MICROECONOMICS
Section II
Planning time—10 minutes
Writing time—50 minutes

Directions: You have 50 minutes to answer all three of the following questions. <u>It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions</u>. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. <u>Use a pen with black or dark-blue ink</u>.
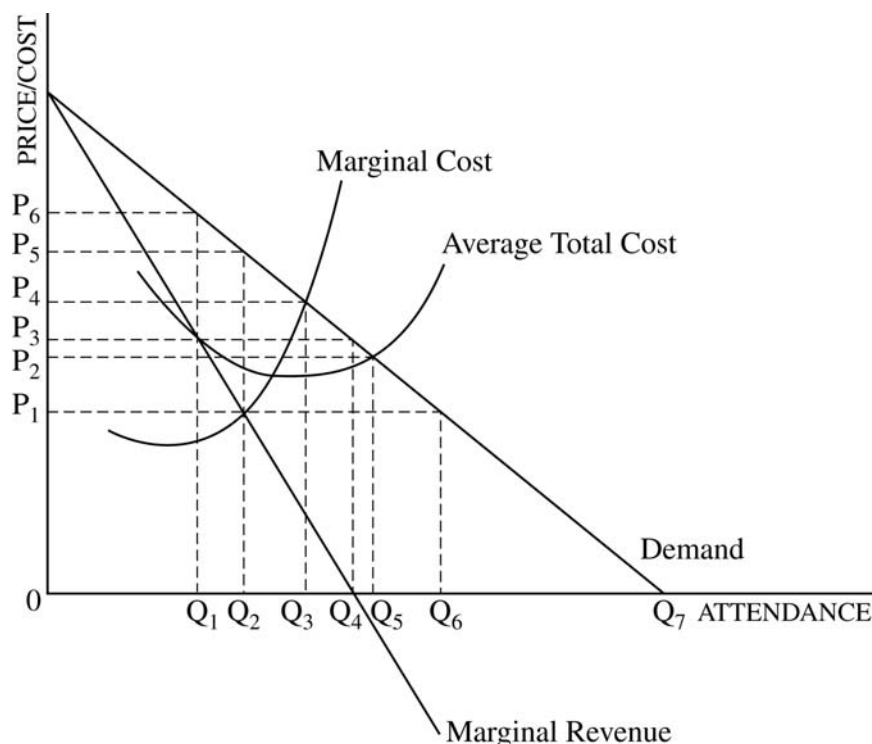
1. There is one art museum on the island of Watsonia. The museum's demand and cost curves are shown in the graph above. The museum currently relies on an admission charge for some of its funding. Its directors are debating about how to set the admission charge.

   (a) Using the labeling of the graph above, identify the price and quantity associated with the following objectives.

      (i) The museum maximizes its profit.

      (ii) The museum maximizes its total revenue.

      (iii) The museum maximizes the sum of consumer and producer surplus.

      (iv) The museum maximizes its attendance, as long as it breaks even.

   (b) When the attendance is Q_1, is the demand price elastic, inelastic, or unit elastic? Explain.

GO ON TO THE NEXT PAGE.

(c) Assume that the price is set at P_2. Assuming the existence of an opportunity cost, indicate whether the museum's accounting profits would be positive, negative, or zero. Explain why.

(d) Assume that the government decides the museum should charge no admission and agrees to subsidize the museum for any losses.

   (i) Using the labeling in the graph, identify the museum's attendance under that circumstance.

   (ii) Would the outcome be allocatively efficient? Explain.

Short-Run Total Cost Function

Quantity Produced	Total Cost (in dollars)
0	20
1	27
2	38
3	53
4	72
5	95
6	122

2. The table above gives the short-run total cost function for a typical firm in a perfectly competitive industry.

(a) What is the dollar value of the firm's total fixed cost?

(b) Calculate the marginal cost of producing the first unit of output.

(c) If the price the firm receives for its product is $20, indicate the firm's profit-maximizing quantity of output and explain how you determined your answer.

(d) Given your results in part (c), explain what will happen to the number of firms in the industry in the long run.

(e) Assume that this firm operates in a constant-cost industry and has reached long-run equilibrium. If the government imposes a per-unit tax of $2, indicate what will happen to the firm's profit-maximizing output in the long run.

11 points (4 + 2 + 2 + 3)
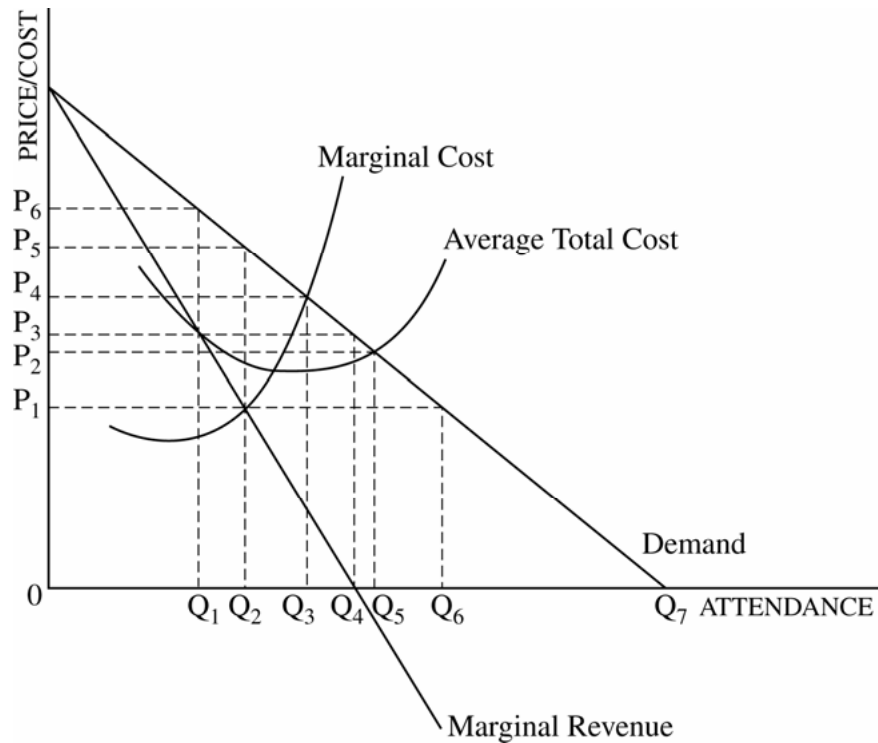
(a) 4 points:
- One point is earned for indicating P_5, Q_2.
- One point is earned for indicating P_3, Q_4.
- One point is earned for indicating P_4, Q_3.
- One point is earned for indicating P_2, Q_5.

(b) 2 points:
- One point is earned for stating that demand is elastic at Q_1.
- One point is earned for explaining that MR is greater than zero, OR Q_1 is to the left of the midpoint, OR Q_1 is in the upper half of the demand curve.

(c) 2 points:
- One point is earned for stating that accounting profits are positive.
- One point is earned for explaining that economic profits are zero, opportunity costs exist, and economic profits=accounting profits-opportunity cost.

(d) 3 points:
- One point is earned for indicating Q_7.
- One point is earned for concluding that the outcome is not allocatively efficient.
- One point is earned for explaining that MC>P or MSC>MSB.