Problem Set 7
Economics 101
Due by 12:30 PM on April 2, 2018

These problems review the application of the concepts of costs, revenues, and profits.

1. Marginal Product is:
   a) The rational level of output of the firm
   b) The output that maximizes the firm’s profits
   c) The output at the equilibrium price
   d) The increase in output that arises from an additional unit of an input

2. Diminishing marginal product of labor is best described as:
   a) The point at which marginal revenue equals marginal cost
   b) The shut-down point
   c) An increase in output from the last worker employed that decreases as the number of workers increases
   d) A decrease in output

3. Fixed costs are:
   a) The costs of the firm that do not vary with the scale of production
   b) The costs that vary with the scale of production divided by the number of units produced
   c) The excess costs of a firm
   d) The increase in cost from the last unit produced

4. Average Variable Cost of a firm is:
   a) The costs of the firm that do not vary with the scale of production
   b) The costs that vary with the scale of production divided by the number of units produced
   c) The excess costs of a firm
   d) The increase in cost from the last unit produced

5. The Marginal Revenue of a competitive firm is:
   a) The price of output
   b) The Fixed Cost plus the Variable Cost
   c) The Variable Cost
   d) The Average Total Cost
For Questions 6 and 7 please use the following diagram

6. At which point is Average Variable Cost equal to Marginal Cost?
   a) Point A  
   b) Point B  
   c) Point C  
   d) Point D

7. At which point is Average Variable Cost at its lowest value?
   a) Point A  
   b) Point B  
   c) Point C  
   d) Point D
For Questions 8 to 11, please use the following information for a competitive firm

<table>
<thead>
<tr>
<th>Workers</th>
<th>Output per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>65</td>
</tr>
<tr>
<td>3</td>
<td>115</td>
</tr>
<tr>
<td>4</td>
<td>160</td>
</tr>
<tr>
<td>5</td>
<td>200</td>
</tr>
<tr>
<td>6</td>
<td>235</td>
</tr>
<tr>
<td>7</td>
<td>265</td>
</tr>
<tr>
<td>8</td>
<td>290</td>
</tr>
<tr>
<td>9</td>
<td>310</td>
</tr>
<tr>
<td>10</td>
<td>325</td>
</tr>
</tbody>
</table>

8. This production function is best characterized by:
   a) Diminishing marginal product
   b) Increasing marginal product
   c) Diminishing marginal product, then increasing marginal product
   d) Increasing marginal product, then decreasing marginal product

9. With 5 workers employed, the production function is characterized by:
   a) Marginal Product greater than Average Product
   b) Marginal Product equal to Average Product
   c) Marginal Product less than Average Product
   d) Marginal Product plus Average Product equal Output

10. With 9 workers employed, the production function is characterized by:
    a) Marginal Product greater than Average Product
    b) Marginal Product equal to Average Product
    c) Marginal Product less than Average Product
    d) Marginal Product plus Average Product equal Output

11. If workers receive $100 per day, the variable cost of producing 115 units of output is:
    a) $11,500
    b) $300
    c) $115
    d) Cannot be determined from the information given
For Questions 12 to 20, please use the following information for a competitive firm.

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Fixed Cost</th>
<th>Variable Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>5</td>
<td>300</td>
<td>100</td>
<td>400</td>
</tr>
<tr>
<td>6</td>
<td>300</td>
<td>120</td>
<td>420</td>
</tr>
<tr>
<td>7</td>
<td>300</td>
<td>150</td>
<td>450</td>
</tr>
<tr>
<td>8</td>
<td>300</td>
<td>190</td>
<td>490</td>
</tr>
<tr>
<td>9</td>
<td>300</td>
<td>240</td>
<td>540</td>
</tr>
<tr>
<td>10</td>
<td>300</td>
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<td>600</td>
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<tr>
<td>11</td>
<td>300</td>
<td>370</td>
<td>670</td>
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<tr>
<td>12</td>
<td>300</td>
<td>450</td>
<td>750</td>
</tr>
<tr>
<td>13</td>
<td>300</td>
<td>540</td>
<td>840</td>
</tr>
<tr>
<td>14</td>
<td>300</td>
<td>640</td>
<td>940</td>
</tr>
</tbody>
</table>

Consider that the firm can choose not to produce (and not incur fixed costs) if it sees that its profits are negative.

12. If the firm produces 10 units of output, the Average Fixed Cost of the firm are:

a) $300  
b) $90  
c) $60  
d) $30

13. The marginal cost of producing the 14th unit of output is:

a) $940  
b) $640  
c) $100  
d) $80

14. The minimum average cost of the firm occurs at what level of output?

a) 6  
b) 8  
c) 10  
d) 12

15. If the price of output of the firm is $40, how many units of output will the firm sell?

a) Zero, the firm will not produce  
b) 8  
c) 10  
d) 12
16. If the price of the output of the firm is $40, what are the profits of the firm?

a) Negative, the firm will go out of business  
b) Zero  
c) $100  
d) $210

17. If the price of output of the firm is $60, how many units of output will the firm sell?

a) Zero, the firm will not produce  
b) 8  
c) 10  
d) 12

18. If the price of the output of the firm is $60, what are the profits of the firm?

a) Negative, the firm will go out of business  
b) Zero  
c) $100  
d) $210

19. If the price of the output of the firm is $80, how many units of output will the firm sell?

a) Zero, the firm will not produce  
b) 8  
c) 10  
d) 12

20. If the price of the output of the firm is $80, what are the profits of the firm?

a) Negative, the firm will go out of business  
b) Zero  
c) $100  
d) $210