AP Microeconomics
Scoring Guidelines

Question 1

10 points (4 + 2 + 1 + 1 + 2)
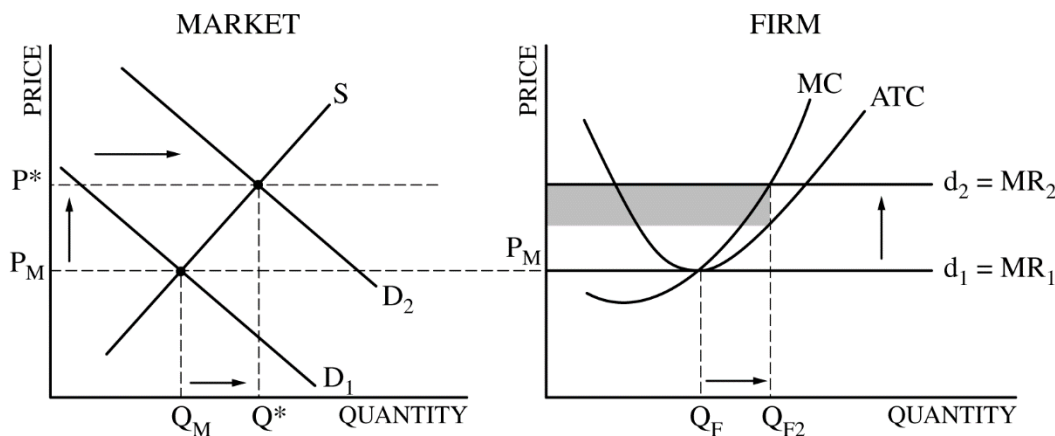
(a) 4 points:

- One point is earned for drawing a correctly labeled graph of the corn market with P_M and Q_M. The market demand curve must be downward sloping and the market supply curve must be upward sloping.
- One point is earned for showing a horizontal demand curve on the firm's graph extended from the market equilibrium price, P_M.
- One point is earned for identifying the firm's profit-maximizing quantity, Q_F, at marginal cost equal to marginal revenue ($MC = MR_1$).
- One point is earned for showing the firm's average total cost (ATC) curve and marginal cost (MC) passing through the minimum point of ATC, and $P = ATC = MC$ at Q_F.

Note: All quantities and prices should be labeled on the axes and connected to the intersection points by dashed lines.

(b) 2 points:

- One point is earned for showing a rightward shift of the market demand curve and a higher price and quantity, P^* and Q^*.
- One point is earned for completely shading the area representing the profit for a representative corn farmer.

(c) 1 point:

- One point is earned for stating that the market quantity will increase and the market's price will decrease in the long run, and for explaining that new corn farmers will enter the market, which will increase the market supply curve.

Question 1 (continued)

(d) 1 point:

- One point is earned for stating that the price of soybeans in the next planting season will increase, and for explaining that the supply of soybeans will decrease because the higher price of corn encourages farmers to substitute corn for soybeans in production.
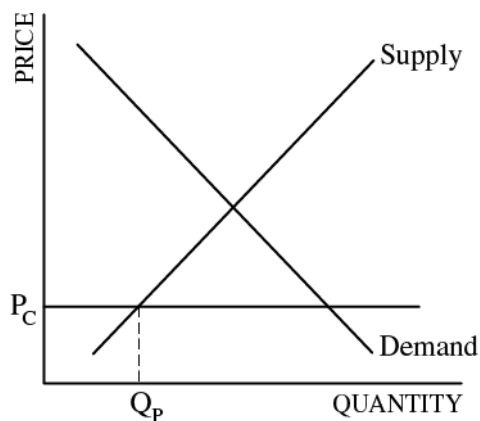
(e) 2 points:

- One point is earned for showing a correctly labeled graph of the corn market, with the price ceiling, P_C, below the equilibrium price of corn.
- One point is earned for showing the quantity purchased by consumers in the corn market labeled as Q_P where P_C intersects the supply curve.

Question 2

5 points (1 + 4)

(a) 1 point:

- One point is earned for stating that the firm would be operating with increasing returns to scale and for explaining that doubling inputs will more than double output (output increases from 10 units to 50 units as a result of doubling labor and capital) **or** for explaining that average total cost decreases from $27.50 to $11 when labor and capital double.

(b) 4 points:

- One point is earned for correctly calculating the marginal product (MP) for the third unit of labor as 25 units and showing the work: $\frac{75-50}{3-2} = 25$.

- One point is earned for answering yes and for explaining that the MP of the third unit of labor (25 units) is less than the MP of the second unit of labor (30 units).

- One point is earned for correctly calculating the firm's average total cost (ATC) and showing the work: $\frac{75*2}{75} + \frac{200*3}{75} = 2 + 8 = \$10$ **or** $\frac{(75*2)+(200*3)}{75} = \frac{750}{75} = \$10$.

- One point is earned for identifying the lowest output price as $8 at which the third unit of labor would be hired.

Question 3

7 points (2 + 1 + 1 + 2 + 1)

(a) 2 points:

- One point is earned for correctly identifying the monopolist's profit-maximizing quantity, Q_3.
- One point is earned for correctly identifying the monopolist's profit-maximizing price, P_4.

(b) 1 point:

- One point is earned for stating that MSC > MPC **or** that the MSC curve exceeds, is above, or is greater than the MPC curve.

(c) 1 point:

- One point is earned for correctly identifying the socially optimal quantity, Q_3.

(d) 2 points:

- One point is earned for correctly identifying the dollar value of the tax, P_4–P_1.
- One point is earned for correctly identifying the profit-maximizing quantity associated with the tax, Q_2.

(e) 1 point:

- One point is earned for correctly stating that the deadweight loss increases because the monopolist's profit-maximizing quantity is equal to the socially optimal quantity before the tax and is less than the socially optimal quantity after the tax.