Economics Problem Set

Question 1

The inverse supply function in the market for cherries has equation $p^S = \frac{3Q}{2}$. The inverse demand function has equation $p^D = 12 - \frac{Q}{2}$. What are the equilibrium price p and quantity Q?

- **Option C:** $P = 9, Q = 6$.
  - **Reasoning:** Set the supply equal to demand: $\frac{3Q}{2} = 12 - \frac{Q}{2}$. Solve to get $Q = 6$, and substitute into either equation to get $P = 9$.

Question 2

The market for beer is perfectly competitive. If a tax is imposed on the production of beer, beer will become more expensive.

- **Option A:** True.
  - **Reasoning:** In a perfectly competitive market, a tax on production increases the cost of supply, shifting the supply curve leftward, which results in a higher equilibrium price.

Question 3

In the market for tablecloths, each firm has the cost function $C(q) = 5q$. This means that the supply is horizontal in this market.

- **Option A:** True.
  - **Reasoning:** The cost function $C(q) = 5q$ implies that marginal cost is constant ($MC = 5$), meaning that the firm will supply any quantity demanded at a price of 5. This results in a perfectly elastic (horizontal) supply curve at $P = 5$.

Question 4

The market for mangoes is perfectly competitive. This year, an increase in the number of storms lowered the productivity of mango trees. Hence, we should expect both the short-run equilibrium price and the long-run equilibrium price in the market for mangoes to increase.

- **Option B:** False.
  - **Reasoning:** In the short-run, the price may increase due to lower supply. However, in the long-run, firms may exit or new technology may be adopted, restoring the price to its original level or even lower.

Question 5

Read the following statements for a competitive profit-maximizing firm in the short run:

- Statement I: The firm never produces where $P < AVC$.
- Statement II: The firm never produces where $TR < TC$.
- **Option A:** I is true; II is false.
  - **Reasoning:** A firm will not produce if the price is below average variable cost ($P < AVC$) because it cannot cover its variable costs. However, a firm may still produce where $TR < TC$ if it can cover its variable costs (i.e., it minimizes its losses).

Question 6

Which of the following statements characterizes a perfectly competitive market:

- **Option C:** Firms have no incentive to set a price above the marginal cost of production.
  - **Reasoning:** In a perfectly competitive market, firms are price takers and must sell at the market price, which equals marginal cost ($P = MC$). Setting a price above this would result in no sales.
