



- a) i. The museum will maximize its profits at  $P_5$  and  $Q_2$ . 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  $MC = ATC$ .

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 in order to attend. No matter the price, those who are a part 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 minimum of the ATC.~~

ii.) NO because  $MR = D$

# AP<sup>®</sup> 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.