
AP[®] Microeconomics

Sample Student Responses and Scoring Commentary

Set 2

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Free Response Question 1

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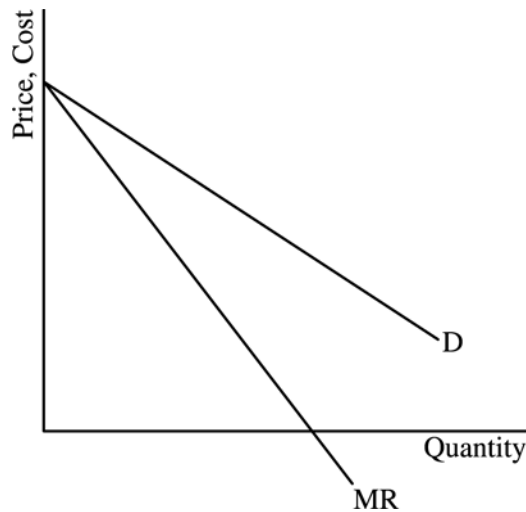
AP[®] MICROECONOMICS 2019 SCORING GUIDELINES

Question 1

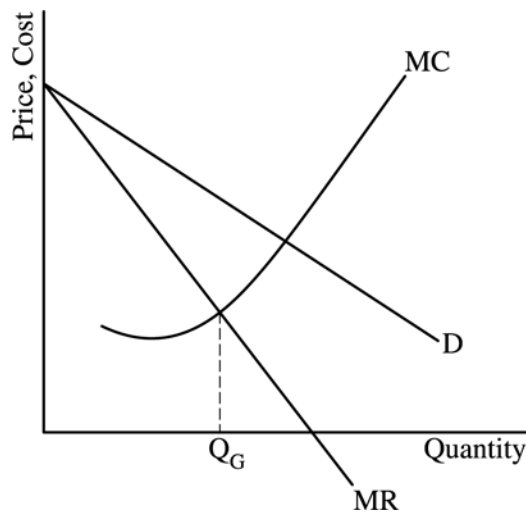
9 points (5 + 2 + 2)

(a) 5 points

- One point is earned for drawing a correctly labeled graph of the monopoly showing downward-sloping demand (D) and marginal revenue (MR) curves with the MR curve below the demand curve.



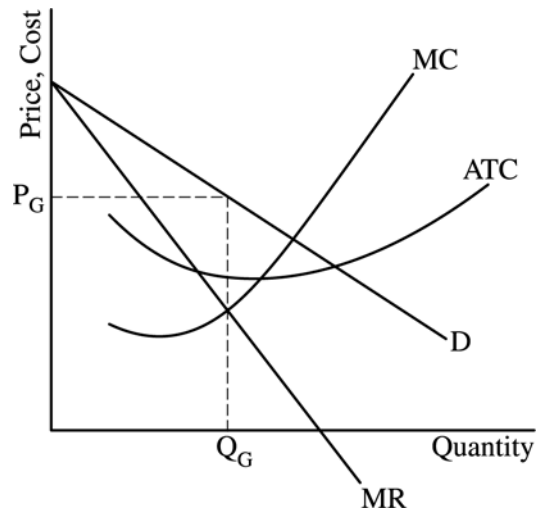
- One point is earned for showing the profit-maximizing quantity, labeled Q_G , where $MR=MC$.



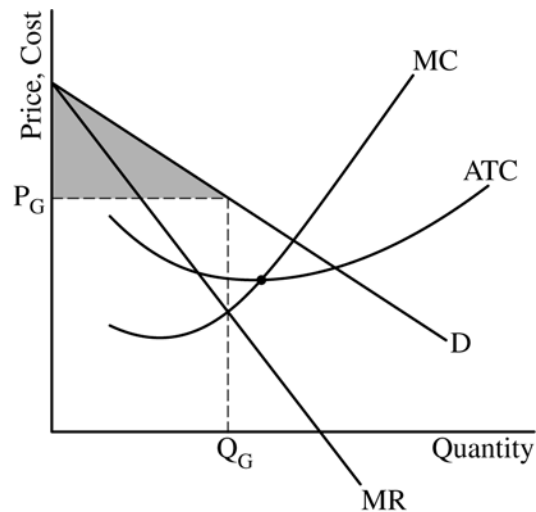
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Question 1 (continued)

- One point is earned for both showing the profit-maximizing price, labeled P_G , from the demand curve at Q_G , and above the average total cost (ATC) curve.
- One point is earned for showing the marginal cost (MC) curve rising and passing through the minimum point of the ATC curve.



- One point is earned for completely shading the area of the consumer surplus.



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Question 1 (continued)

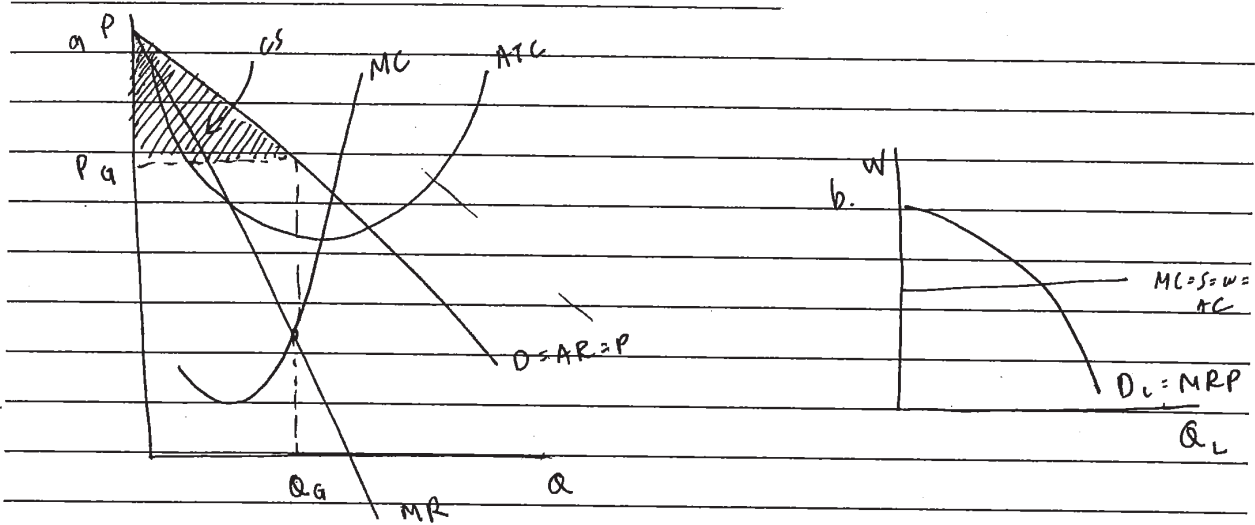
(b) 2 points

- One point is earned for stating that Gigantic Pharmaceutical Corporation's demand for warehouse workers will increase and for explaining that the marginal revenue product of labor increases because of the increase in the product price.
- One point is earned for stating that the wage rate Gigantic pays to its warehouse workers will not change and the number of workers hired will increase.

(c) 2 points

- One point is earned for stating that Gigantic's producer surplus will decrease.
- One point is earned for stating that the consumer surplus will increase and for explaining that because of the increased competition the price will decrease and the quantity will increase.

IA



b. it increases because as demand (and price) increases, the marginal revenue product of labor increases as well.

Bigonic will hire more workers at an unchanged wage.

c. i) decreased

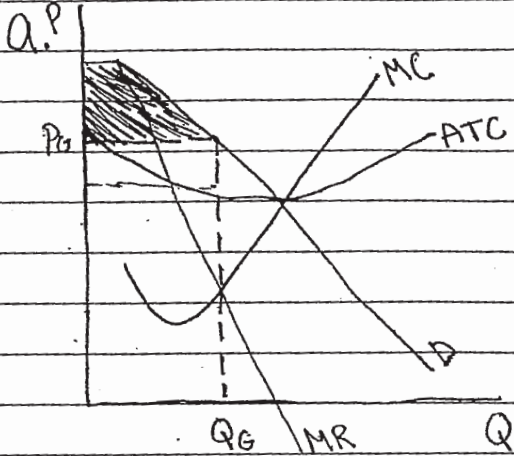
ii) increases because if the price is lower, there are more consumers willing to take that price and more consumers who ~~who~~ would have been willing to take a higher price than they paid.

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1B

ANSWER PAGE FOR QUESTION 1

1.



b.

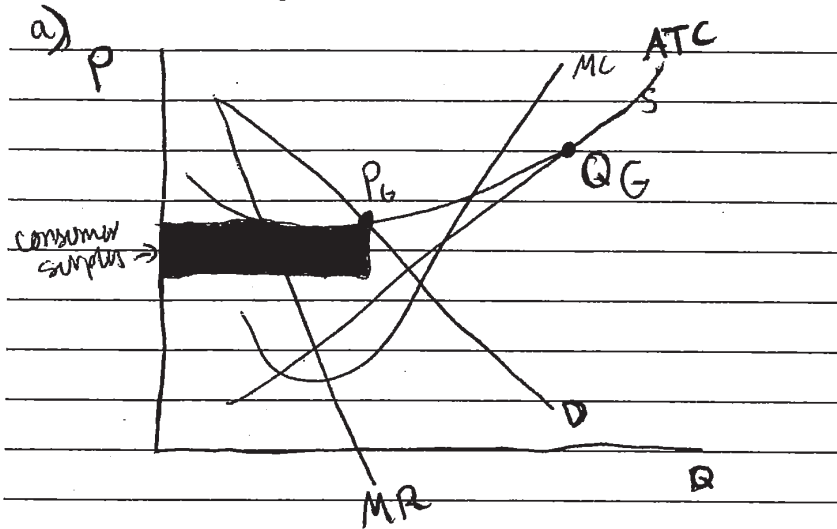
- i. The demand for warehouse workers will increase because since the demand for the product is increasing they will need more workers to accommodate for the higher demand.
- ii. The wage rate will increase as well because they have a higher demand which means their total profit goes up allowing them to increase the amount of workers and the wage rate.

c.

- i. Increase
- ii. Consumer Surplus will decrease because consumers are consuming less of Gigantics prescription drugs because of the lower price of the drug substitute.

GO ON TO THE NEXT PAGE.

1C



b) i) The demand for warehouse workers will increase because to meet the demand more supply needs to come and with more workers, it will increase.

ii) The wage rate would decrease since more workers will end up being hired. The number of warehouse workers they higher would also increase because the demand is increasing.

c) i) Gigantic's producer surplus would decrease since there is another firm producing the same product.

ii) The consumer surplus in the prescription drug market would decrease since the consumers are able to go to different producers to get the same prescription drugs.

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2019 SCORING COMMENTARY

Question 1

Note: Student samples are quoted verbatim and may contain spelling and grammatical errors.

Overview

The question assessed students' understanding of the market conditions for monopoly, how a monopoly sets price and output levels, how changes in the market for the monopoly's product would affect hiring decisions by the firm in a perfectly competitive labor market, and how the introduction of competition into the market would impact producer and consumer surplus.

The question states that Gigantic Pharmaceutical Corporation has monopoly power via its patent for a prescription drug and is currently operating with positive economic profits. In part (a) students were asked to draw a correctly labeled graph for a monopoly and to show the profit-maximizing quantity, the profit-maximizing price, the average total cost curve (ATC) curve, and the area representing the consumer surplus for the firm. To demonstrate this knowledge, students had to graph a downward-sloping demand (D) curve, a downward-sloping marginal revenue (MR) curve below the demand curve, a U-shaped ATC curve below the demand curve at the point of production, and a marginal cost (MC) curve rising through the ATC curve at its minimum point. Finally, students had to shade the area of consumer surplus below D and above the price of the good.

Part (b) asked students to explain how Gigantic's demand for workers would be impacted by an increase in the demand for the drug. This tested students' understanding of the relationship between factor demand, and the demand for the product. Students were expected to assert that demand for workers would increase and explain that the increased demand for the drug increased the price of the drug, increasing the marginal revenue product ($MRP_L = MP \times P$) of each worker, thus increasing the demand for workers. Students were then asked to identify how the change in the demand for the prescription drug would affect the wage rate Gigantic pays its workers and the quantity of workers hired by Gigantic. This tested student understanding of the perfectly competitive factor market in which Gigantic hires workers. Gigantic is a "wage-taker" for warehouse workers. Therefore, the student was expected to recognize there would be no change to the prevailing wage for workers. The increased demand for labor by Gigantic would result in more workers being hired by Gigantic at an unchanged wage rate.

Part (c) asked students to evaluate the impact of a new firm entering the pharmaceutical drug market on producer and consumer surplus. In part (c)(i) students had to identify that Gigantic's producer surplus would decrease as a result of the new firm's entry into the market. In part (c)(ii) students had to identify that consumer surplus would increase with the introduction of a new firm and explain that this occurs as a result of the decrease in equilibrium price and the increase in equilibrium quantity in the new market for the drug.

Sample: 1A

Score: 9

The response answers all parts of the question correctly and earned all 9 points.

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2019 SCORING COMMENTARY

Question 1 (continued)

Sample: 1B**Score: 5**

The response earned 1 point in part (a) for drawing a downward-sloping demand curve and a downward-sloping marginal revenue curve below the demand curve. One point was earned in part (a)(i) because the response correctly identifies profit-maximizing quantity Q_G on the quantity axis at the intersection of the MC and MR curves. The response earned 1 point in part (a)(ii) for indicating the profit-maximizing price P_G on the price axis from the quantity Q_G up to the demand curve and over to the price axis above the ATC at that quantity. The response earned 1 point for part (a)(iii) for drawing a U-shaped ATC curve intersected by MC at the minimum of the ATC curve. The student earned 1 point for part (a)(iv) for shading consumer surplus. No point was earned in part (b)(i) because the response does not explain that the demand for workers increases due to the increase in product price, increasing the marginal revenue product of labor. The response did not earn 1 point in part (b)(ii) because the wage rate will not increase when demand increases and the wage rate taken by the firm remains constant. The response did not earn a point in part (c)(i) for making the incorrect assertion that producer surplus will increase. No point was earned in part (c)(ii) because the response states that consumer surplus will decrease and because the response failed to recognize that increased competition in the market will decrease price and increase quantity, increasing consumer surplus.

Sample: 1C**Score: 2**

The response earned 1 point in part (a) for correctly drawing a downward-sloping demand curve with a downward-sloping marginal cost curve below it and 1 point in part (c)(i) for correctly asserting the producer surplus for Gigantic Pharmaceutical Corporation decreases.