FRQ #1
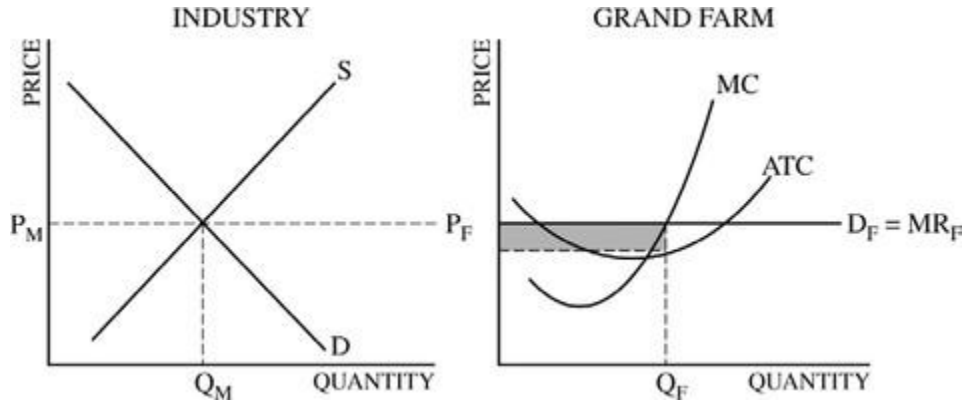
9 points

(a) **1 point** is earned for drawing a correctly labeled graph for the market with a downward sloping demand curve and an upward sloping supply curve, and for labeling P_M and Q_M.

1 point is earned for drawing a horizontal marginal revenue curve for the firm, at P_F.

1 point is earned for showing the profit-maximizing quantity at MC=MR, labeled Q_F.

1 point is earned for showing the ATC curve tangent to the MR curve at Q_F where ATC is at its minimum.

(b) **1 point** is earned for stating that $P_M=P_F$, and for explaining that the firm is a price taker OR the firm accepts the market equilibrium price as given.

(c) **i. 1 point** is earned for stating that the firm's output will not change in the short run, and for explaining that a change in a fixed cost will not affect the firm's marginal cost OR that rent is not a variable cost AND will not affect the firm's marginal cost.

ii. 1 point is earned for showing an upward shift of the ATC curve and the area representing the firm's loss, completely shaded.

(d) **i. 1 point** is earned for stating the number of firms in the market will decrease, and for explaining that some firms will exit the market as a result of the losses incurred in the short run.

ii. 1 point is earned for stating that the new market equilibrium quantity will decrease relative to Q_M and the new market equilibrium price will increase relative to PM and for explaining that the market supply will shift to the left.
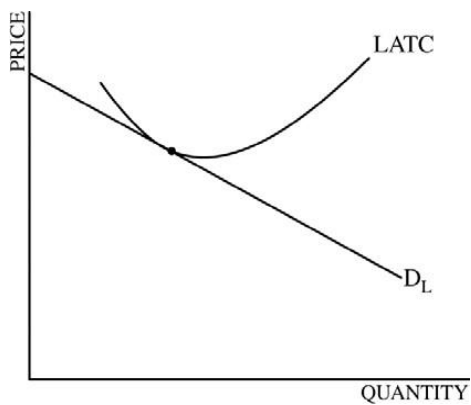
11 points

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(a) **i. 1 point** is earned for a correctly labeled graph of the market with a downward- sloping demand curve and upward sloping supply curve with the equilibrium identified as Q_M and P_M.
ii. 1 point is earned for showing a horizontal D and MR curve for the firm labeled D_F and MR_F
iii. 1 point is earned for showing the profit-maximizing quantity, Q_F at MC=MR
iv. 1 point is earned for showing the area representing economic profit, shaded

(b) **i. 1 point** is earned for stating that the number of firms will increase and for explaining that new firms will enter the market.
ii. 1 point is earned for stating that the equilibrium price decreases or is lower than P_M.
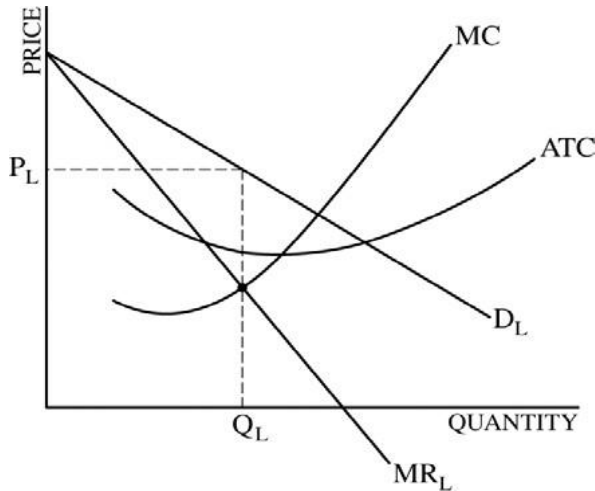
(c) **i. 1 point** is earned for drawing a correctly labeled graph with a downward sloping demand curve, D_L with the marginal revenue curve MR_L below it.
ii. 1 point is earned for drawing the average total cost curve, ATC, with the upward sloping marginal cost curve, MC passing through the lowest point of the ATC curve.
iii. 1 point is earned for identifying the profit maximizing quantity, Q_L at MC=MR.
   • **1 point** is earned for identifying the price, P_L on the demand curve at Q_L and above ATC.

(d) 1 point is earned for a correctly labeled graph showing a long-run average total cost curve tangent to a downward-sloping demand curve.


FRQ #3

10 points

(a) **1 point:** Produces at MC =MR

(b) **(i) 1 point:** Q_1 and P_5 (or Point B)
    (ii) 1 point: A to D (or range for which MR > 0)

(c) **1 point:** Q_2 and P_4 (or point C)

(d) **(i) 1 point:** ABP_5 (monopoly)

    (ii) 1 point: ACP_4 (perfect competition)

(e) **1 point:** P = MC, or MB = MC

(f) **1 point:** Q_2

(g) **2 points** (includes explanation): A per-unit subsidy. Merely the word "subsidy" is sufficient. Must include an explanation that the subsidy either lowers MC, or raises MR, or shifts the demand curve out.

7 points

(a) 4 points:
- Correctly labeling the profit maximizing quantity labeled as Q_M
- Correctly labeling the profit maximizing price labeled as P_M
- Correctly labeling the allocatively efficient quantity labeled as Q_A
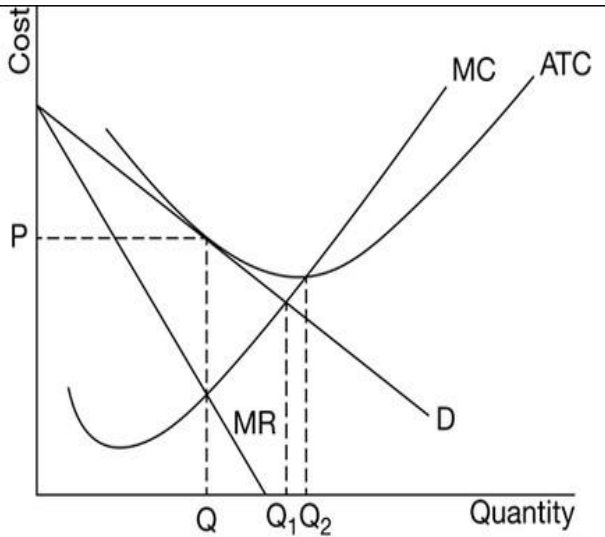- Correctly shading DWL
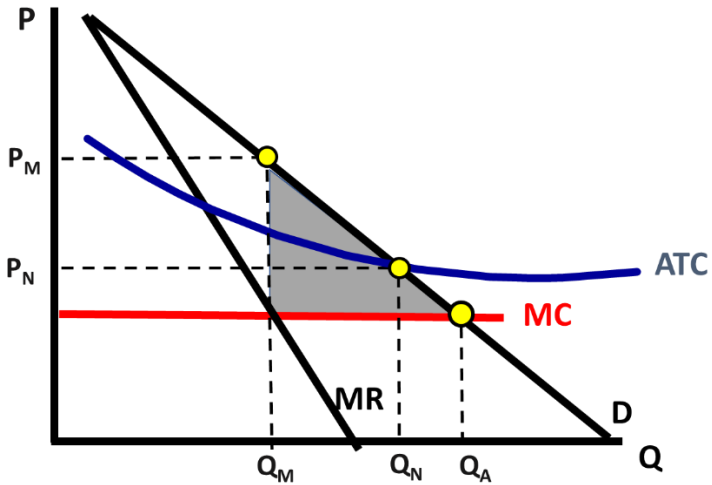
(b) 1 point: Per-unit subsidy

(c) 2 points:
- (i) 1 point: See graph in part (a); label as P_N and Q_N at ATC=D
- (ii) 1 point: Set price where MC=D

9 points

(a) A correctly labeled graph of the firm with a downward-sloping demand curve and a downward sloping marginal revenue curve below it.
  i. **1 point:** P from the demand curve above Q.
  ii. **1 point:** The profit-maximizing quantity labeled Q at MC=MR.
  iii. **1 point:** the allocatively and productively efficient levels of output labeled Q_1 and Q_2.
     1 point: Also: The ATC IS tangent to the demand curve at Q.

(b) **1 point:** The response states that Firm Z is earning a positive accounting profit and explains that the accounting profit is equal to implicit cost, or because the firm is in long-run equilibrium and is making zero economic profits, it is making a positive accounting profit.

(c) **1 point:** The response states that Gobble is a monopoly or oligopoly, there are high barriers to entry in Gobble's industry, or that Gobble has more market power than other firms in other industries.

(d) **1 point:** The response states that the two products are substitutes.

(e) **i. 1 point:** States that profits will increase in the short run because demand will increase.
   ii. 1 point: States that Firm Z's profits will fall to zero in the long run because firms will enter the market, the firm's demand will decrease, and the price will decrease.