1. Total surplus is:
   A) the sum of consumer and producer surplus.
   B) measured as the area between the supply and demand curves up to the traded quantity.
   C) the total net gain to consumers and producers from trading in the market.
   D) all of the above.

2. If there is a decrease in supply, total surplus:
   A) will increase.
   B) will decrease.
   C) will remain the same.
   D) may change but we can't tell how.

Use the following to answer question 3:

**Figure: Producer Surplus 2**

3. (Figure: Producer Surplus 2) If the price rises from $P_1$ to $P_2$, producer surplus increases by the area:
   A) $LMK$.
   B) $P_1K0$.
   C) $P_2M0$.
   D) $P_2P_1KM$. 
4. If the government imposes a price ceiling in the market for grapefruit, total surplus:
   A) will increase.
   B) will decrease.
   C) will not change.
   D) may change but we cannot determine the change without more information.

Use the following to answer question 5:

**Figure: Consumer Surplus 3**

5. (Figure: Consumer Surplus 3) If the price of the good is $4, consumer surplus will equal:
   A) $5.
   B) $10.
   C) $20.
   D) $40.
Use the following to answer question 6:

**Table: Producer Surplus**

The table below shows the willingness to sell *The Nutty Nutcracker* tickets by five students who have those tickets as part of their student activity fees.

<table>
<thead>
<tr>
<th>Student</th>
<th>Willingness to sell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cailin</td>
<td>$1</td>
</tr>
<tr>
<td>Dudley</td>
<td>$25</td>
</tr>
<tr>
<td>Evan</td>
<td>$60</td>
</tr>
<tr>
<td>Francisco</td>
<td>$90</td>
</tr>
<tr>
<td>Grace</td>
<td>$100</td>
</tr>
</tbody>
</table>

6. (Table: Producer Surplus) If the box-office price of a ticket to see *The Nutty Nutcracker* is $50 and there is no other market for tickets, then total producer surplus for the five students is:
   A) $ 50.  
   B) $ 74.  
   C) $100.  
   D) $276.

7. When there is a bountiful harvest of grapefruit, total consumer surplus in the grapefruit market:
   A) will increase.  
   B) will decrease.  
   C) will remain the same.  
   D) may change but we can't tell how.
Use the following to answer question 8:

**Table: Producer Surplus**

The table below shows the willingness to sell *The Nutty Nutcracker* tickets by five students who have those tickets as part of their student activity fees.

<table>
<thead>
<tr>
<th>Student</th>
<th>Willingness to sell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cailin</td>
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</tr>
<tr>
<td>Evan</td>
<td>$60</td>
</tr>
<tr>
<td>Francisco</td>
<td>$90</td>
</tr>
<tr>
<td>Grace</td>
<td>$100</td>
</tr>
</tbody>
</table>

8. (Table: Producer Surplus) If the box-office price of a ticket to see *The Nutty Nutcracker* is $75 and there is no other market for tickets, the total producer surplus for the five students is:
   A) $190.
   B) $139.
   C) $75.
   D) $40.

9. If total surplus falls, which of the following must have occurred?
   A) There was an increase in demand and a decrease in supply.
   B) There was an increase in demand and an increase in supply.
   C) There was a decrease in demand and a decrease in supply.
   D) There was a decrease in demand and an increase in supply.
Use the following to answer question 10:

**Figure: Consumer Surplus 3**

![Graph showing consumer surplus](image)

10. (Figure: Consumer Surplus 3) If the price of the good increases from $3 to $4, consumer surplus will decrease by:
   A) $5.
   B) $10.
   C) $15.
   D) $20.

11. Along a given supply curve, a decrease in the price of a good will:
   A) increase producer surplus.
   B) decrease producer surplus.
   C) have no effect on producer surplus.
   D) It's impossible to tell what will happen to producer surplus.

Use the following to answer questions 12-13:

**Figure: Consumer Surplus 2**

![Graph showing consumer surplus](image)
12. (Figure: Consumer Surplus 2) If the good is free, consumer surplus equals the area:
   A) $ABP_2$.
   B) $AFP_1$.
   C) $BGF$.
   D) $AQ_30$.

13. (Figure: Consumer Surplus 2) At a price of $P_2$, consumer surplus equals the area:
   A) $ABP_2$.
   B) $AFP_1$.
   C) $AQ_30$.
   D) $P_1P_2BF$.

Use the following to answer question 14:

**Figure: Consumer Surplus 3**

![Diagram of Consumer Surplus 3]

14. (Figure: Consumer Surplus 3) If the price of the good is $2, consumer surplus will equal:
   A) $30$.
   B) $45$.
   C) $60$.
   D) $90$. 

15. (Figure: Producer Surplus 2) At a price of $P_2$, producer surplus equals the area:
   A) $LMK$.
   B) $P_1K0$.
   C) $P_2M0$.
   D) $P_2P_1KM$.

16. Which of the following is true if there is a decrease in the demand of ice cream?
   A) There is an increase in producer surplus.
   B) There is a decrease in producer surplus.
   C) There is no change to producer surplus.
   D) It's impossible to tell what will happen to producer surplus.
17. (Figure: Producer Surplus 2) If the price falls from $P_2$ to $P_1$, producer surplus decreases by the area:
   A) $LMK$.
   B) $P_1K0$.
   C) $P_2M0$.
   D) $P_2P_1KM$.

Use the following to answer questions 18-19:

**Table: Consumer Surplus**

This table shows some Atlanta college students' willingness to pay to see *The Nutty Nutcracker* by the Atlanta Ballet.

<table>
<thead>
<tr>
<th>Student</th>
<th>Willingness to Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lois</td>
<td>$100</td>
</tr>
<tr>
<td>Miguel</td>
<td>90</td>
</tr>
<tr>
<td>Narum</td>
<td>65</td>
</tr>
<tr>
<td>Oscar</td>
<td>50</td>
</tr>
<tr>
<td>Pat</td>
<td>15</td>
</tr>
</tbody>
</table>

18. (Table: Consumer Surplus) If the tickets to *The Nutty Nutcracker* are free and there is no other market for tickets, the total consumer surplus for the five students is:
   A) $0$.
   B) $100$.
   C) $150$.
   D) $320$.

19. (Table: Consumer Surplus) If the box-office price of a ticket to see *The Nutty Nutcracker* is $75 and there is no other market for tickets, the total consumer surplus for the five students is:
   A) $190$.
   B) $125$.
   C) $40$.
   D) $0$. 
20. (Figure: Consumer Surplus 2) At a price of $P_1$, consumer surplus equals the area:
   A) $ABP_2$.
   B) $AFP_1$.
   C) $AQ_3$.
   D) $P_1P_2BF$.

21. (Table: Producer Surplus) If the price of a ticket to see The Nutty Nutcracker is $50, then Dudley's producer surplus is:
   A) $0$.
   B) $25$.
   C) $60$.
   D) $240$.
22. When there is a new medical report extolling the health advantages of grapefruit, total producer surplus in the grapefruit market:
   A) will increase.
   B) will decrease.
   C) will remain the same.
   D) may change but we can't tell how.

Use the following to answer question 23:

**Figure: Consumer Surplus 2**

23. (Figure: Consumer Surplus 2) If the price rises from $P_1$ to $P_2$, consumer surplus decreases by the area:
   A) $ABP_2$.
   B) $APF_1$.
   C) $BGF$.
   D) $P_1P_2BF$.

24. We can measure total producer surplus for good $X$ as:
   A) the sum of the individual producer surpluses for all buyers of $X$.
   B) the area below the supply curve for $X$ and above the price of $X$.
   C) the area bounded by the supply curve for $X$ and the two axes.
   D) all of the above.
Use the following to answer question 25:

**Figure: Producer Surplus 3**

25. (Figure: Producer Surplus 3) If the price of the good is $4, producer surplus will equal:
A) $20.
B) $40.
C) $60.
D) $80.

Use the following to answer question 26:

**Table: Consumer Surplus**

This table shows some Atlanta college students' willingness to pay to see *The Nutty Nutcracker* by the Atlanta Ballet.

<table>
<thead>
<tr>
<th>Student</th>
<th>Willingness to Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lois</td>
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<td>65</td>
</tr>
<tr>
<td>Oscar</td>
<td>50</td>
</tr>
<tr>
<td>Pat</td>
<td>15</td>
</tr>
</tbody>
</table>
26. (Table: Consumer Surplus) If the price of a ticket to see *The Nutty Nutcracker* is $75, then Lois's consumer surplus is:
   A) $25.
   B) $60.
   C) $75.
   D) $100.

Use the following to answer question 27:

**Table: Producer Surplus**

The table below shows the willingness to sell *The Nutty Nutcracker* tickets by five students who have those tickets as part of their student activity fees.

<table>
<thead>
<tr>
<th>Student</th>
<th>Willingness to sell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cailin</td>
<td>$1</td>
</tr>
<tr>
<td>Dudley</td>
<td>$25</td>
</tr>
<tr>
<td>Evan</td>
<td>$60</td>
</tr>
<tr>
<td>Francisco</td>
<td>$90</td>
</tr>
<tr>
<td>Grace</td>
<td>$100</td>
</tr>
</tbody>
</table>

27. (Table: Producer Surplus) If the price of a ticket to see *The Nutty Nutcracker* is $75, then Dudley's producer surplus is:
   A) $15.
   B) $25.
   C) $50.
   D) $240.

28. If total surplus rises, which of the following must have occurred?
   A) There was an increase in demand and a decrease in supply.
   B) There was an increase in demand and an increase in supply.
   C) There was a decrease in demand and a decrease in supply.
   D) There was a decrease in demand and an increase in supply.
Use the following to answer question 29:

**Figure: Producer Surplus 2**

29. (Figure: Producer Surplus 2) At a price of $P_1$, producer surplus equals the area:
   A) $LMK$.
   B) $P_1K0$.
   C) $P_2M0$.
   D) $P_2P_1KM$.

30. If there is a decrease in demand, total surplus:
   A) will increase.
   B) will decrease.
   C) will remain the same.
   D) may change but we can't tell how.

31. We can measure total consumer surplus for good $X$ as:
   A) the sum of the individual consumer surpluses for all buyers of $X$.
   B) the area above the demand curve for $X$ and below the price of $X$.
   C) the area bounded by the demand curve for $X$ and the two axes.
   D) all of the above.

32. Along a given demand curve, a decrease in the price of a good:
   A) will increase consumer surplus.
   B) will decrease consumer surplus.
   C) will have no effect on consumer surplus.
   D) It's impossible to tell what will happen to consumer surplus.
33. Given the demand curve for a good, the more price inelastic the supply curve, the ______ equilibrium output will fall and the ______ will be the deadweight loss when the government imposes an excise tax.
   A) more; smaller
   B) more; larger
   C) less; smaller
   D) less; larger

34. Given the supply curve for a good, the more price inelastic the demand curve, the ______ equilibrium output will fall and the ______ will be the deadweight loss when the government imposes an excise tax.
   A) more; smaller
   B) more; larger
   C) less; smaller
   D) less; larger

Use the following to answer question 35:

**Table: Producer Surplus**

The table below shows the willingness to sell *The Nutty Nutcracker* tickets by five students who have those tickets as part of their student activity fees.

<table>
<thead>
<tr>
<th>Student</th>
<th>Willingness to sell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cailin</td>
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<tr>
<td>Dudley</td>
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</tr>
<tr>
<td>Evan</td>
<td>$60</td>
</tr>
<tr>
<td>Francisco</td>
<td>$90</td>
</tr>
<tr>
<td>Grace</td>
<td>$100</td>
</tr>
</tbody>
</table>

35. (Table: Producer Surplus) If the price of a ticket to see *The Nutty Nutcracker* is $50, then Francisco's producer surplus is:
   A) $0.
   B) $40.
   C) $90.
   D) $240.
36. Which of the following is true if there is a decrease in the supply of ice cream?
   A) There is an increase in consumer surplus.
   B) There is a decrease in consumer surplus.
   C) There is no change to consumer surplus.
   D) It's impossible to tell what will happen to consumer surplus.

Use the following to answer question 37:

**Figure: Consumer Surplus 2**

37. (Figure: Consumer Surplus 2) If the price falls from \( P_2 \) to \( P_1 \), consumer surplus increases by the area:
   A) \( ABP_2 \).
   B) \( AFP_1 \).
   C) \( BGF \).
   D) \( P_1P_2BF \).

38. At 30 units of output, a firm's marginal cost and average variable cost each equal $10. Therefore, assuming normally shaped cost curves, at 29 units of output its marginal cost:
   A) is greater than $10 and its average variable cost is less than $10.
   B) is less than $10 and its average variable cost is more than $10.
   C) and its average variable cost are each greater than $10.
   D) and its average variable cost are each equal to $10.

39. If marginal cost is greater than average total cost, then:
   A) average total cost is increasing.
   B) average total cost is decreasing.
   C) average total cost is unchanged.
   D) marginal cost is decreasing.
40. If an increase in output results in a decrease in average total cost, the corresponding marginal cost is:
   A) less than average total cost.
   B) greater than average total cost.
   C) equal to average total cost.
   D) negative.

Use the following to answer question 41:

**Figure: Long-Run Average Cost**

41. (Figure: Long-Run Average Cost) Output per period in the region from O to A indicates that a firm is experiencing:
   A) diseconomies of scale.
   B) constant returns to scale.
   C) economies of scale.
   D) negative costs of production.

Use the following to answer question 42:

**Figure: Total Product**
42. Figure: Total Product) Hiring $L_2$ units of labor results in total product attaining a __________ and the marginal product of labor ________.  
A) minimum; being equal to zero.  
B) maximum; being equal to zero.  
C) maximum; being positive  
D) minimum; falling, but still being positive.

43. The long-run average cost curve is tangent to an infinite number of:  
A) total cost curves.  
B) marginal cost curves.  
C) average variable cost curves.  
D) average total cost curves.

Use the following to answer question 44:

**Figure: Total Product**

44. (Figure: Total Product) After hiring $L_2$ units of labor and producing at point $B$ on the total product curve, hiring more units of labor would result in which of the following statements being true?  
A) The marginal product of labor is rising.  
B) The marginal product of labor is negative.  
C) Total product is negative.  
D) Average product is negative.

45. The long run is a planning period:  
A) over which a firm can consider all inputs as variable.  
B) that is at least 5 years in length.  
C) that must be over 6 months in length.  
D) that must be between 6 months and 5 years.
Use the following to answer question 46:

**Table: Costs of Producing Bagels**

<table>
<thead>
<tr>
<th>Quantity of bagels (per period)</th>
<th>Total variable costs</th>
<th>Total fixed costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$0.00</td>
<td>$0.10</td>
</tr>
<tr>
<td>1</td>
<td>0.20</td>
<td>0.10</td>
</tr>
<tr>
<td>2</td>
<td>0.30</td>
<td>0.10</td>
</tr>
<tr>
<td>3</td>
<td>0.35</td>
<td>0.10</td>
</tr>
<tr>
<td>4</td>
<td>0.45</td>
<td>0.10</td>
</tr>
<tr>
<td>5</td>
<td>0.60</td>
<td>0.10</td>
</tr>
<tr>
<td>6</td>
<td>0.80</td>
<td>0.10</td>
</tr>
<tr>
<td>7</td>
<td>1.05</td>
<td>0.10</td>
</tr>
<tr>
<td>8</td>
<td>1.35</td>
<td>0.10</td>
</tr>
</tbody>
</table>

46. (Table: Costs of Producing Bagels) The marginal cost of producing the sixth bagel is:
   A) $0.10.
   B) $0.15.
   C) $0.20.
   D) $0.80.

Use the following to answer question 47:

**Table: Total Product and Marginal Product**

<table>
<thead>
<tr>
<th>Labor per day</th>
<th>Total products (units per period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>70</td>
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<tr>
<td>4</td>
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<tr>
<td>5</td>
<td>100</td>
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<tr>
<td>6</td>
<td>107</td>
</tr>
<tr>
<td>7</td>
<td>110</td>
</tr>
<tr>
<td>8</td>
<td>105</td>
</tr>
</tbody>
</table>
47. (Table: Total Product and Marginal Product) The average product of the fourth worker is ________ units.
   A) 20
   B) 22.5
   C) 50
   D) 90

48. The change in total output resulting from a 1-unit increase in the quantity of an input used, holding the quantities of all other inputs constant, is:
   A) average cost.
   B) average product.
   C) marginal cost.
   D) marginal product.

49. When an additional unit of a variable input adds less to total product than the previous unit, the firm must be experiencing:
   A) increasing returns.
   B) diminishing marginal returns.
   C) diminishing average returns.
   D) both B and C.

50. A farm can produce 1,000 bushels of wheat per year with 2 workers and 1,300 bushels of wheat per year with 3 workers. The marginal product of the third worker is:
   A) 100 bushels.
   B) 300 bushels.
   C) 1,300 bushels.
   D) 2,300 bushels.

51. At the long-run quantity of output, where the LRAC curve is at its lowest point, it is tangent to the ________ of the corresponding short-run average total cost curve.
   A) minimum
   B) maximum
   C) right of the minimum
   D) left of the minimum
Use the following to answer question 52:

**Table: Total Product and Marginal Product**

<table>
<thead>
<tr>
<th>Labor per day</th>
<th>Total products (units per period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
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<tr>
<td>2</td>
<td>30</td>
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<td>3</td>
<td>70</td>
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<tr>
<td>6</td>
<td>107</td>
</tr>
<tr>
<td>7</td>
<td>110</td>
</tr>
<tr>
<td>8</td>
<td>105</td>
</tr>
</tbody>
</table>

52. (Table: Total Product and Marginal Product) Negative marginal returns begin when the ________ worker is added.
   A) fifth
   B) sixth
   C) seventh
   D) eighth

53. Average total cost is:
   A) the change in cost divided by the change in output.
   B) total cost divided by output.
   C) the change in output divided by the change in costs.
   D) total cost times output.

54. At 76 units of labor, a firm finds that average product of labor equals 39.6 and marginal product of labor equals 42.9. We can conclude that the average product curve at 76 units of labor is:
   A) upward sloping.
   B) downward sloping.
   C) vertical.
   D) horizontal.
55. (Figure: Total Product) When hiring units of labor between zero and $L_1$ units of labor, which of the following statements is true?
A) The marginal product of labor is increasing.
B) The marginal product of labor is decreasing.
C) Total product is increasing at a diminishing rate.
D) None of the above statements is true.

56. Marginal cost _______ over the range of increasing marginal returns and _______ over the range of diminishing marginal returns.
A) increases; falls
B) falls; increases
C) is constant; rises
D) increases; is constant

57. Total cost divided by the quantity of output produced is:
A) average total cost.
B) average fixed cost.
C) average product.
D) marginal cost.

58. A fixed input is one:
A) that exists in nature and there is only so much of it.
B) that can be used for one thing only.
C) that can never produce more or less in any time period.
D) whose quantity cannot be changed in a particular period.
59. (Figure: Short-Run Costs) At 7 units of output, average fixed cost is approximately _______, and average variable cost is approximately _______.
   A) $100; $100
   B) $10; $135
   C) $40; $100
   D) $140; $140

60. (Figure: Short-Run Costs) The vertical difference between curve $B$ and curve $C$ at any quantity of output is:
   A) marginal cost.
   B) fixed cost.
   C) average fixed cost.
   D) average variable cost.

61. A input whose quantity cannot be changed during a particular period is a(n):
   A) marginal input.
   B) fixed input.
   C) incremental input.
   D) variable input.

62. A curve which shows the quantities of output that can be obtained from different quantities of a variable input, assuming other inputs are fixed, is called the _______ curve.
   A) total input
   B) marginal input
   C) total product
   D) average total quantity
Use the following to answer question 63:

**Table: Costs of Producing Bagels**

<table>
<thead>
<tr>
<th>Quantity of bagels (per period)</th>
<th>Total variable costs</th>
<th>Total fixed costs</th>
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<td>0.45</td>
<td>0.10</td>
</tr>
<tr>
<td>5</td>
<td>0.60</td>
<td>0.10</td>
</tr>
<tr>
<td>6</td>
<td>0.80</td>
<td>0.10</td>
</tr>
<tr>
<td>7</td>
<td>1.05</td>
<td>0.10</td>
</tr>
<tr>
<td>8</td>
<td>1.35</td>
<td>0.10</td>
</tr>
</tbody>
</table>

63. (Table: Costs of Producing Bagels) The total cost of producing 6 bagels is:
   A) $0.10.
   B) $0.20.
   C) $0.80.
   D) $0.90.

Use the following to answer question 64:

**Figure: Total Product**

[Diagram of Total Product]

Units of labor (per day)

Total output (per period)
64. (Figure: Total Product) As units of labor are hired between quantities $L_1$ and $L_2$, _______ is _______ and _______ is _______.
   A) total product; rising; marginal product; positive
   B) marginal product; zero; total product; falling
   C) total product; rising; marginal product; negative
   D) none of the above

65. The slope of a long-run average cost curve exhibiting diseconomies of scale is:
   A) zero.
   B) infinite.
   C) positive.
   D) negative.

66. If a firm produces 10 units of output and incurs $30 in average variable cost and $5 in average fixed cost, total cost is:
   A) $35.
   B) $50.
   C) $300.
   D) $350.

Use the following to answer question 67:

**Figure: Long-Run Average Cost**

67. (Figure: Long-Run Average Cost) Output per period in the region $B$ to $C$ indicates that a firm is experiencing:
   A) constant returns to scale.
   B) diseconomies of scale.
   C) economies of scale.
   D) falling marginal cost.
68. The marginal cost curve intersects the average variable cost curve at:
   A) its lowest point.
   B) its maximum.
   C) its endpoint.
   D) no point; the curves don't intersect.

69. In the long run:
   A) all inputs are fixed.
   B) inputs are neither variable nor fixed.
   C) at least one input is variable and one input is fixed.
   D) all inputs are variable.

70. If a firm produces 10 units of output and incurs $35 in average total cost, and $5 in
    average fixed cost, average variable cost is:
   A) $30.
   B) $35.
   C) $50.
   D) $300.

Use the following to answer question 71:

**Table: Total Product and Marginal Product**

<table>
<thead>
<tr>
<th>Labor per day</th>
<th>Total products (units per period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<tr>
<td>1</td>
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<tr>
<td>6</td>
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<tr>
<td>7</td>
<td>110</td>
</tr>
<tr>
<td>8</td>
<td>105</td>
</tr>
</tbody>
</table>

71. (Table: Total Product and Marginal Product) The marginal product of the second worker
    is:
    A) 10.
    B) 15.
    C) 20.
    D) 30.
72. Average variable cost is the ratio of:
   A) total cost to the marginal cost.
   B) total cost to the amount of variable input.
   C) variable cost to the quantity of output.
   D) marginal cost to the quantity of output.

Use the following to answer question 73:

**Table: Costs of Producing Bagels**

<table>
<thead>
<tr>
<th>Quantity of bagels (per period)</th>
<th>Total variable costs</th>
<th>Total fixed costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$0.00</td>
<td>$0.10</td>
</tr>
<tr>
<td>1</td>
<td>0.20</td>
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<tr>
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<tr>
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</tr>
<tr>
<td>6</td>
<td>0.80</td>
<td>0.10</td>
</tr>
<tr>
<td>7</td>
<td>1.05</td>
<td>0.10</td>
</tr>
<tr>
<td>8</td>
<td>1.35</td>
<td>0.10</td>
</tr>
</tbody>
</table>

73. (Table: Costs of Producing Bagels) The average total cost of producing 6 bagels is:
   A) $0.10.
   B) $0.15.
   C) $0.20.
   D) $0.80.

74. A input whose quantity can be changed during a particular period is a:
   A) marginal input.
   B) fixed input.
   C) incremental input.
   D) variable input.
75. (Figure: Long-Run Average Cost) Output per period in the region $A$ to $B$ indicates that a firm is experiencing:
   A) constant returns to scale.
   B) economies of scale.
   C) diseconomies of scale.
   D) constant total cost as output increases.

76. A university that benefits from lower costs per unit as it grows is an example of:
   A) economies of scale.
   B) diseconomies of scale.
   C) increasing opportunity costs.
   D) scale reduction.

77. At quantities greater than the long-run least per-unit cost quantity of output, the long-run average cost curve is tangent to the _______ of the corresponding short-run average cost curve.
   A) minimum
   B) maximum
   C) right of the minimum
   D) left of the minimum
Use the following to answer question 78:

**Figure: Total Product**

78. (Figure: Total Product) Between points $A$ and $B$ the marginal product of labor is:
   
   A) increasing.  
   B) zero. 
   C) falling. 
   D) infinite.

79. A total product curve indicates the relationship between:
   
   A) variable input and price. 
   B) variable input and variable cost. 
   C) variable input and output. 
   D) output and price.

Use the following to answer question 80:

**Figure: Total Product**

78. (Figure: Total Product) Between points $A$ and $B$ the marginal product of labor is:
   
   A) increasing.  
   B) zero. 
   C) falling. 
   D) infinite.

79. A total product curve indicates the relationship between:
   
   A) variable input and price. 
   B) variable input and variable cost. 
   C) variable input and output. 
   D) output and price.
80. (Figure: Total Product) If after hiring $L_2$ units of labor, the firm hires more labor, total product will _____ because the marginal product of labor is ______.
   A) decrease; positive  
   B) increase; positive  
   C) decrease; negative  
   D) increase; negative

81. Average variable cost is:
   A) the firm's variable cost per unit multiplied by the output.  
   B) total variable cost divided by output.  
   C) the difference between average total cost and total variable cost.  
   D) the difference between total cost and total variable cost.

82. The curve that shows the additional cost of each additional unit of output is called the:
   A) average cost curve.  
   B) total cost curve.  
   C) marginal product curve.  
   D) marginal cost curve.

83. Bessie wants to calculate her accounting and economic profits on her cattle farm in Nebraska. She pays $30,000 per year for the cost of raising cattle, $80,000 in wages, $20,000 in insurance, and she foregoes $30,000 per year that she could make as a teacher. If her total revenue equals $140,000. That means her accounting profit is _______ and her economic profit is ________.
   A) $10,000; –$20,000  
   B) $30,000; –$30,000  
   C) –$10,000; –$10,000  
   D) $60,000; $30,000

84. The implicit cost of capital is:
   A) the explicit cost of capital that the firm might have used but didn't need to.  
   B) depreciation.  
   C) the opportunity cost of the capital used by a business.  
   D) the cost of human capital.
85. Ian is a big Braves fan and pays $100 for a ticket to see one of their play-off games. Unfortunately, he left the ticket in his jeans when he laundered them and the ticket is destroyed. According to marginal analysis, Ian:
A) should not go to the game.
B) buy another ticket for $100 and attend the game.
C) buy another ticket and attend the game only if he can buy the ticket for less than $100.
D) should do none of the above.

Use the following to answer question 86:

**Figure: Marginal Benefits and Marginal Costs**

In the figure below, \( MB \) represents the additional points on an economics exam for each hour of studying economics and \( MC \) represents the loss of points on an accounting test for each hour of studying economics.

86. (Figure: Marginal Benefits and Marginal Costs) As shown in the figure, the marginal benefit of studying economics when the student is at 4 hours is ______ points and the marginal cost is ______ points.
A) 30; 30
B) 20; 10
C) 20; 20
D) 30; 10
87. Whenever $MB > MC$, the decision maker should do _______ of the activity.
   A) less
   B) the same amount
   C) more
   D) none

88. The present value of a future payment decreases if the:
   A) period between the present and the future increases.
   B) future payment increases.
   C) interest rate decreases.
   D) stock market rises.

89. In economics the assumption is made that consumers and firms will make choices that
   maximize(s) the _______ of each activity.
   A) total net benefit
   B) total benefit
   C) sum of total benefit and total cost
   D) product of total benefit and total cost

90. The amount by which an additional unit of an activity increases total cost is:
   A) net benefit.
   B) marginal benefit.
   C) negative benefit.
   D) marginal cost.

Use the following to answer question 91:

**Table: Tutoring**

Sigmund tutors five students for the introductory psychology class. The students differ in their
willingness to pay for a one-hour session. The second column of the table shows their
willingness to pay. Sigmund has estimated his costs of providing tutoring hours (he has no sunk
costs) and these costs appear in the last column.

<table>
<thead>
<tr>
<th>Student</th>
<th>Students' willingness to pay</th>
<th>Hours of tutoring</th>
<th>Sigmund's cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter</td>
<td>$25</td>
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<td>$5</td>
</tr>
<tr>
<td>Quincy</td>
<td>15</td>
<td>2</td>
<td>10</td>
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<tr>
<td>Rosemary</td>
<td>5</td>
<td>3</td>
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</tr>
<tr>
<td>Sally</td>
<td>20</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Tomas</td>
<td>10</td>
<td>5</td>
<td>25</td>
</tr>
</tbody>
</table>
91. (Table: Tutoring) Sigmund's optimal number of tutoring hours is:
   A) 5.
   B) 4.
   C) 3.
   D) 2.

Use the following to answer question 92:

**Figure: Marginal Benefits and Marginal Costs**

In the figure below, \(MB\) represents the additional points on an economics exam for each hour of studying economics and \(MC\) represents the loss of points on an accounting test for each hour of studying economics.

92. (Figure: Marginal Benefits and Marginal Costs) As shown in the figure, more time spent studying economics adds points to economics scores but subtracts points from accounting scores. The marginal benefit of studying economics when the student is at 2 hours is _______ points and the marginal cost is _______ points.
   A) 40; 0
   B) 30; 10
   C) 20; 20
   D) 10; 30

93. Total net gain is maximized when marginal benefit _______ marginal cost.
   A) exceeds
   B) is less than
   C) is equal to
   D) approaches
Use the following to answer question 94:

**Table: Expected Exam Scores from Studying Economics and Accounting**

<table>
<thead>
<tr>
<th>Number of hours studying Economics</th>
<th>Expected Economics exam score</th>
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<tr>
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</table>

<table>
<thead>
<tr>
<th>Number of hours studying Accounting</th>
<th>Expected Accounting exam score</th>
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<tbody>
<tr>
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<td>2</td>
<td>70</td>
</tr>
<tr>
<td>3</td>
<td>70</td>
</tr>
</tbody>
</table>

94. (Table: Expected Exam Scores from Studying Economics and Accounting) With 3 total hours of study time, the marginal benefit in terms of your economics score of spending the first hour studying economics is ______ points.
A) 5  
B) 10  
C) 15  
D) 20

95. The ______ is the amount by which an additional unit of an activity increases its total benefit.
A) average benefit  
B) net benefit  
C) marginal benefit  
D) top benefit
Use the following to answer question 96:

**Exhibit: Accounting and Economic Profit**

(Exhibit: Accounting and Economic Profit) Rather than put the $100,000 that his grandmother left him in a mutual fund and earn 5% each year, Tommy Wang quit his job that paid $60,000 per year and used the $100,000 to start Wang's Wicker Furniture Store. He rented a showroom for $15,000 for the year, purchased $100,000 in capital equipment (an amount that could have earned an annual rate of interest of 5% and depreciates $5,000 each year), purchased $60,000 in wicker furniture, and incurred costs of $40,000 for sales help and advertising. In his first year, his revenue was approximately $150,000.

96. (Exhibit: Accounting and Economic Profit) The implicit cost of capital for Wang's Wicker Furniture Store is:
   A) $0.
   B) $2,000.
   C) $5,000.
   D) $50,000.

97. According to the marginal decision rule, if marginal benefit:
   A) exceeds marginal cost, an activity should be increased.
   B) is less than marginal cost, an activity should be increased.
   C) is equal to marginal cost, an activity should be increased.
   D) exceeds marginal cost, net benefit is maximized.

98. An amount that would equal a particular future value if deposited today at a specific interest rate is the:
   A) present value.
   B) inflation rate.
   C) discount premium.
   D) market index.
Use the following to answer question 99:

**Figure: Marginal Benefits and Marginal Costs**

In the figure below, $MB$ represents the additional points on an economics exam for each hour of studying economics and $MC$ represents the loss of points on an accounting test for each hour of studying economics.

99. (Figure: Marginal Benefits and Marginal Costs) As shown in the figure, more time spent studying economics adds points to economics scores but subtracts points from accounting scores. When the student studies economics for 4 hours, the marginal benefit is _______; when the student studies for 6 hours, the marginal benefit is _______.
   A) 20; 10
   B) 30; 10
   C) 20; 0
   D) 20; 30

100. To determine the quantity of any activity that will maximize total net benefit, economists employ the ____________ rule.
   A) average decision rule
   B) total decision rule
   C) principle of marginal analysis
   D) principle of average analysis

101. The _______ is the amount by which an additional unit of activity increases its cost.
   A) marginal cost
   B) average cost
   C) average profit
   D) marginal benefit
Use the following to answer question 102:

**Table: Expected Exam Scores from Studying Economics and Accounting**

<table>
<thead>
<tr>
<th>Number of hours studying Economics</th>
<th>Expected Economics exam score</th>
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<tr>
<td>1</td>
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<tr>
<td>3</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of hours studying Accounting</th>
<th>Expected Accounting exam score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>50</td>
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<tr>
<td>1</td>
<td>65</td>
</tr>
<tr>
<td>2</td>
<td>70</td>
</tr>
<tr>
<td>3</td>
<td>70</td>
</tr>
</tbody>
</table>

**102. (Table: Expected Exam Scores from Studying Economics and Accounting)** With 3 total hours of study time, your combined scores can be maximized by spending _______ hours studying economics.

A) 1  
B) 2  
C) 3  
D) 4
Use the following to answer question 103:

**Figure: Marginal Benefits and Marginal Costs**

In the figure below, $MB$ represents the additional points on an economics exam for each hour of studying economics and $MC$ represents the loss of points on an accounting test for each hour of studying economics.

103. (Figure: Marginal Benefits and Marginal Costs) As shown in the figure, more time spent studying economics adds points to economics scores but subtracts points from accounting scores. At 4 hours of study the student will "maximize" because:
   A) $MB = MC$.
   B) $MB = 20$ and $MC = 20$.
   C) the difference between total benefits and total costs is maximized.
   D) of all of the above.

104. Costs included in the economic concept of cost but that are not an explicit cost are:
   A) outlay costs.
   B) accounting profits.
   C) implicit costs.
   D) economic profits.

105. Charges that must be paid for the use of factors of production such as labor and capital are:
   A) explicit costs.
   B) accounting profits.
   C) implicit costs.
   D) economic profits.
106. Someone who has to make a choice involving whether to receive $100 now or $100 one year from now, will probably choose _______, since there is a(n) ________ in waiting to use money.
A) one year from now; benefit
B) now; opportunity cost
C) one year from now; opportunity cost
D) now; benefit

107. Profit computed using explicit costs as the only measure of costs is:
A) explicit profit.
B) accounting profit.
C) implicit profit.
D) economic profit

Use the following to answer questions 108-109:

**Table: Tutoring**

Sigmund tutors five students for the introductory psychology class. The students differ in their willingness to pay for a one-hour session. The second column of the table shows their willingness to pay. Sigmund has estimated his costs of providing tutoring hours (he has no sunk costs) and these costs appear in the last column.

<table>
<thead>
<tr>
<th>Student</th>
<th>Students' willingness to pay</th>
<th>Hours of tutoring</th>
<th>Sigmund's cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter</td>
<td>$25</td>
<td>1</td>
<td>$5</td>
</tr>
<tr>
<td>Quincy</td>
<td>15</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Rosemary</td>
<td>5</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Sally</td>
<td>20</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Tomas</td>
<td>10</td>
<td>5</td>
<td>25</td>
</tr>
</tbody>
</table>

108. (Table: Tutoring) If the college requires all tutors to register with the dean and charges $10 to register, Sigmund's optimal number of tutoring hours will be:
A) 5.
B) 4.
C) 3.
D) 2.
109. (Table: Tutoring) If the college requires all tutors to register with the dean and charges $10 to register, Sigmund's total net gain from tutoring will be:
   A) $10.
   B) $20.
   C) $30.
   D) $40.

110. For most firms, economic profit is:
   A) less than accounting profit.
   B) equal to accounting profit.
   C) greater than accounting profit.
   D) negative.

111. Suppose Eastland College does not have a summer program but could rent out the campus to various summer sports camps for $100,000. The potential revenue of the summer camps represents a(n):
   A) implicit cost of capital.
   B) explicit cost.
   C) total cost.
   D) none of the above.

Use the following to answer question 112:

**Table: Tutoring**

Sigmund tutors five students for the introductory psychology class. The students differ in their willingness to pay for a one-hour session. The second column of the table shows their willingness to pay. Sigmund has estimated his costs of providing tutoring hours (he has no sunk costs) and these costs appear in the last column.

<table>
<thead>
<tr>
<th>Student</th>
<th>Students' willingness to pay</th>
<th>Hours of tutoring</th>
<th>Sigmund's cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter</td>
<td>$25</td>
<td>1</td>
<td>$5</td>
</tr>
<tr>
<td>Quincy</td>
<td>15</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Rosemary</td>
<td>5</td>
<td>3</td>
<td>15</td>
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<tr>
<td>Sally</td>
<td>20</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Tomas</td>
<td>10</td>
<td>5</td>
<td>25</td>
</tr>
</tbody>
</table>
112. (Table: Tutoring) At the optimal hours of tutoring, Sigmund's total net gain is:
   A) $60.
   B) $50.
   C) $30.
   D) $15.

113. If the marginal benefit received from a good is greater than the marginal cost of production, then:
   A) society's well-being can be improved if production increases.
   B) society's well-being can be improved if production decreases.
   C) society's well-being cannot be improved by changing production.
   D) the market is producing too much of the good.

114. Expenses associated with factors of production are called:
   A) implicit costs.
   B) opportunity costs.
   C) explicit costs.
   D) all of the above.

115. If the marginal benefit received from a good is equal to the marginal cost of production, then:
   A) society's well-being cannot be improved by changing production.
   B) society's well-being can be improved if production decreases.
   C) society's well-being can be improved if production increases.
   D) the market is producing too much of the good.

Use the following to answer question 116:

**Exhibit: Accounting and Economic Profit**

(Exhibit: Accounting and Economic Profit) Rather than put the $100,000 that his grandmother left him in a mutual fund and earn 5% each year, Tommy Wang quit his job that paid $60,000 per year and used the $100,000 to start Wang's Wicker Furniture Store. He rented a showroom for $15,000 for the year, purchased $100,000 in capital equipment (an amount that could have earned an annual rate of interest of 5% and depreciates $5,000 each year), purchased $60,000 in wicker furniture, and incurred costs of $40,000 for sales help and advertising. In his first year, his revenue was approximately $150,000.
116. (Exhibit: Accounting and Economic Profit) The economic profit of Wang's Wicker Furniture Store is
A) $67,000.
B) $0.
C) –$20,000.
D) –$35,000.

117. If the marginal benefit received from a good is less than the marginal cost of production, then:
A) society's well-being can be improved if production increases.
B) society's well-being can be improved if production decreases.
C) society's well-being cannot be improved by changing production.
D) the market is producing too little of the good.

118. Whenever \( MB < MC \), the decision maker should do _______ of the activity.
A) less
B) the same amount
C) more
D) none

Use the following to answer question 119:

Table: Expected Exam Scores from Studying Economics and Accounting

<table>
<thead>
<tr>
<th>Number of hours studying Economics</th>
<th>Expected Economics exam score</th>
</tr>
</thead>
<tbody>
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<tr>
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</table>

<table>
<thead>
<tr>
<th>Number of hours studying Accounting</th>
<th>Expected Accounting exam score</th>
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<td>2</td>
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</tr>
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<td>3</td>
<td>70</td>
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</table>
119. (Table: Expected Exam Scores from Studying Economics and Accounting) With 3 total hours of study time, the opportunity (or marginal) cost in terms of your accounting score of spending the first hour studying economics is ________ points.
   A) 0
   B) 5
   C) 10
   D) 15

120. If, for a particular consumer, the marginal utility of ties is greater than the marginal utility of shirts, this consumer should:
   A) buy more ties and fewer shirts.
   B) buy more shirts and fewer ties.
   C) buy the same amount of each.
   D) not do anything until more information is available.

Use the following to answer question 121:

**Figure: Budget Lines**

[Chart A]

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<th>Apples</th>
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[Chart B]

<table>
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[Chart C]

<table>
<thead>
<tr>
<th>Oranges</th>
<th>Apples</th>
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<tr>
<td>20</td>
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[Chart D]

<table>
<thead>
<tr>
<th>Oranges</th>
<th>Apples</th>
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<tbody>
<tr>
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</table>
121. (Figure: Budget Lines) For some time, Sylvester has had $5 per month to spend on oranges and apples. The price of an orange is $0.50 and the price of an apple is $0.25. Which of the charts shows what will happen to his budget line if the price of an orange rises to $1.00 and the price of an apple rises to $0.50?
A) Chart A
B) Chart B
C) Chart C
D) Chart D

Use the following to answer question 122:

**Table: Consumer Equilibrium 1**

<table>
<thead>
<tr>
<th>Units of good X</th>
<th>Marginal utility good X</th>
<th>Units of good Y</th>
<th>Marginal utility good Y</th>
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<tbody>
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<tr>
<td>6</td>
<td>0</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

122. (Table: Consumer Equilibrium 1) Assume that the price of both goods X and Y is $1 per unit, and you have $4 of income to spend on both goods. To maximize utility, you would consume ______ units of X and ______ units of Y.
A) 0; 4
B) 1; 3
C) 2; 2
D) 3; 1

Use the following to answer question 123:

**Exhibit: Budget Constraint**

Tom is trying to decide how to allocate his $50 budget for CD purchases and DVD rentals when the price of a CD is $10 and the price of a DVD rental is $5.
123. (Exhibit: Budget Constraint) If we measure CD purchases on the horizontal axis and DVD rentals on the vertical axis, the horizontal intercept of Tom's budget line is:
A) 10.
B) 5.
C) 2.
D) $\frac{1}{2}$.

Use the following to answer question 124:

**Table: Consumer Equilibrium 1**

<table>
<thead>
<tr>
<th>Units of good $X$</th>
<th>Marginal utility good $X$</th>
</tr>
</thead>
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</table>

<table>
<thead>
<tr>
<th>Units of good $Y$</th>
<th>Marginal utility good $Y$</th>
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</thead>
<tbody>
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<td>6</td>
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</table>

124. (Table: Consumer Equilibrium 1) Assume that the price of good $X$ is $2 per unit, the price of good $Y$ is $1 per unit, and you have $10 of income to spend on both goods. To maximize utility, you would consume _______ units of $X$ and _______ units of $Y$.
A) 3; 4
B) 2; 3
C) 2; 6
D) 5; 0

125. The law of diminishing marginal utility indicates that the slope of the marginal utility curve eventually becomes:
A) negative.
B) vertical.
C) horizontal.
D) positive.
126. The amount by which total utility increases when an additional unit of a good is consumed is called _______ utility.
   A) average
   B) additional
   C) maximum
   D) marginal

127. Economists identify the satisfaction a person derives from the consumption of goods and services as:
   A) happiness.
   B) usefulness.
   C) utility.
   D) pleasure.

128. If a consumer purchases a combination of commodities \(A\) and \(B\) such that \(M_A/P_A = 100\) and \(MU_B/P_B = 80\), to maximize utility, the consumer should buy:
   A) less of both \(A\) and \(B\).
   B) more of \(A\) and less of \(B\).
   C) less of \(A\) and more of \(B\).
   D) more of both \(A\) and \(B\).

129. Choices that maximize total utility generally produce demand curves that are:
   A) horizontal.
   B) upward sloping.
   C) downward sloping.
   D) linear.

130. John Smedley, a careful maximizer of utility, consumes only two goods, peanut butter and broccoli. He had just achieved the utility-maximizing solution in his consumption of the two goods when the price of broccoli rose. As he adjusts to this event, he will consume:
   A) more peanut butter and less broccoli.
   B) less peanut butter and less broccoli.
   C) more peanut butter and more broccoli.
   D) less peanut butter and more broccoli.
131. Michael Kawamura, a careful maximizer of utility, consumes only two goods, peanut butter and ice cream. He had just achieved the utility-maximizing solution in his consumption of the two goods when the price of peanut butter fell. As he adjusts to this event:
   A) the marginal utility of peanut butter and of ice cream will rise.
   B) the marginal utility of peanut butter and of ice cream will fall.
   C) the marginal utility of peanut butter will fall, and the marginal utility of ice cream will rise.
   D) the marginal utility of peanut butter will rise, and the marginal utility of ice cream will fall.

132. John Smedley, a careful maximizer of utility, consumes only two goods, peanut butter and ice cream. He had just achieved the utility-maximizing solution in his consumption of the two goods when the price of ice cream fell. As he adjusts to this event, he will consume:
   A) more peanut butter and more ice cream.
   B) less peanut butter and less ice cream.
   C) more peanut butter and less ice cream.
   D) less peanut butter and more ice cream.

Use the following to answer questions 133-134:

**Figure: Budget Lines**

![Budget Lines Diagram](image.png)
133. (Figure: Budget Lines) For some time, Sylvester has had $5 per month to spend on oranges and apples. The price of an orange is $0.50 and the price of an apple is $0.25. Which of the charts shows what will happen to his budget line if the price of an apple rises to $0.50?
A) Chart A  
B) Chart B  
C) Chart C  
D) Chart D

134. (Figure: Budget Lines) For some time, Sylvester has had $5 per month to spend on oranges and apples. The price of an orange is $0.50 and the price of an apple is $0.25. Which of the charts shows what will happen to his budget line if his income increases to $6?
A) Chart A  
B) Chart B  
C) Chart C  
D) Chart D

135. The utility of a good is determined by how much _______ a particular consumer obtains from it.
A) satisfaction  
B) usefulness  
C) cost  
D) need fulfillment

136. If a consumer purchases a combination of commodities $X$ and $Y$ such that \( \frac{MU_x}{P_x} = 20 \) and \( \frac{MU_y}{P_y} = 10 \), to maximize utility, consumers should buy.
A) less of $X$ and more of $Y$.  
B) more of $X$ and less of $Y$.  
C) more of both $X$ and $Y$.  
D) less of both $X$ and $Y$.

137. The income effect refers to:
A) changes in income because of changes in business investment.  
B) changes in money or nominal income because of changes in wages.  
C) a change in the quantity demanded of a good because of an implicit change in the buyer's income caused by a change in the price of a good or service.  
D) a change in the quantity demanded of a good because of a change in the buyer's money income.
Use the following to answer question 138:

**Exhibit: Budget Constraint**

Tom is trying to decide how to allocate his $50 budget for CD purchases and DVD rentals when the price of a CD is $10 and the price of a DVD rental is $5.

138. (Exhibit: Budget Constraint) Which of the following combinations of CD purchases and DVD rentals lie on Tom's budget line?
   A) 5 CDs and 10 DVDs
   B) 5 CDs and 0 DVDs
   C) 0 CDs and 5 DVDs
   D) 10 CDs and 5 DVDs

139. Jill Smith, a careful maximizer of utility, consumes only two goods, peanut butter and ice cream. She had just achieved the utility-maximizing solution in her consumption of the two goods when the price of peanut butter rose. As she adjusts to this event:
   A) the marginal utility of peanut butter and of ice cream will rise.
   B) the marginal utility of peanut butter and of ice cream will fall.
   C) the marginal utility of peanut butter will fall, and the marginal utility of ice cream will rise.
   D) the marginal utility of peanut butter will rise, and the marginal utility of ice cream will fall.

140. Assume that the marginal utilities for the first 3 units of a good consumed are 200, 150, and 125, respectively. The total utility when 2 units are consumed is:
   A) 150.
   B) 200.
   C) 350.
   D) 475.

Use the following to answer question 141:

**Table: Utility**

<table>
<thead>
<tr>
<th>Units</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>Total utility</td>
<td>0</td>
<td>20</td>
<td>35</td>
<td>45</td>
<td>50</td>
<td>50</td>
<td>45</td>
<td>35</td>
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</tbody>
</table>
141. (Table: Utility) The marginal utility for the sixth unit is:
   A) –5.
   B) 0.
   C) 5.
   D) –10.

142. Market demand is found by:
   A) adding individual quantities demanded at each price.
   B) adding individual prices at each quantity demanded.
   C) multiplying individual quantities demanded at each price.
   D) multiplying individual prices at each quantity demanded.

143. The substitution effect of a price change is described by which of the following statements?
   A) When the price of a good falls, consumers have more real income with the same nominal income and will now buy more of the good.
   B) When the price of a good falls, consumers will now substitute this lower-priced good for relatively higher-priced goods.
   C) The substitution effect is the relative change in the amount of a good consumed when the price of another good changes.
   D) The substitution effect shows how a change in income will affect the quantity of a good purchased.

144. A decrease in the consumer's income will do all of the following, except:
   A) shift the budget line away from the origin.
   B) decrease the horizontal intercept.
   C) decrease the vertical intercept.
   D) reduce the individual's consumption possibilities.

145. Assume that the marginal utilities for the first 3 units of a good consumed are 200, 150, and 125, respectively. The total utility for the first unit is:
   A) 125.
   B) 150.
   C) 200.
   D) 350.
Use the following to answer questions 146-147:

### Table: Consumer Equilibrium 1

<table>
<thead>
<tr>
<th>Units of good X</th>
<th>Marginal utility good X</th>
<th>Units of good Y</th>
<th>Marginal utility good Y</th>
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<tr>
<td>6</td>
<td>0</td>
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<td>2</td>
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</tbody>
</table>

146. (Table: Consumer Equilibrium 1) Assume that the price of good X is $5 per unit, the price of good Y is $1 per unit, and you have $10 of income to spend on both goods. To maximize utility, you would consume _______ units of X and _______ units of Y.
   A) 0; 1
   B) 1; 5
   C) 4; 6
   D) 5; 5

147. (Table: Consumer Equilibrium 1) Assume that the price of both goods X and Y is $1 per unit, and you have $7 of income to spend on both goods. To maximize utility, you would consume _______ units of X and _______ units of Y.
   A) 2; 5
   B) 3; 4
   C) 4; 3
   D) 5; 2

148. If a consumer buys more of good X and less of good Y, the _______ of good X will __________, and the _______ of good Y will __________.
   A) marginal utility; fall; marginal utility; rise
   B) marginal utility; rise; marginal utility; fall
   C) total utility; fall; marginal utility; rise
   D) marginal utility; rise; total utility; rise
149. Whatever the time period involved, a consumer's spending will be _______ by his or her _______.
A) unlimited; marginal utility
B) limited; marginal utility
C) limited; budget
D) unlimited; budget

150. If a consumer purchases a combination of commodities $A$ and $B$ such that $MU_A/P_A = 50$ and $MU_B/P_B = 30$, to maximize utility, the consumer should buy:
A) less of both $A$ and $B$.
B) more of both $A$ and $B$.
C) more of $A$ and less of $B$.
D) less of $A$ and more of $B$.

151. When total utility is at a maximum, marginal utility is:
A) rising.
B) at its average value.
C) at a maximum.
D) zero.

152. Assume that a person is consuming the utility-maximizing quantities of FISH and chicken. We can conclude that:
A) the price of fish equals the price of chicken.
B) the marginal utility of fish equals the marginal utility of chicken.
C) the ratio of the marginal utility to price is the same for fish and for chicken.
D) both A and B are true.

Use the following to answer question 153:

**Exhibit: Budget Constraint**

Tom is trying to decide how to allocate his $50 budget for CD purchases and DVD rentals when the price of a CD is $10 and the price of a DVD rental is $5.

153. (Exhibit: Budget Constraint) If we measure CD purchases on the horizontal axis and DVD rentals on the vertical axis, the vertical intercept of Tom's budget line is:
A) 10.
B) 5.
C) 2.
D) $\frac{1}{2}$.
154. Assume that as the price of cauliflower falls, the income effect causes consumers to buy less cauliflower. We can conclude that cauliflower is:
   A) an inferior good.
   B) nasty tasting.
   C) a normal good.
   D) expensive.

155. The substitution effect always involves a change in consumption in the _______ direction of the _______ change.
   A) same; budget
   B) same; price
   C) opposite; price
   D) opposite; budget

Use the following to answer question 156:

**Table: Consumer Equilibrium 1**

<table>
<thead>
<tr>
<th>Units of good X</th>
<th>Marginal utility good X</th>
<th>Units of good Y</th>
<th>Marginal utility good Y</th>
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<tbody>
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<td>6</td>
<td>0</td>
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</table>

156. (Table: Consumer Equilibrium 1) Assume that the price of both goods is $1 per unit, and you consume 4 units of good X and 2 units of good Y. To maximize utility, assuming that the goods are divisible, you would consume:
   A) less of X and more of Y.
   B) more of both X and Y.
   C) less of both X and Y.
   D) more of X and less of Y.
157. According to the substitution effect, a decrease in the price of a product leads to an increase in the quantity of the product demanded because buyers:
A) have more real income.
B) purchase fewer substitute goods.
C) purchase more of the now relatively less expensive good.
D) purchase more complementary goods.

Use the following to answer question 158:

**Table: Utility**

<table>
<thead>
<tr>
<th>Units</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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</tr>
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<tbody>
<tr>
<td>Total utility</td>
<td>0</td>
<td>20</td>
<td>35</td>
<td>45</td>
<td>50</td>
<td>50</td>
<td>45</td>
<td>35</td>
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</table>

158. (Table: Utility) Marginal utility is zero for the ______ unit.
A) first
B) second
C) third
D) fifth

159. An increase in the consumer's income will do all of the following, except:
A) shift the budget line away from the origin.
B) increase the horizontal intercept.
C) increase the vertical intercept.
D) change the slope of the budget line.

Use the following to answer question 160:

**Table: Consumer Equilibrium 1**

<table>
<thead>
<tr>
<th>Units of good X</th>
<th>Marginal utility good X</th>
<th>Units of good Y</th>
<th>Marginal utility good Y</th>
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<tbody>
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<td>6</td>
<td>0</td>
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</tbody>
</table>
160. (Table: Consumer Equilibrium 1) Assume that the price of good $X$ is $2 per unit and the price of good $Y$ is $1 per unit, and you consume 3 units of good $X$ and 3 units of good $Y$. To maximize utility, assuming that the goods are divisible, you would consume:
A) less of both $X$ and $Y$.
B) more of both $X$ and $Y$.
C) less of $X$ and more of $Y$.
D) more of $X$ and less of $Y$.

Use the following to answer question 161:

**Figure: Budget Lines**

![Budget Line Charts](chart.png)

161. (Figure: Budget Lines) For some time, Sylvester has had $5 per month to spend on oranges and apples. The price of an orange is $0.50 and the price of an apple is $0.25. Which of the charts shows what will happen to his budget line if the price of an orange falls to $0.25?
A) Chart A
B) Chart B
C) Chart C
D) Chart D
162. A consumer's spending is restricted because of:
   A) marginal utility.
   B) total utility.
   C) a budget constraint.
   D) utility maximization.

163. Suppose that the market for haircuts in a community is perfectly competitive and that the market is initially in long-run equilibrium. Subsequently, an increase in population increases the demand for haircuts. In the short run, we expect that the typical firm is likely to begin:
   A) earning an economic profit.
   B) incurring an economic loss.
   C) experiencing no change in its economic profit.
   D) experiencing neither an economic profit nor an economic loss.

164. When economic profits in an industry are zero:
   A) firms are really doing badly.
   B) it means that firms are doing as well as they could do in other markets.
   C) firms should exit, so they can make an economic profit in some other market.
   D) the industry is not in long-run equilibrium.

Use the following to answer question 165:

**Figure: Profit Maximizing**

![Graph showing Profit Maximizing](image-url)
165. (Figure: Profit Maximizing) The figure shows cost curves for a firm operating in a perfectly competitive market. \( O \) is the _______ curve.
   A) \( ATC \)
   B) \( MR \)
   C) \( MC \)
   D) \( AVC \)

Use the following to answer question 166:

**Figure: Marginal Decision Rule**

166. (Figure: Marginal Decision Rule) To the left of Point \( C \) (e.g., at \( q_1 \)):
   A) economic profit is the vertical distance between curve \( B \) and \( MC \).
   B) the firm is not maximizing profits.
   C) the firm is maximizing profits.
   D) the firm should produce less.

167. Suppose that some firms in a perfectly competitive industry are incurring negative economic profits. In the long run, the:
   A) industry supply curve will not shift.
   B) industry supply curve will shift to the left.
   C) number of firms in the industry will not change.
   D) number of firms in the industry will increase.

168. An assumption of the model of perfect competition is:
   A) discrimination.
   B) difficult entry and exit.
   C) many buyers and sellers.
   D) limited information.
169. Which of the following is not an assumption economists make when using the model of perfect competition?
   A) Firms seek to maximize profits.
   B) The products of each firm in a particular market are identical.
   C) Each firm sets its price equal to its average total cost.
   D) There is easy entry and exit.

170. The shutdown price is:
   A) the price at which economic profit is zero.
   B) the minimum level of $AVC$.
   C) the intersection of the $MC$ and $ATC$ curves.
   D) the minimum level of $AFC$.

Use the following to answer question 171:

**Figure: A Perfectly Competitive Firm in the Short Run**

171. (Figure: A Perfectly Competitive Firm in the Short Run) The firm's total economic profit at its most profitable level of output is:
   A) $OGHB$.
   B) $EFJS$.
   C) $EGHS$.
   D) $FGLK$. 
172. (Figure: Marginal Decision Rule) If $P_1$ is the market price, and if this firm has decided to produce any output, it should produce:
   A) where $MR > MC$.
   B) quantity $q_2$.
   C) quantity $q_1$ where $MR > MC$.
   D) a quantity greater than $q_1$ but less than $q_2$.

173. Marginal revenue is a firm's:
   A) ratio of profit to quantity.
   B) ratio of average revenue to quantity.
   C) price per unit times the number of units sold.
   D) increase in total revenue when it sells an additional unit of output.

174. The slope of the total cost curve is:
   A) marginal cost.
   B) marginal revenue.
   C) constant under perfect competition.
   D) always negative.

175. For a firm producing at any level of output greater than the most profitable one, a reduction in output decreases total:
   A) cost more than total revenue.
   B) revenue more than total cost.
   C) revenue by the same amount as total cost.
   D) revenue but not total cost.
176. (Figure: A Perfectly Competitive Firm in the Short Run) The lowest price that will yield zero economic profits is indicated by the distance:
   A) 0G.
   B) 0F.
   C) 0E.
   D) 0N.

177. For a firm producing at any level of output less than the most profitable one, an increase in output adds:
   A) more to total cost than to total revenue.
   B) more to total revenue than to total cost.
   C) the same amount to total revenue as to total cost.
   D) to total revenue but not to total cost.

178. Marginal revenue:
   A) is the slope of the average revenue curve.
   B) equals the market price in perfect competition.
   C) is the change in quantity divided by the change in total revenue.
   D) is the price divided by the changes in quantity.
179. Perfect competition is a model of the market that assumes all of the following except:
   A) a large number of firms.
   B) firms face downward-sloping demand curves.
   C) firms produce identical goods.
   D) many buyers.

180. Which of the following is true?
   A) If price falls below average total cost, the firm will shut down in the short run.
   B) Price and marginal revenue are the same in perfect competition.
   C) Economic profit per unit is found by subtracting $AVC$ from price.
   D) Economic profit is always positive in the short run.

181. The supply curve found by summing up the short-run supply curves of all the firms in a perfectly competitive industry is called the:
   A) firm's marginal cost curve.
   B) short-run market supply curve.
   C) the interim market supply curve.
   D) competitive curve.

182. When a perfectly competitive firm is in long-run equilibrium, the firm is:
   A) producing at maximum average total cost.
   B) producing at maximum average variable cost.
   C) producing at minimum marginal cost.
   D) producing at minimum long-run average total cost.

183. Suppose that the market for candy canes operates under conditions of perfect competition, that it is initially in long-run equilibrium, and that the price of each candy cane is $0.10. Now suppose that the price of sugar rises, increasing the marginal and average total costs of producing candy canes by $0.05; there are no other changes in production costs. Based on the information given, we can conclude that in the long we will observe:
   A) firms leaving the industry.
   B) firms entering the industry.
   C) some firms entering and some firms leaving.
   D) neither entry nor exit from the industry.
184. Provided that there are no external benefits or costs, resources are efficiently allocated when:
   A) $P = MR$.
   B) $P = AVC$.
   C) $P = MC$.
   D) $MC = AVC$.

185. A perfectly competitive firm will continue producing in the short run as long as it can cover its:
   A) total cost.
   B) total cost.
   C) variable cost.
   D) fixed cost.

Use the following to answer questions 186-187:

**Figure: Profit Maximizing**

186. (Figure: Profit Maximizing) The figure shows cost curves for a firm operating in a perfectly competitive market. If the market price is less than $P_2$, the firm will _______ in the short run.
   A) produce $q_1$ and break even
   B) produce $q_1$ and incur a loss
   C) shut down
   D) do none of the above
187. (Figure: Profit Maximizing) The figure shows cost curves for a firm operating in a perfectly competitive market. If the market price is $P_3$, the firm will produce quantity ______ and ______ in the short run.
   A) $q_2$; make a profit  
   B) $q_1$; break even  
   C) $q_2$; incur a loss  
   D) $q_4$; incur a loss

188. Perfect competition is characterized by:
   A) rivalry in advertising.  
   B) fierce quality competition.  
   C) the inability of any one firm to influence price.  
   D) widely recognized brands.

189. A perfectly competitive firm's supply curve is the:
   A) entire $MC$ curve.  
   B) rising part of $MC$ curve beginning at the shutdown point.  
   C) rising part of $MC$ curve beginning at the point at which the firm starts earning economic profit.  
   D) $MC$ curve below the shutdown point.

Use the following to answer question 190:

**Figure: Profit Maximizing**

![Graph showing cost curves and price levels for a perfectly competitive firm.]
190. (Profit: Profit Maximizing) The figure shows cost curves for a firm operating in a perfectly competitive market. If the market price is $P_4$, the firm will produce quantity _______ and _______ in the short run.
   A) $q_1$; break even
   B) $q_3$; make a profit
   C) $q_4$; break even
   D) none of the above

191. The slope of the total revenue curve is:
   A) marginal cost.
   B) net revenue.
   C) constant under perfect competition.
   D) varying under perfect competition.

192. A perfectly competitive firm will earn a profit and will continue producing the profit-maximizing quantity of output in the short run if price is:
   A) greater than marginal cost.
   B) less than marginal cost.
   C) less than average variable cost.
   D) greater than average total cost.

193. Suppose life is discovered on Mars and that it turns out to be quite sophisticated. In fact, perfect competition prevails everywhere on the planet. Which of the following characteristics of Martian firms are we likely to observe?
   A) None of them ever experiences diminishing marginal returns.
   B) They all try to operate where price equals average variable cost.
   C) They all try to operate where price equals total cost.
   D) They are all price takers.

194. In long-run equilibrium, economic profits in a perfectly competitive industry are:
   A) positive.
   B) zero.
   C) negative.
   D) indeterminate.
195. (Figure: A Perfectly Competitive Firm in the Short Run) The firm's total cost of producing its most profitable level of output is:
   A) BS.
   B) DK.
   C) 0FKD.
   D) 0ESB.

Use the following to answer question 196:

Figure: Total Revenue and Cost
196. (Figure: Total Revenue and Cost) The most profitable level of output occurs at quantity:
   A) $F$.
   B) $K$.
   C) $L$.
   D) $M$.

Use the following to answer question 197:

**Figure: A Perfectly Competitive Firm in the Short Run**

197. (Figure: A Perfectly Competitive Firm in the Short Run) The firm will shut down in the short run if the price falls below:
   A) $0G$.
   B) $0F$.
   C) $0E$.
   D) $0P$.

198. The marginal revenue received by a firm in a perfectly competitive market:
   A) is greater than the market price.
   B) is less than the market price.
   C) is equal to its average revenue.
   D) increases with the quantity of output sold.
199. (Figure: Marginal Decision Rule) To maximize economic profit, this firm should produce quantity _______ where _______ = _______.
A) $q_1; MR; MC$
B) $q_2; price; MC$
C) $q_2; MR; TR$
D) $q_1; TR; TC$

200. If economic profits exist in perfect competition, in the long run firms will enter because of easy entry, the _______ curve will shift to the right, and _______ in the market will _______.
A) supply; output; increase
B) demand; supply; fall
C) supply; demand; also shift to the right
D) demand; price; increase
201. (Figure: A Perfectly Competitive Firm in the Short Run) The firm's total revenue from the sale of its most profitable level of output is:
A) 0GLD.
B) 0GHB.
C) BH.
D) DL.

202. Economic profits in a perfectly competitive industry induce ________, and losses induce ________.
A) exit; entry
B) entry; entry
C) entry; exit
D) exit; exit

203. Which of the following is true?
A) Profit per unit is price minus $AVC$.
B) Total economic profit is per-unit profit times quantity.
C) If price is less than $ATC$, the firm will shut down in the short run.
D) If price is less than marginal cost, the perfectly competitive firm should raise the price and increase output.
204. In perfect competition, a change in fixed cost:
   A) will have no effect on price in the short run.
   B) will have no effect on output in the short run.
   C) will induce entry or exit in the long run so that price will change enough to leave
      firms earning zero profits.
   D) is described by all of the above.