Use the following to answer questions (1) through (6):

ABC Inc. is a monopoly producer of a product facing the following conditions:

Market Demand: \( Q = 3000 - 2P \)
Total Cost: \( TC = 200,000 + 500Q \), where \( P \) is price and \( Q \) is the quantity demanded and sold of the firm’s product.

[1] ABC Inc. is the only firm in the market.
A. True  
B. False

[2] Interested in maximizing profit, this firm should set quantity at:
A. 1000  
B. 500  
C. 200  
D. None of the above

[3] The maximum profit possible equals:
A. $1,000,000  
B. $700,000  
C. $300,000  
D. $100,000

[4] At the profit-maximizing quantity, the Lerner index equals:
A. 1/3  
B. 1/2  
C. 1/4  
D. None of the above

[5] When this firm maximizes profit, it sets price above marginal cost.
A. True  
B. False

[6] At the profit-maximizing quantity, market welfare equals:
A. $250,000  
B. $500,000  
C. $750,000  
D. $1,000,000

\[ 2P = 3000 - Q \]
\[ P = 1500 - \frac{1}{2}Q \quad (\text{inverse demand}) \]
\[ MR = 1500 - Q \]
\[ MC = 500 \]
\[ \text{Profit} = P \times Q - TC = (1000)(1000) - [200,000 + 500(1000)] = 300,000 \]
\[ L = \frac{P - MC}{P} = \frac{1000 - 500}{1000} = \frac{1}{2} \]
\[ W = \text{Area ADE} + \frac{1}{2} \times 500 \times 1000 + 500 \times 1000 = 750,000 \]
Use the following to answer questions (7) and (8):

[7] Referring to the above diagram for a perfectly competitive producer operating in the short run, the lowest price at which the firm should produce (as opposed to shutting down) is:  

A. \( P_1 \)  
B. \( P_2 \)  
C. \( P_3 \)  
D. \( P_4 \)  

[8] Referring to the above diagram for a perfectly competitive producer operating in the short run, the firm's short-run supply curve corresponds to:  

A. the \( abcd \) segment of the MC curve.  
B. the \( bcd \) segment of the MC curve.  
C. the \( cd \) segment of the MC curve.  

Use the following to answer questions (9) and (10):

Bette’s Breakfast Diner, a perfectly competitive eatery, sells its “Breakfast Special” (the only item on the menu) for a price of $6. Average variable cost to Bette, which accounts for the costs of waiters, cooks, power, etc., is $4.95 per meal; while average fixed cost, which accounts for the costs of the building lease, insurance, etc., is $2.25 per meal.

[9] Today, which corresponds to the short-run, Bette should close her doors immediately (i.e., shut down production).  

A. True  
B. False  

[10] Bette should raise the price of the “Breakfast Special” to be at least $7.20.  

A. True  
B. False
Use the following to answer questions (1) and (2):

![Diagram of marginal cost (MC), average total cost (ATC), and average variable cost (AVC) curves.]

[1] Referring to the above diagram for a perfectly competitive producer operating in the short run, the lowest price at which the firm should produce (as opposed to shutting down) is:

A. $P_1$
B. $P_2$
C. $P_3$
D. $P_4$

[2] Referring to the above diagram for a perfectly competitive producer operating in the short run, the firm's short-run supply curve corresponds to:

A. the $abcd$ segment of the MC curve.
B. the $bcd$ segment of the MC curve.
C. the $cd$ segment of the MC curve.

Use the following to answer questions (3) and (4):

Bette's Breakfast Diner, a perfectly competitive eatery, sells its "Breakfast Special" (the only item on the menu) for a price of $6. Average variable cost to Bette, which accounts for the costs of waiters, cooks, power, etc., is $4.95 per meal; while average fixed cost, which accounts for the costs of the building lease, insurance, etc., is $2.25 per meal.

[3] Today, which corresponds to the short-run, Bette should close her doors immediately (i.e., shut down production).

A. True
B. False

[4] Bette should raise the price of the "Breakfast Special" to be at least $7.20.

A. True
B. False
Use the following to answer questions (5) through (10):

ABC Inc. is a monopoly producer of a product facing the following conditions:

Market Demand: \( Q = 2000 - 2P \)
Total Cost: \( TC = 25,000 + 500Q \)

where \( P \) is price and \( Q \) is the quantity demanded and sold of the firm’s product.

[5] ABC Inc. is the only firm in the market.
A. True
B. False

[6] Interested in maximizing profit, this firm should set quantity at:
A. 1000
B. 500
C. 200
D. None of the above

\[ 2P = 2000 - Q \]
\[ P = 1000 - \frac{1}{2}Q \] (Inverse Demand)
\[ MR = 1000 - Q \]
\[ SET \] \( 500 = MC \)
\[ Q = 500 \]
\[ P = 1000 - \frac{1}{2}(500) = 750 \]

[7] The maximum profit possible equals:
A. $1,000,000
B. $700,000
C. $300,000
D. $100,000

\[ \Pi = P \times Q - TC = (750)(500) - [25,000 + 500(500)] \]
\[ = 100,000 \]

[8] At the profit-maximizing quantity, the Lerner index equals:
A. \( \frac{1}{3} \)
B. \( \frac{1}{2} \)
C. \( \frac{1}{4} \)
D. None of the above

\[ L = \frac{P - MC}{P} = \frac{750 - 500}{750} = \frac{1}{3} \]

[9] When this firm maximizes profit, it sets price above marginal cost.
A. True
B. False

[10] At the profit-maximizing quantity, market welfare equals:
A. $187,500
B. $500,000
C. $750,000
D. $1,000,000

\[ w = \text{Area ADEC} \]
\[ = \text{Area ADF} + \text{Area FDEC} \]
\[ = \frac{1}{2} \times 250 \times 500 \]
\[ + 250 \times 500 \]
\[ = 187,500 \]