Student ID: ________________

True or False (1/4 point each)
Please circle T if the statement is true and F if it is false.

1. **T**  **F** Quasi-rents are the returns over and above the minimum return required to keep an asset employed in its current use.

2. **T**  **F** The costs of production increase at an increasing rate because of the law of diminishing marginal productivity.

3. **T**  **F** Declining average costs are consistent with increasing returns to scale.

4. **T**  **F** The cost of production increase at an increasing rate as input prices rise.

5. **T**  **F** If the value marginal product of an input is larger than its price, a firm can increase its profits by purchasing less of the input.

6. **T**  **F** A firm manager may incur an agency costs when the actions of its employees are unobservable and the employees incentives are not directly in line with those of the manager.

7. **T**  **F** The cost function $C(q) = 300 + 5q$ exhibits U-shaped average costs.

8. **T**  **F** A firm will earn positive profits if the market price exceeds average production costs.

9. **T**  **F** The benefits of using contracts to exchange agricultural products are greatest when the contract stipulates each parties responsibilities in all possible circumstances.

10. **T**  **F** Firms produce more in the short run than in the long run because short run average costs are less than long run average costs.
2. Suppose that a firm in a competitive market faces the following cost function, 
\[ C(q) = 30 + 2q + 0.5q^2. \]
(i) \(1\frac{1}{2}\) points) Calculate the firm’s long run supply.

(ii) \(1\) point) Calculate the firm's short run supply curve. (Hint: this is the profit maximizing supply in the event that fixed costs have been sunk).
3. Suppose that a farmer near Ames decides to grow a small crop of oregano. She plans to sell the oregano to an Ames restaurant for $20 per pound. The production costs are expected to be $1 per pound. The only other buyer for the oregano is in Des Moines. This buyer is also willing to pay $20 per pound if the oregano is delivered to Des Moines. The farmer estimates that the cost to transport the oregano to Des Moines is $5 per pound.

(i) (1 points) Explain the hold up problem facing this farmer.

(ii) (1 point) How might the farmer protect herself against hold up?
4. In the debate about the changing structure of US agriculture, Luther Tweeten made the point that mergers in the agribusiness sector may not be necessarily bad because mergers can increase economic efficiency. Consider two separate agribusiness firms. Each has a cost function given by $C(q) = 100 + q^2$. Suppose that each produces the quantity that minimizes average cost.

(i) (1 point) How much output will each firm produce, and what will be the level of average cost?

(ii) (1 point) Now suppose that the two firm’s merge. The merger allows the firms to become more efficient resulting in the post-merger cost function $C(q) = 192 + \frac{1}{2}q^2$. If the merged firm produces the output quantity that minimizes average costs how much will it produce and what will be the level of average cost?

(iii) (1 point) Is Luther Tweeten correct in his claim? (HINT: To answer this question determine whether the merger benefit or hurt consumers?)