2022

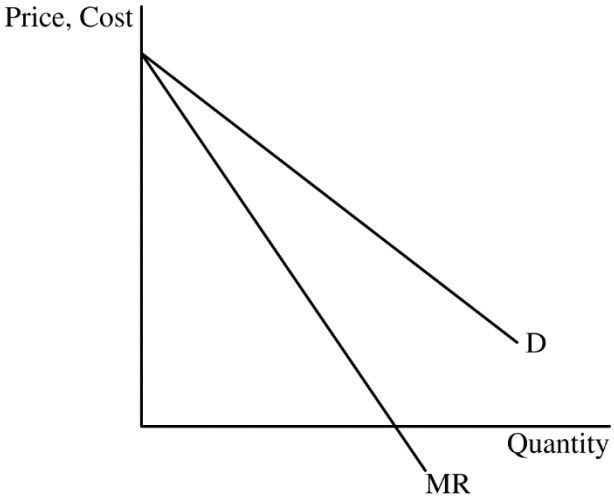
AP CollegeBoard

AP® Microeconomics

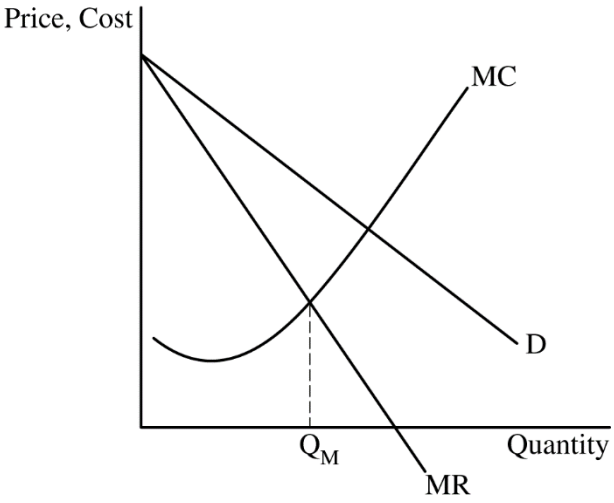
Scoring Guidelines
Set 1

Question 1: Long — 10 points

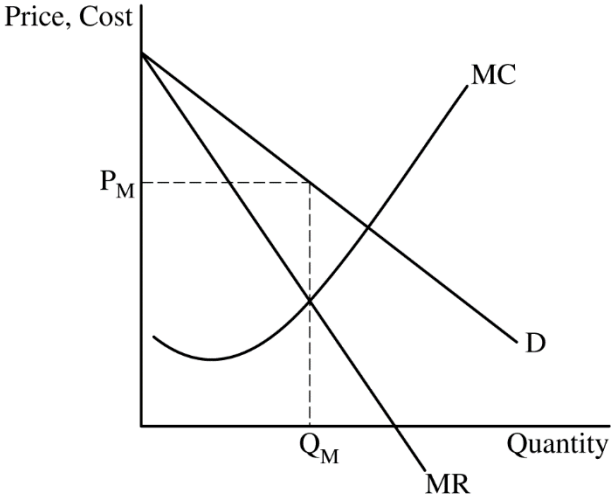
(a) Draw a correctly labeled graph for a monopoly showing downward-sloping demand (D) and marginal revenue (MR) curves with the MR curve below the demand curve. **1 point**



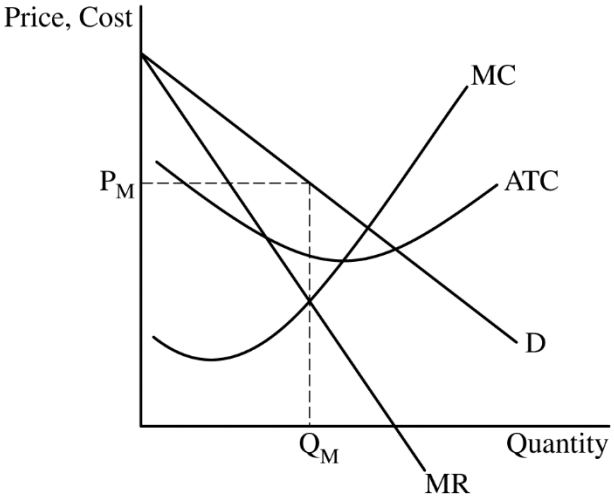
For the second point, the graph must show the marginal cost (MC) curve and the profit-maximizing quantity, labeled Q_M, where MR=MC. **1 point**



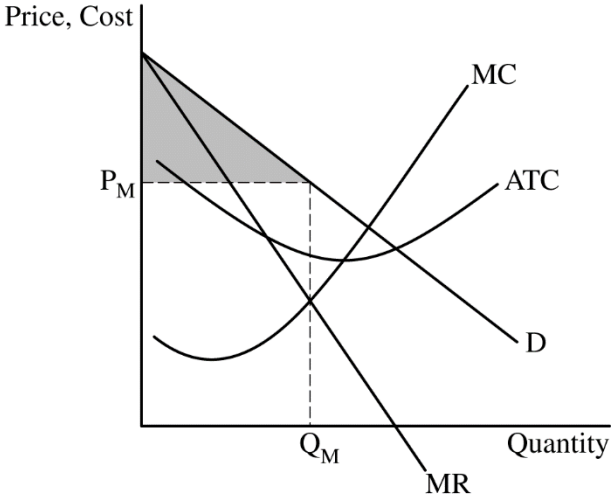
For the third point, the graph must show the profit-maximizing price, labeled P_M, from the demand curve at Q_M. **1 point**



For the fourth point, the graph must show the average total cost (ATC) curve below the demand curve at Q_M and show the MC curve passing through the minimum point of the ATC curve. **1 point**



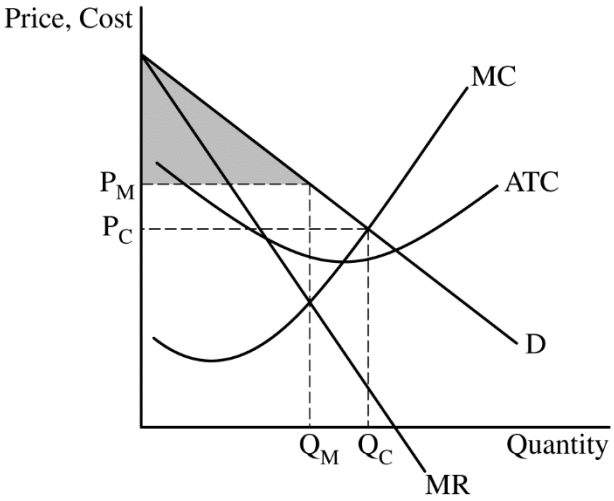
For the fifth point, the graph must show a completely shaded area of the consumer surplus. **1 point**



Total for part (a) **5 points**

(b)(i) State no and explain that a per-unit tax would shift the MC curve upward and intersect the MR curve at a lower quantity, which decreases the firm's profit-maximizing quantity, not increases it to the socially optimal quantity where MC=D. **1 point**

(ii) On your graph from part (a), show the socially optimal quantity labeled as Q_C and the price ceiling labeled as P_C at MC=D. **1 point**



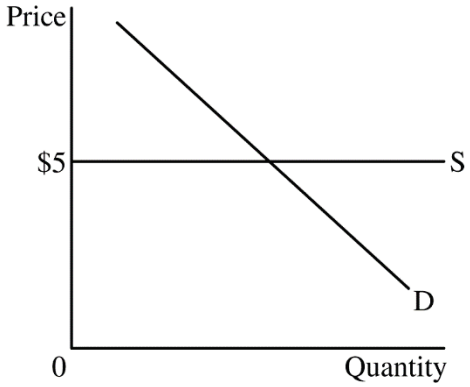
(iii)	State that the firm is earning positive economic profit and explain that ATC is less than P_C at Q_C, as shown. **Scoring Note:** The answer should be consistent with the position of the ATC curve with respect to the demand curve at Q_C on the graph drawn in part (b)(ii). The firm will not earn positive economic profit if the ATC curve is drawn such that ATC>P_C or ATC=P_C at Q_C.	**1 point**
	Total for part (b)	**3 points**
(c) (i)	State that marginal revenue will be negative and explain that after total revenue is maximized, TR decreases since the firm moves onto the inelastic portion of the demand curve.	**1 point**
(ii)	State that the percentage increase in quantity demanded will be less than 10%.	**1 point**
	Total for part (c)	**2 points**
	Total for question 1	**10 points**

Question 2: Short — 5 points

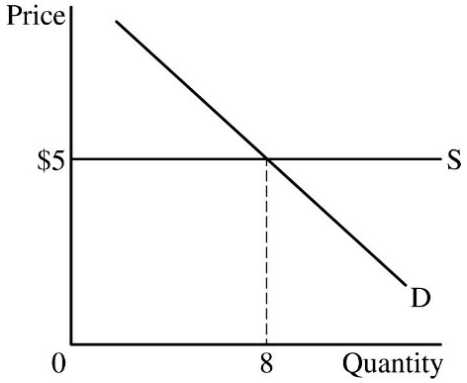
(a)		State that there is a positive consumption externality.	**1 point**
(b)		State that the marginal external benefit is $3.	**1 point**
(c)	**(i)**	State that the change in profit per hour for Bueno is $10 and show your work. Change in Profit per Hour $= \text{Marginal Revenue Product (MRP)} - \text{Marginal Factor Cost (MFC)}$ $= (\$5 \times 6) - \$20 = \$30 - \$20 = \$10$	**1 point**
	(ii)	State that Bueno's MRP curve would shift up (or to the right) and explain that the subsidy would increase the demand for guava and increase the price paid by buyers, which would increase MRP for each worker and shift the curve to the right.	**1 point**
		Total for part (c)	**2 points**
(d)		State that the number of workers hired will decrease as the quantity of labor hired will occur at a lower quantity of labor where MFC=MRP and explain with **ONE** of the following: • The MFC for a monopsony is greater than the MFC for a perfectly competitive labor market. • The MFC increases as the monopsony pays higher wages for every worker as it hires more workers whereas the MFC (or wage) is constant for a firm in a perfectly competitive labor market.	**1 point**
		Total for question 2	**5 points**

Question 3: Short — 5 points

(a) Draw a correctly labeled graph of the market with a downward-sloping demand (D) curve and a perfectly elastic supply (S) curve at a price of $5. **1 point**



For the second point, the graph must show the equilibrium quantity as 8 units. **1 point**



Total for part (a) 2 points

(b) (i) Calculate the magnitude of the price elasticity of demand as 1.25 and show your work. **1 point**

$$\text{Price Elasticity of Demand} = \frac{\text{Percentage Change in Quantity Demanded}}{\text{Percentage Change in Price}}$$

$$= \frac{\left|\left(\frac{4-8}{8}\right) \times 100\right|}{\left|\left(\frac{7-5}{5}\right) \times 100\right|} = \frac{50\%}{40\%} = 1.25$$

OR

$$= \frac{\left(\frac{4-8}{8}\right) \times 100}{\left(\frac{7-5}{5}\right) \times 100} = \frac{-50\%}{40\%} = -1.25$$

(ii) State that demand is elastic. **1 point**

Total for part (b) 2 points

(c)	State no and explain that Emily's marginal benefit should be greater than or equal to the price she is willing to pay ($7) for the second unit.	**1 point**
	Total for question 3	**5 points**