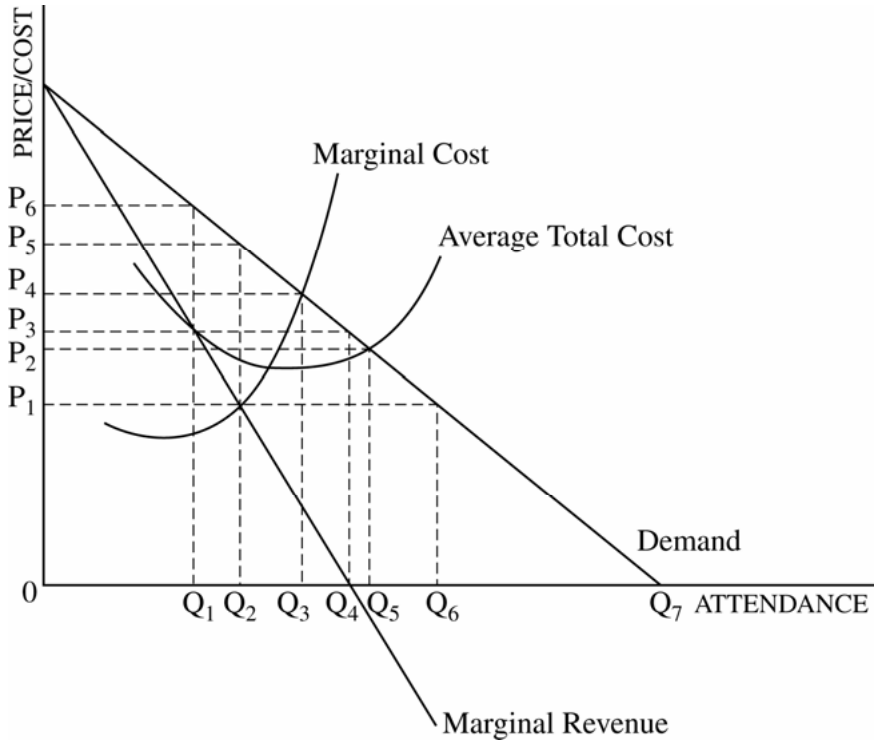
Question 1

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.

Write in the box the number of the question you are answering on this page as it is designated in the examination.

1

1A

1. a. i. $P = P_5$, $Q = Q_2$

ii. $P = P_3$, $Q = Q_4$

iii. $P = P_4$, $Q = Q_3$

iv. $P = P_2$, $Q = Q_5$

b. At Q_1, the demand is price elastic. Total Revenue (TR) is maximized when MR is zero, which occurs at Q_4. Knowing this, you can use the total revenue test. Since at Q_1 if P is decreased, TR increases, the curve is price elastic at Q_1 because a decrease in price leads to an increase in total revenue.

c. At P_2, ATC = P, which means there is no economic profit and the firm is breaking even. But, since an opportunity cost exists, the firm is making positive accounting profits because at P_2, the firm makes a normal profit since it covers its costs. So, at P_2, the firm makes positive accounting profit.

d. i. Attendance: Q_7 because P=0 at this level

ii. No, this level is not allocatively efficient. Allocative efficiency occurs where P = MC. At this level of output, P=0 and MC ≠0, so P does not equal MC. This means the firm is not allocatively efficient.

Write in the box the number of the question you are answering on this page as it is designated in the examination.

1

1B

a) i. The museum will maximize its profits at price P_5 and quantity Q_2. This is the quantity at which MR = MC.

ii. The museum will maximize its total revenue if it charges price P_6 and has attendance Q_1.

iii. The museum will maximize the sum of consumer and producer surplus if it charges price P_4 and has attendance Q_3, because D = MC at that point.

iv. The firm maximizes attendance while still breaking even when charging price P_2 and having attendance Q_6; that point is where P = ATC

b) Since marginal revenue is greater than marginal cost at attendance Q_1, the demand price is elastic.

c) Since economic profit is 0 at price P_2, and economic profit is equal to accounting profit minus opportunity cost, the accounting profit must be positive.

d) i. The attendance when the admission is free is Q_7

ii. The outcome is not allocatively efficient; allocative efficiency occurs when MC=ATC

Write in the box the number of the question you are answering on this page as it is designated in the examination.

1

1C

a.) i.) P_5, Q_2

ii.) P_4, Q_3

iii.) P_4, Q_3

iv.) P_3, Q_4

b.) Inelastic because the consumer is willing to pay high price inorder to attend. No matter the price, those who are apart of Q_1 will attend.

c.) Negative because marginal revenue is negative at this point.

d.) (i) Q_7

~~(ii) No because output would not be at the minimization of the ATC.~~

ii.) NO because MR = D

AP® MICROECONOMICS
2006 SCORING COMMENTARY

Question 1

Overview

The question tested students' ability to apply a number of microeconomic concepts to a museum facing a downward sloping demand curve. Part (a) asked students to identify the prices (admission fees) and quantities (attendance) associated with different objectives of the museum. Part (b) asked students to determine the range for the price elasticity of demand given a specific quantity. Part (c) required an understanding of accounting and economic profits. In part (d) students were asked to identify museum attendance and explain the allocative efficiency implications when there is no admission charge to the museum.

Sample: 1A
Score: 11

The student received full credit.

Sample: 1B
Score: 7

The student lost 1 point for not identifying the correct total revenue-maximizing price and quantity in part (a)(ii), and 1 point in part (a)(iv) for not identifying the correct price and quantity combination that results in a break-even situation. One point was lost in part (b) for an inadequate explanation of why demand is price elastic at Q_1. One point was lost in part (d) for an inadequate explanation of why Q_7 is not an allocatively efficient output.

Sample: 1C
Score: 4

The student earned 1 point in part (a)(i) for identifying the correct profit-maximizing price and quantity and 1 point in part (a)(iii) for identifying the correct price and quantity combination that maximizes the sum of consumer and producer surpluses. Two points were earned in part (d) for correctly identifying Q_7 and stating that this quantity is not allocatively efficient.