Given the following diagram associated with cost curves for a perfectly competitive firm, answer questions 1 through 4.

(1pt) 1. In order for this firm to produce any output, the minimum price must be at least $\_\_\_\_\_\_\_\_\_\_
per unit.

(2pts) 2. In order for this firm to break even, it must charge $\_\_\_\_\_\_\_\_\_\_\_
per unit and produce \_\_\_\_\_\_\_\_\_\_ units.

(3pts) 3. Suppose that the firm receives $24 per unit of output.

(a) The total revenue received by this firm is $\_\_\_\_\_\_\_\_\_\_\_\_.

(b) The total cost incurred by this firm is $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

(c) The maximum profit this firm can expect to receive is $\_\_\_\_\_\_\_\_\_\_\_\_\_.

(1pt) 4. The firm will incur a loss if the price per unit of output sold is $20. True or False. (Circle the correct answer).

(1pt) 5. Due to biotechnological innovations in the cotton industry, the marginal cost of cotton production is expected to fall by 15%. Due to this innovation, what is likely to happen in the short run to the price and quantity of raw cotton produced?

Please circle the correct answer.

(a) The price of cotton would fall and the quantity of cotton produced would fall.

(b) The price of cotton would fall and the quantity of cotton produced would rise.

(c) The price of cotton would rise and the quantity of cotton produced would rise.

(d) The price of cotton would rise and the quantity of cotton produced would fall.
6. Recently, salmonella outbreaks occurred due to the contamination of the processing of peanuts. Given this information, it is likely that (circle the correct answer):

(a) The price of peanut products would fall and the quantity of peanut products produced would fall.
(b) The price of peanut products would fall and the quantity of peanut products produced would rise.
(c) The price of peanut products would rise and the quantity of peanut products produced would rise.
(d) The price of peanut products would rise and the quantity of peanut products produced would fall.

7. Assume that the price of soybeans is $10.00 per bushel. When we apply 10 tons of fertilizer on our 200 acres of soybeans, the total yield is 1,000 bushels. When we apply 50 tons of fertilizer, the total yield is 1,200 bushels. What is the marginal value product per ton of fertilizer? Show all work.

\[MVP = \frac{10}{\text{bushels}} \times \text{MP} = \frac{200 \text{ bushels}}{40 \text{ tons}} = 5 \text{ bushels/ton} \]

\[MVP = 5 \times 50 = 250 \text{ bushels/ton} \]

8. Consider the following diagram:

(a) The magnitude of producer surplus is $150 million.
(b) The magnitude of total economic surplus is $450 million.
(c) Total costs are equal to $4,350 million.

9. Given the following diagram, calculate the own-price elasticity of supply between points A and B? Show all work.

\[\frac{\Delta Q}{\Delta P} \times \frac{P}{Q} = \frac{20 \times 3}{2} = 0.75 \]
(2pts) 10. Suppose that in the processing of tomatoes, total costs are $200 when the amount of labor used is 10 hours. Further, total costs rise to $275 when the amount of labor used increases to 15 hours.

(a) Calculate the MIC for this situation.

\[ \text{MIC} = \frac{\Delta TC}{\Delta L} = \frac{275 - 200}{5} = \$15/\text{hour} \]

(b) Suppose that the MVP for labor is $20/hour, should additional labor be hired? Why or why not?

\[ \text{MVP} > \text{MIC} \quad \text{additional labor should be hired} \]

(3 pts) 11. The following represents a rightward shift in the demand for pork. Fill in the blanks.

<table>
<thead>
<tr>
<th>Consumer Surplus (CS)</th>
<th>Producer Surplus (PS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS before</td>
<td>( A + C )</td>
</tr>
<tr>
<td>CS after</td>
<td>( A + B )</td>
</tr>
<tr>
<td>( \Delta CS )</td>
<td>( B - C )</td>
</tr>
</tbody>
</table>

(4 pts) 12. According to the following graph:

(a) When \( P = $1.50 \), a market __shortage__ exists, and the magnitude is equal to ___300___ units.

(b) When \( P = $2 \), the market is said to be in __equilibrium__. The market clearing quantity is equal to ___500___ units.

Random Question: How many emails are sent every second?

(a) 1 million (b) 2 million (c) 3 million (d) more than 3 million

Sign the Aggie Pledge:

"On my honor, as an Aggie, I have neither given nor received any unauthorized aid on this quiz."

________________________  _____________
Signature Date