ECON 2022: Principles of Microeconomics
Final Examination

Please read each question carefully and circle the choice that is most suitable. Each correct answer is worth 2 points.
1. The production possibilities frontier is
   a. a map which shows the frontier beyond which agriculture is unprofitable.
   b. a map which shows areas of the world in which capitalist production is now possible.
   c. a graph that shows the various combinations of output the economy can possibly produce given the available resources and technology.
   d. a graph which shows the various combinations of resources that can be used to produce a given level of output.

2. On the production possibilities frontier shown, which point or points are possible for this economy to produce?
   a. A, B, C, D
   b. A, B, C, F
   c. A, B, C, D, E, F
   d. D

3. On the production possibilities frontier shown, which point represents the maximum possible production of CDs?
   a. A
   b. B
   c. C
   d. D

4. On the production possibilities frontier shown, which point or points are NOT possible for this economy to produce?
   a. D
   b. E, F
   c. A, B, C
   d. D, E, F
5. On the production possibilities frontier shown, which point or points are efficient?
   a. A, B, C
   b. A, C, F
   c. E
   d. D

6. On the production possibilities frontier shown, which point or points are inefficient?
   a. A, B, C
   b. E, F
   c. B
   d. D

These figures illustrate the production possibilities frontiers for Robinson Crusoe and Friday with 12 hours of labor.

7. Refer to the graphs given. For Robinson Crusoe the opportunity cost of 1 pound of fish is
   a. 2 pounds of coconuts.
   b. 1/2 pound of coconuts.
   c. 4 pounds of coconuts.
   d. 1/4 pound of coconuts.
8. Refer to the graphs given. For Friday the opportunity cost of 1 pound of fish is
   a. 1 pound of coconuts.
   b. 3/2 pounds of coconuts.
   c. 1/3 pound of coconuts.
   d. 2 pounds of fish.

9. Refer to the graphs given. For Robinson Crusoe the opportunity cost of 1 pound of coconuts is
   a. 2 pounds of fish.
   b. 1/2 pound of fish.
   c. 4 pounds of fish.
   d. 1/4 pound of fish.

10. Refer to the graphs given. For Friday the opportunity cost of 1 pound of coconuts is
    a. 2/3 pound of fish.
    b. 3 pounds of fish.
    c. 1 pound of fish.
    d. 2 pounds of fish.

11. Refer to the graphs given. Robinson Crusoe has an absolute advantage in _________ and
    Friday has an absolute advantage in _________.
    a. fish, coconuts
    b. coconuts, fish
    c. neither good, both goods
    d. both goods, neither good

12. Refer to the graphs given. Robinson Crusoe has a comparative advantage in _________ and
    Friday has an absolute advantage in _________.
    a. fish, both goods
    b. fish, coconuts
    c. fish, neither good
    d. coconuts, fish

13. Refer to the graphs given. Robinson Crusoe has an absolute advantage in _________ and
    Friday has a comparative advantage in _________.
    a. coconuts, fish
    b. both goods, coconuts
    c. fish, coconuts
    d. neither good, fish
The set of lines below reflect information about the cost structure of a firm. Use the figure to answer questions 14 through 20.

14. Which of the lines is most likely to represent average total cost?
   a. A
   b. B
   c. C
   d. D

15. Which of the lines is most likely to represent average fixed cost?
   a. A
   b. B
   c. C
   d. D

16. Which of the lines is most likely to represent average variable cost?
   a. A
   b. B
   c. C
   d. D

17. Which of the lines is most likely to represent marginal cost?
   a. A
   b. B
   c. C
   d. D
18. This particular firm is necessarily experiencing increasing marginal product when
   a. line A is falling.
   b. line B is falling.
   c. line C is falling.
   d. line D is falling.

19. This particular firm is necessarily experiencing diminishing marginal product when
   (i) line A is rising.
   (ii) line B is rising.
   (iii) line C is rising.
   a. (i) only
   b. (iii) only
   c. (i) and (ii)
   d. all of the above

20. Line A is necessarily U-shaped because of
   a. diminishing marginal product.
   b. increasing marginal product.
   c. the fact that decreasing marginal product follows increasing marginal product.
   d. the fact that increasing marginal product follows decreasing marginal product.

The figure below reflects the market for outdoor concerts in a public park surrounded by residential neighborhoods. Use this figure to answer questions 21 through 24.

21. For each unit of “concert” produced, the social cost would include
   (i) the private costs of the concert organizers.
   (iii) the cost that people in the residential neighborhoods will incur as a result of the increased traffic and noise spillover on concert days.
   (ii) the enjoyment that concert attendees receive from the concert.
   a. (i) only.
   b. (i) and (ii) only.
   c. (i) and (iii) only.
d. (i), (ii) and (iii).

22. In the figure above, the social cost curve is above the supply curve because
   a. it takes into account the external costs imposed on society by the concert organizers.
   b. municipalities always impose noise restrictions on concerts in parks surrounded by residential neighborhoods.
   c. concert tickets are likely to cost more than the concert actually costs the organizers.
   d. residents in the surrounding neighborhoods get to listen to the concert for free.

23. In the figure above, the difference between the Social Cost curve and the Supply curve reflects
   a. the profit margin of each concert.
   b. the cost of spillover effects from the concert (e.g., noise and traffic).
   c. the value of concerts to society as a whole.
   d. the amount by which the city should subsidize the concert organizers.

24. In the figure above, what price and quantity combination best represents the optimum price and number of concerts that should be organized?
   a. $P_1$, $Q_1$
   b. $P_2$, $Q_0$
   c. $P_3$, $Q_1$
   d. The optimum quantity is zero concerts as long as residents in surrounding neighborhoods are adversely affected by noise and congestion.

Use the figure to answer question 25 and 26
25. The shape of the average total cost curve reveals information about the nature of the “barrier to entry” that might exist in a monopoly market. Which of the following monopoly types best coincides with the figure?
   a. natural monopoly
   b. government-created monopoly
   c. a key resource is owned by a single firm
   d. none of the above

26. The shape of the average total cost curve in the figure suggests an opportunity for a profit-maximizing monopolist to exploit
   a. price discrimination.
   b. average cost pricing.
   c. economies of scale.

Consider a transportation corporation named C.R. Evans that has just completed the development of a new subway system in a middle-sized town in the north-west. Currently, there are plenty of seats on the subway, and it is never crowded. Its capacity well exceeds the needs of the city. After just a few years of operation, the shareholders of C.R. Evans common stock experienced incredible rates of return on their investment, due to the profitability of the corporation.

27. Which of the following statements are most likely to be true?
   (i) C.R. Evans is a natural monopoly.
   (ii) New entrants to the market know they will earn a smaller piece of the market than C.R. Evans currently has.
   (iii) C.R. Evans is most likely experiencing increasing average total cost.
   a. (i) and (ii)
   b. (ii) and (iii)
   c. (i) and (iii)
   d. all of the above

28. C.R. Evans may continue to be a monopolist in the subway transportation industry only if
   a. there are no new entrants to the market.
   b. demand for transportation services decrease.
   c. population growth leads to an overcrowding of the subway cars.
   d. all of the above

Use the following table of numbers to answer questions 29-32

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Price</th>
<th>Total Revenue</th>
<th>Average Revenue</th>
<th>Marginal Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>35</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>64</td>
<td>32</td>
<td>29</td>
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<td>4</td>
<td></td>
<td>17</td>
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<td>5</td>
<td>23</td>
<td></td>
<td>11</td>
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<td>6</td>
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<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>17</td>
<td>-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>99</td>
<td>11</td>
<td>-13</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>8</td>
<td>80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
29. If the monopolist sells 8 units of its product, how much revenue will it receive from the sale?
   a. -56
   b. 40
   c. 112
   d. Can't tell from the information provided.

30. If the monopolist wants to maximize its revenue, how many units of its product should it sell?
   a. 5
   b. 6
   c. 9
   d. 10

31. What is the average revenue received from selling 4 units of the monopolist's product?
   a. 17
   b. 23
   c. 26
   d. 29

32. What is the marginal revenue for the monopolist for the sixth unit sold?
   a. 5
   b. 11
   c. 17
   d. 20

The figure below reflects the cost and revenue structure for a monopoly firm. Use it to answer questions 33 through 41.
33. The demand curve for a monopoly firm is depicted by curve
   a. A. 
   b. B. 
   c. C. 
   d. D. 

34. The marginal revenue curve for a monopoly firm is depicted by curve
   a. A. 
   b. B. 
   c. C. 
   d. D. 

35. The marginal cost curve for a monopoly firm is depicted by curve
   a. A. 
   b. B. 
   c. C. 
   d. D. 

36. The average total cost curve for a monopoly firm is depicted by curve
   a. A. 
   b. B. 
   c. C. 
   d. D. 

37. If the monopoly firm is currently producing output at a level of Q₃, reducing output will always cause profit to
   a. increase as long as output is at least Q₂. 
   b. increase as long as output is at least Q₁. 
   c. remain unchanged. 
   d. decrease. 

38. Profit can always be increased by decreasing the level of output by one unit if the monopolist is currently operating at
   (i) Q₀. 
   (ii) Q₁. 
   (iii) Q₂. 
   (iv) Q₃. 
   a. (i) or (ii) 
   b. (i), (ii) or (iii) 
   c. (iii) or (iv) 
   d. (iv) only
39. Profit can always be increased by decreasing the level of output by one unit if the monopolist is currently operating at a level of output in which
   a. curve C > curve B.
   b. curve B > curve C.
   c. curve B > curve D.
   d. curve D > curve B.

40. If the monopoly firm wants to maximize its profit, it should operate at a level of output equal to
   a. Q₁.
   b. Q₂.
   c. Q₃.
   d. Q₄.

41. Profit will be maximized by charging a price equal to
   a. P₀.
   b. P₁.
   c. P₂.
   d. P₃.

Imagine a small town in which only two residents—Tony and Jill—own wells that produce water for safe drinking. Each Saturday, Tony and Jill work together to decide how many gallons of water to pump, bring the water to town, and sell it at whatever price the market will bear. To keep things simple, suppose that Tony and Jill can pump as much water as they want without cost; therefore, the marginal cost of water equals zero.

The weekly town demand schedule and total revenue schedule for water is reflected in the table below.

<table>
<thead>
<tr>
<th>Weekly Quantity (in gallons)</th>
<th>Price</th>
<th>Weekly Total Revenue (and Total Profit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$12</td>
<td>$0</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>110</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>200</td>
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<tr>
<td>30</td>
<td>9</td>
<td>270</td>
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<td>40</td>
<td>8</td>
<td>320</td>
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<td>50</td>
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<td>200</td>
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<tr>
<td>110</td>
<td>1</td>
<td>110</td>
</tr>
<tr>
<td>120</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

42. Since Tony and Jill operate as a profit-maximizing monopoly in the market for water, what price will they charge to sell 80 gallons of water?
   a. $4
   b. $9
   c. $12
d. None of the above; the price is arbitrary when dealing with a monopoly market.

43. If the market for water was perfectly competitive instead of monopolistic, how many gallons of water would be produced and sold?
   a. 70
   b. 90
   c. 110
   d. 120

44. As long as Tony and Jill operate as a profit-maximizing monopoly, what will their weekly revenue equal?
   a. $270
   b. $320
   c. $350
   d. $360

45. The socially efficient level of water supplied to the market would be
   a. 60 gallons.
   b. 80 gallons.
   c. 100 gallons.
   d. 120 gallons.

46. Suppose the town enacts new antitrust laws that prohibit Tony and Jill from operating as a monopolist. What will the new price of water end up being once the Nash equilibrium is reached?
   a. $6
   b. $5
   c. $4
   d. $3

Two cigarette manufacturers (Firm A and Firm B) are faced with lawsuits from states to recover the health care related expenses associated with cigarette smoking. Both cigarette firms have evidence that indicates that cigarette smoke causes lung cancer (and other related illnesses). State prosecutors do not have access to the same data used by cigarette manufacturers and thus will have difficulty recovering full costs without the help of at least one cigarette firm study. Each firm has been presented with an opportunity to lower their liability in the suit if they cooperate with attorneys representing the states.

<table>
<thead>
<tr>
<th>Firm B</th>
<th>Concede that cigarette smoke causes lung cancer</th>
<th>Argue that there is no evidence that smoke causes cancer</th>
</tr>
</thead>
</table>
|        | Firm A profit = -$20 b  
Firm B profit = -$15 b | Firm A profit = -$50 b  
Firm B profit = -$5 b |
|        | Argue that there is no evidence that smoke causes cancer | Firm A profit = -$10 b  
Firm B profit = -$10 b |
47. If both firms follow a dominant strategy, Firm A's profits (losses) will be
   a. -$5 b.
   b. -$10 b.
   c. -$20 b.
   d. -$50 b.

48. If both firms follow a dominant strategy, Firm B's profits (losses) will be
   a. -$5 b.
   b. -$10 b.
   c. -$15 b.
   d. -$50 b.

49. When this game reaches a Nash equilibrium, profits for firm A and firm B will be
   a. -$20 b and -$15 b, respectively.
   b. -$50 b and -$5 b, respectively.
   c. -$5 b and -$50 b, respectively.
   d. -$10 b and -$10 b, respectively.

50. An oligopolist will increase production if the output effect is
   a. greater than the price effect.
   b. less than the price effect.
   c. equal to the price effect.
   d. greater than or equal to the price effect.