

AP[®] MICROECONOMICS
2008 SCORING GUIDELINES (Form B)

Question 1

10 points (2 + 2 + 1 + 3 + 1 + 1)

(a) 2 points:

- One point is earned for identifying the profit-maximizing output, Q_2 , and explaining that $MC=MR$ at Q_2 .
- One point is earned for identifying P_5 on the demand curve above $MC = MR$.

(b) 2 points:

- One point is earned for identifying the revenue-maximizing output, Q_3 , and explaining that since MR is zero at Q_3 , TR is at the maximum.
- One point is earned for identifying P_3 as the price corresponding to Q_3 .

(c) 1 point:

- One point is earned for identifying the price the government would require, P_1 , and the allocatively efficient output, Q_4 .

(d) 3 points:

- One point is earned for stating that the firm would incur a loss.
- One point is earned for the explanation that ATC is greater than the price, P_1 .
- One point is earned for identifying the area of loss, P_1P_2eg .

(e) 1 point:

- One point is earned for identifying the consumer surplus, P_1P_7g .

(f) 1 point:

- One point is earned for identifying the price, P_3 .

(a.) (i) To maximize profit, the firm would produce Q_2 units of output.

This is because Q_2 is the quantity at which ~~AT~~ marginal cost equals marginal revenue, where their respective curves intersect.

(ii) At Q_2 units of output, the demand curve or marginal benefit curve determines the profit-maximizing price at P_5 .

(b.) (i) To maximize revenue, the firm would produce Q_3 units of output. This is because marginal revenue is constantly decreasing and at Q_3 unit, marginal revenue is zero; this gives the peak value for total revenue.

(ii) At Q_3 units of output, the demand curve or the marginal benefit curve determines the revenue-maximizing price at P_3 .

(c.) (i) The firm is producing allocatively efficient when marginal benefit equals marginal cost, where their two curves intersect. This gives the allocatively efficient price of P_1 .

(ii) At the price P_1 , the marginal benefit curve yields an allocatively efficient level of output at Q_4 .

(d.) (i) The firm would be incurring a loss since at that point, average total cost is greater than ~~at~~ the price of the product; this implies that total costs are greater than total revenue.

(ii) Profit is defined by the equation: ~~profit = (price - average total cost)~~
~~multi~~ profit = (price - average total cost) \times quantity.

This gives the rectangle geP_2P_1 , and since price is less than average total cost, the firm has a loss of geP_2P_1 .

1

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

1A₂

(e.) Consumer surplus consists of the consumers that benefit by being able to pay less than what they are willing to pay.

This constitutes the area $g P_1 P_2$ on the graph.

(f.) For the firm to cover all of its opportunity costs, economic profit would be zero. Since, as mentioned before,

$$\text{profit} = (\text{price} - \text{average total cost}) \times \text{quantity}$$

this would occur when $\text{price} - \text{average total cost} = 0$, or

when the price, given by the marginal benefit curve, intersects

the average total cost curve. At this point, the price that

the firm would charge would be P_3 .

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

1

1B

(a) (i) Q_2 , $MR = MC$

(ii) P_4

(b) (i) Q_3 , $MR = 0$

(ii) P_3

(c) (i) P_1

(ii) Q_4

(d) (i) The firm would be earning a profit, $P > MC$

(ii) P_4 and P_1

(e) P_7 and P_9

(f) P_3

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

Q 1

1C

a) (i) level of output: It will be Q_2 because it is where $MC = MR$

(ii) price: P_5

b) (i) level of output: it will be ~~Q~~ Q_1 because that is where MR will be highest with some output

(ii) price: P_7

c) (i) It would be P_3
(ii) It would be Q_3

d) (i) It would have a loss because they use to ~~lose~~ make economic profit and they don't anymore.

(ii) (d, b, P_5 , P_3)

e) d P_3 P_7

f) P_1

AP[®] MICROECONOMICS
2008 SCORING COMMENTARY (Form B)

Question 1

Sample: 1A

Score: 10

The student earned all points in this question.

Sample: 1B

Score: 6

The student lost a point in part (a) because the price of P_4 is not from the demand curve at the correct quantity of Q_2 . Both points were earned in part (b). The student earned the point in part (c). The student lost all points in part (d) for stating that the firm is earning a profit, rather than incurring a loss. The area of profit given does not correspond to an area of profit in the graph. The student earned the point in part (e) and also in part (f).

Sample: 1C

Score: 3

The student earned both points in part (a). The student lost 2 points in part (b): 1 point for identifying the incorrect level of output that maximizes total revenue and 1 point for identifying the incorrect price at that output. The student lost the point in part (c) for identifying an incorrect quantity and price. The points in part (d) were not earned because the firm would not be operating at a loss at the price and quantity given in part (c). A consistency point was earned in part (e) because the consumer surplus area is correct at the price and quantity given in part (c). The student did not earn the point in part (f) because the price given is incorrect.