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2021

AP® Microeconomics

Sample Student Responses and Scoring Commentary Set 1

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Free Response Question 3

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Question 3: Short — 5 points

(a)	Calculate the total revenue at the market price as \$250 and show your work. Total Revenue = (P × Q) = (\$5 × 50) = \$250	**1 point**
(b) (i)	State that the quantity exchanged at the price floor will be 30 bushels.	**1 point**
(ii)	Calculate the deadweight loss as \$40 and show your work. Deadweight loss = $\frac{(\$7-\$3)\times(50-30)}{2}=\frac{\$80}{2}=\$40$	**1 point**
(iii)	Calculate the producer surplus as \$245 and show your work. Producer surplus = $\frac{(\$7-\$0)\times(70-0)}{2}=\frac{\$490}{2}=\$245$	**1 point**
(iv)	State that the quantity of corn purchased by the government will increase and explain that this happens because the price floor leads to short-run economic profits for typical firms, which incentivize new firms to enter the market, leading to an increase in the market supply of corn and/or because the market supply becomes more elastic in the long run.	**1 point**
	Total for part (b)	**4 points**
	Total for question 3	**5 points**

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Question 1 ○ Question 2 ○ Question 3 ●

Begin your response to each question at the top of a new page.

a) Revenue = (# of Bushels)(Price

Revenue = (50)(5)

Revenue = $250

b) i) **30 bushels**

ii) DWL = (7-3)(50-30)(½)

DWL = (4)(20)(½)

DWL = 40

iii) PS = (70-0)(7-0)(½)

PS = (70)(7)(½)

PS = 245

3
35
× 7
245

iv) It will increase. When the government is purchasing bushels at $7, this sets the price for individual firms at $7 as well, above the original equilibrium price. Firms will earn an economic profit, enticing others firms to join the market, which shifts the supply curve right, re-establishing the long run for firms. Now since the supply curve shifted right, more producers would be willing to sell at $7, meaning the surplus increased, meaning the government has to buy more.



Question 1 ○ Question 2 ○ Question 3 ●

Begin your response to each question at the top of a new page.

a) TR = Q_e x P_e
= 50 x 5
= 250 $

b)
i) 30 Bushels of corn
ii) DWL = (7-3) x (50-30)
= (4 x 20) /2
= 80 /2 = 40

iii)
4x 30 = 120
(3x30)/2 = 45
80 /2 = 40
Producer Surplus = 120 + 40 + 45 = 205 $

iv) It will remain the same because the deadweight loss will remain constant meaning that government won't have to buy more or less.

Question 1 ○ Question 2 ○ Question 3 ●

Begin your response to each question at the top of a new page.

a. 50 bushels of corn / $5 per bushel

50
× 5
$250 total revenue @ equilibrium price

b.

i. 40 bushels of corn

ii. 50 bushels
-40 bushels
10 bushels / $1 per bushel = $10
$10 in dead weight loss

iii. $10 • $7 = $70 in producer surplus

iv. It will remain the same if the price floor and demand of corn do not change.

Question 3

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

Overview

The question assessed students' understanding of the benefits of trade and the effects of a binding price floor set by the government. Concepts in the question included calculating total revenue in an industry, calculating deadweight loss and producer surplus, and analyzing the short-run and long-run impacts of a binding price floor imposed by the government.

The question presents a graph representing the supply and demand for corn in Microland, where corn is produced and sold in a constant-cost, perfectly competitive market. In part (a) students were asked to calculate the total revenue earned by corn farmers at the market equilibrium price. Students were expected to calculate the price ($5) times the quantity (50) where supply and demand intersected on the graph, resulting in total revenue of $250. Students were directed to show their work.

Part (b) informs students that the government of Microland has imposed a price floor of $7 in the market for corn. In part (i) students were asked to assert how many bushels of corn would be exchanged given the price floor. Students were expected to state that 30 bushels of corn would be exchanged, which is limited by the quantity demanded at the price of $7. Students were not asked to show their work.

Part (ii) instructed students to calculate the deadweight loss given the price floor. Students were expected to calculate the area of the triangle between supply and demand between the quantities under the price floor (30) and the market equilibrium (50), or ($7 – $3) times (50 – 30), divided by 2. Thus, computing the deadweight loss as $40. Students were directed to show their work.

Part (iii) of the question informs students the government has agreed to buy any unsold quantity of corn after imposing the price floor, and asks students to calculate the resulting producer surplus. Students were expected to calculate the area of the triangle below the price floor, above the supply curve, and between the quantities of 0 and the quantity supplied at a price of $7 (70), or ($7 – 0) times (70 – 0) divided by 2. Thus, computing the producer surplus of $245.

In part (iv) students were asked to analyze the long-term effects of the pair of government interventions on the market for corn. Students were expected to assert that the quantity of corn purchased by the government will increase, and explain that the policies will create short-run economic profits for typical firms. These profits will motivate new firms to enter the market, and increasing the market supply of corn. Thus, the government's commitment to buy unsold corn will result in an increase in the quantity of corn purchased by the government in the long run.

Sample: 3A
Score: 5

Part (a): 1 point

- The response earned the point in part (a) because the response shows a correct calculation and shows work.

Part (b): 4 points

- The response earned the first point in part (b)(i) because the response correctly states that the quantity of corn exchanged at the price floor will be 30 bushels.

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Question 3 (continued)

- The response earned the point in part (b)(ii) because the response shows a correct calculation for deadweight loss and shows work.
- The response earned the point in part (b)(iii) because the response shows a correct calculation for producer surplus and shows work.
- The response earned the point in part (b)(iv) because the response correctly asserts that the quantity of corn the government would purchase increases and explains that, in the presence of economic profits, firms will enter, shifting supply to the right.

Sample: 3B
Score: 3

Part (a): 1 point

- The response earned the point in part (a) because the response shows a correct calculation and shows work.

Part (b): 4 points

- The response earned the first point in part (b)(i) because the response correctly states that the quantity of corn exchanged at the price floor will be 30 bushels.
- The response earned the point in part (b)(ii) because the response shows a correct calculation for deadweight loss and shows work.
- The response did not earn the point in part (b)(iii) because the response does not show the producer surplus correctly calculated as $245.
- The response did not earn the point in part (b)(iv) because the response incorrectly states that the quantity of corn purchased by the government will stay the same.

Sample: 3C
Score: 1

Part (a): 1 point

- The response earned the point in part (a) because the response shows a correct calculation and shows work.

Part (b): 4 points

- The response did not earn the first point in part (b)(i) because the response states that the quantity of corn that will be exchanged at the price floor will be 40 bushels.
- The response did not earn the second point in part (b)(ii) because the response does not show a correct calculation of deadweight loss.
- The response did not earn the point in part (b)(iii) because the response does not show the producer surplus correctly calculated as $245.
- The response did not earn the point in part (b)(iv) because the response incorrectly states that the quantity of corn purchased by the government will stay the same.

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