
   e. none of the above

31. What is the **total variable costs** of the 3rd unit?
   a. $400  
   b. $500  
   c. $700  
   d. $900  
   e. none of the above

32. What is the **marginal costs** of increasing production from 2 to 3 units?
   a. $400  
   b. $500  
   c. $700  
   d. $900  
   e. none of the above

33. What is the **average variable costs** of the 3rd unit?
   a. $400  
   b. $500  
   c. $700  
   d. $900  
   e. none of the above

34. What is the **average total costs** of the 3rd unit?
   a. $400  
   b. $500  
   c. $700  
   d. $900  
   e. none of the above

35. Over which range is marginal product (of labor) increasing?
   a. 0 to 1 units of output only  
   b. 0 to 2 units of output only  
   c. over the entire range listed  
   d. once output increases past 2  
   e. no listed range shows increasing marginal product (of labor)

36. Over which range is marginal product (of labor) declining?
   a. 0 to 1 units of output only  
   b. 0 to 2 units of output only  
   c. over the entire range listed  
   d. once output increases past 2  
   e. no listed range shows declining marginal product (of labor)

---

**Answer questions 37 and 38 based on the following information.** This information is for a firm, Nilan Manufacturing, which makes cooking pots. The company’s engineers have estimated different cost curves for several possible plant sizes.

<table>
<thead>
<tr>
<th>Plant Size</th>
<th>120,000 meter$^2$</th>
<th>150,000 meter$^2$</th>
<th>180,000 meter$^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest ATC</td>
<td>$12.50</td>
<td>$10.00</td>
<td>$10.00</td>
</tr>
<tr>
<td>Output at which lowest ATC occurs</td>
<td>10,000 pans per day</td>
<td>14,000 pans per day</td>
<td>16,500 pans per day</td>
</tr>
</tbody>
</table>

37. Which of the following describe costs over the range from **10,000 pans to 14,000 pans** per day?
   a. dis-economies of scale  
   b. economies of scale  
   c. parabolic scale effects  
   d. hyperbolic scale effects  
   e. constant returns to scale
Answer questions 25 - 27 based on the following information. A firm is operating at an output of 100. At this output, ATC = $62.00, AVC = $42.00, and MC = $52.00.

25. What is the Average Fixed Costs of the 100th unit (rounded to the nearest penny)?
   a. $ 1.19
   b. $ 1.48
   c. $ 20.00
   d. $ 104.00
   e. none of the above

26. What is the Average Variable Costs of the 101st unit? i.e. What happens to AVC as output increases slightly?
   a. some number less than $42.00
   b. $42.00
   c. some number greater than $42.00
   d. Indeterminate. Information on TVC when Q = 101 is needed.

27. What is the Average Total Costs of the 101st unit? i.e. What happens to ATC as output increases slightly?
   a. some number less than $62.00
   b. $62.00
   c. some number greater than $62.00
   d. Indeterminate. Information on TVC when Q = 101 is needed.

28. Dayton owns a daycare. Which of the following is the best example of one of his fixed cost?
   a. what he pays for diapers ($0.25 each)
   b. how much he values his labor (worth $18.00 per hour to him)
   c. how much he pays others to work for him ($11.00 per hours)
   d. the added stress he faces when the center is running at full capacity
   e. a $300 per year state licensing fee

Answer questions 29 - 36 based on the following table.

<table>
<thead>
<tr>
<th>Output per week</th>
<th>Total Costs</th>
<th>MC</th>
<th>Average Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TFC</td>
<td>TVC</td>
<td>TC</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td>$900</td>
</tr>
<tr>
<td>1 (1st unit)</td>
<td></td>
<td>$1,300</td>
<td></td>
</tr>
<tr>
<td>2 (2nd unit)</td>
<td></td>
<td>$1,600</td>
<td></td>
</tr>
<tr>
<td>3 (3rd unit)</td>
<td></td>
<td>$2,100</td>
<td></td>
</tr>
</tbody>
</table>

29. For which time period are these costs?
   a. The short-run
   b. the intermediate-run
   c. the long-run
   d. Indeterminate. Information on the nature of the firm’s inputs is needed.
21. Which of the following best illustrates a typical graph of tax revenues as a function of the tax rate?

![Graphs showing different tax revenue functions.]

22. Before the middle 1980s, it was very difficult to accurately measure the amount of SO\textsubscript{2} emitted by coal burning power plants? Since then, cheap technology has been produced which can measure the level of SO\textsubscript{2} emissions as they occur. How will this affect methods of dealing with SO\textsubscript{2} pollution?

a. Direct regulation becomes relatively more attractive. Taxes and tradable permits become a relatively less attractive option.

b. Direct regulation becomes relatively less attractive. Taxes and tradable permits become a relatively more attractive option.

c. Laissez-faire, i.e. having no government intervention in the market, becomes the most attractive option.

d. As predicted in Progress and Poverty, social pressures will greatly reduce pollution as the pollution levels become public information.

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Answer questions 23 - 24 based on the following information. Several years ago, Howard quit his job and started his own business repairing copy machines. He currently takes in $25,000 of revenues (TR) each month. His business writes checks or pays cash for $13,000 of costs each month (Howard does not pay himself a salary). Assume this occurs every month.

23. What is Howard’s accounting profit?

a. some number less than $12,000 per month

b. $12,000 per month

c. some number greater than $12,000 per month

d. More information, namely competitor’s sales and costs, is needed to answer this.

24. What is Howard’s economic profit?

a. some number less than $12,000 per month

b. $12,000 per month

c. some number greater than $12,000 per month

d. More information, namely competitor’s sales and costs, is needed to answer this.
17. Who wrote the book *Progress and Poverty*?
   a. Lester Thurow  
   b. John Marshall  
   c. Henry George  
   d. Alfred Marshall  
   e. David Ricardo

18. In which case would litigation (or the Coase theorem) most likely result in a socially optimal amount of pollution?
   a. Gasoline from a gas station’s underground storage tank is seeping into a small lake used by a resort next door. There are no other gas stations in the area. The resort is the only other business, and the only user of the lake, in the area.
   b. Lake St. John, a tourist area, is surrounded by 600 businesses. These businesses range from restaurants, to resorts, to gas stations. Gasoline is somehow leaking into the lake from underground storage tanks. This is greatly hurting the tourist industry (and local economy) in the area.
   c. Lake St. Bart is owned by a single tourist resort. There are also 25 gas stations in the same area. Gasoline is somehow leaking into the lake from underground storage tanks. This is greatly hurting the tourist industry (and local economy) in the area, especially the resort.

19. Which government has come to closest to imposing the kind of tax advocated in *Progress and Poverty*?
   a. Great Britain  
   b. the U.S. federal government  
   c. France  
   d. Santa Monica  
   e. Pittsburgh

20. Which of the following best illustrates a typical graph of *excess burden* as a function of the tax rate?

   ![Graph Options]

   a.  
   b.  
   c.  
   d.  
   e.  

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13. At right, you are given the (private) supply and demand curves for paper production in the United States. Economists have estimated that each ton of paper produced generates $40 in external costs. Assume this estimate is accurate. What is the socially optimal amount of paper production in the U.S.?
   a. 0
   b. 3 Million
   c. 4 Million
   d. 5 Million
   e. none of the above

14. In this class we were given several criteria one wants in a good that is being taxed. Based on these criteria, which of the following goods would be the best to tax?
   a. Good a: \( E_D = 1.2, \ E_S = 1.3 \), External benefits are generated when a is produced and sold.
   b. Good b: \( E_D = 1.2, \ E_S = 1.3 \), External costs are generated when b is produced and sold.
   c. Good c: \( E_D = 1.2, \ E_S = 0.6 \), No externalities are generated when c is produced and sold
   d. Good d: \( E_D = 0.7, \ E_S = 0.6 \), External benefits are generated when d is produced and sold.
   e. Good e: \( E_D = 0.7, \ E_S = 0.6 \), External costs are generated when e is produced and sold.

15. Jim and Christine are two economists. Christine thinks that a special, high, sales tax on all food items is a good idea. Jim thinks that a sales tax on all food items is a bad idea. Which of the following is most likely true?
   a. Jim is more concerned with equity. Christine is more concerned with economic efficiency.
   b. Jim is more concerned with economic efficiency. Christine is more concerned with equity.
   c. Jim is more concerned with minimizing deadweight loss. Christine is more concerned with economic efficiency.
   d. Jim is more concerned with economic efficiency. Christine is more concerned with minimizing deadweight loss.

16. What type of tax was advocated in the book Progress and Poverty?
   a. a tax on real property excluding the value of land (i.e. a tax on building)
   b. a tax on newborn babies (paid by their parents)
   c. a head tax (everyone pays the same amount regardless)
   d. a tax on land (excluding the value of any property on that land)
   e. a general sales tax on all items bought or sold
Answer questions 8 – 9 based on the information in the table below. Assume you are the commissioner of a tax advisory board in the beautiful metropolis of Chugwater, Wyoming. You and your commission have been asked to place a 5% sales tax on one of the items listed below. The legal incidence of this tax will be on the seller.

<table>
<thead>
<tr>
<th>Good</th>
<th>Price (before tax)</th>
<th>Qty sold (before tax)</th>
<th>E_D</th>
<th>E_S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licorice</td>
<td>$2.00/bag</td>
<td>10,000 bags</td>
<td>4.73</td>
<td>1.02</td>
</tr>
<tr>
<td>Limes</td>
<td>$2.00/lb</td>
<td>10,000 lbs.</td>
<td>2.67</td>
<td>1.06</td>
</tr>
<tr>
<td>Leather</td>
<td>$2.00/ft2</td>
<td>10,000 ft2</td>
<td>0.17</td>
<td>1.14</td>
</tr>
<tr>
<td>Lace</td>
<td>$2.00/sheet</td>
<td>10,000 sheets</td>
<td>0.91</td>
<td>1.10</td>
</tr>
</tbody>
</table>

8. A tax on which item will result in the highest excess burden?
   a. licorice  
   b. limes    
   c. leather  
   d. lace     
   e. more information is needed to answer this question.

9. A tax on which item will result in the most revenue?
   a. licorice  
   b. limes    
   c. leather  
   d. lace     
   e. more information is needed to answer this question.

10. It is 2004 and the Republican candidate for President, Senator Hutchinson, states; “Lowering income tax rates may increase tax revenues, or at the very least, will only cause tax revenues to fall a small amount.” Recently there have been several studies on labor demand and labor supply. Which study most supports her claim?
    a. The Roosevelt Institute Study: \( E_{DLabor} = 1.28 \), \( E_{SLabor} = 0.64 \)
    b. The Coolidge Institute Study: \( E_{DLabor} = 1.28 \), \( E_{SLabor} = 1.24 \)
    c. The Truman Institute Study: \( E_{DLabor} = 0.69 \), \( E_{SLabor} = 0.64 \)
    d. The Wilson Institute Study: \( E_{DLabor} = 0.69 \), \( E_{SLabor} = 1.24 \)

11. In the past, many used tires have simply been dumped anywhere a person could get rid of them. These tires, incredibly slow to decompose, can become a major pollution/environmental problem. As a result, some states now charge a special tax whenever someone buys new tires (and thereby gets rid of their old tires). What type of tax is this?
    a. a tax that cannot be shifted to buyers.
    b. a tax that is always in the upward sloping range of the laffer curve
    c. a pandoran tax
    d. a pigouvian tax
    e. both a and b are correct

12. For what industry, and type of pollution, have tradable pollution permits been tried?
    a. the retail tire industry in Lousiana (dumping of used tires)
    b. Stanford University football games (blocking the view of others by standing up)
    c. the retail liquor and bar industry in Boulder, Colorado (public intoxication)
    d. the electric utility industry in the U.S. Southwest (air pollution)
    e. none of the above
Below, you are given the supply and demand curves, before any taxes, for (day long) horse back rides in Valley county, Montana. The city then decides to impose a tax, with the legal incidence on sellers, of $20 per (day long) ride.

1. What is the price will buyers be paying per horseback ride after the tax?
   a. $60  
   b. $55  
   c. $50  
   d. $45  
   e. none of the above

2. What is the $ amount, per ride, that sellers will get to keep after the tax?
   a. $60  
   b. $55  
   c. $50  
   d. $45  
   e. none of the above

3. What is the level of consumer surplus after the tax?
   a. $1,250  
   b. $2,625  
   c. $4,500  
   d. $6,875  
   e. none of the above

4. What is the level of producer surplus after the tax?
   a. $1,250  
   b. $2,625  
   c. $4,500  
   d. $6,875  
   e. none of the above

5. What is the level of deadweight loss after the tax?
   a. $500  
   b. $1,125  
   c. $2,000  
   d. $4,500  
   e. none of the above

6. What is the level of tax revenues generated by this tax?
   a. $3,500  
   b. $4,500  
   c. $7,000  
   d. $7,500  
   e. none of the above

7. True (a) or False (b)? One of the strengths of direct regulation (in correcting a negative externality) is that it generally results in lower abatement costs than tradable pollution permits or pollution taxes.
   a. True.  
   b. False.