关注"PalmDrive Academy"公众号
获取最新资讯

添加"PalmDrive Academy"小助手
咨询课程详情

2022

AP CollegeBoard

AP® Microeconomics

Sample Student Responses and Scoring Commentary Set 2

Inside:

Free-Response Question 1

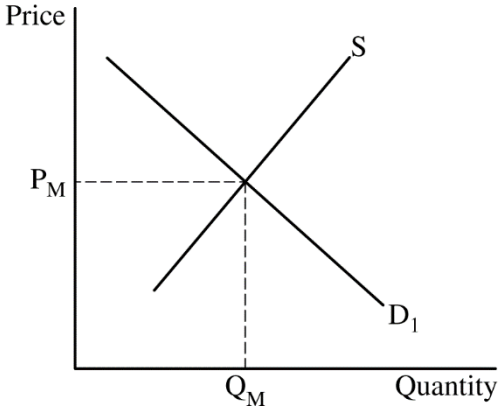
- ☑ **Scoring Guidelines**
- ☑ **Student Samples**
- ☑ **Scoring Commentary**

© 2022 College Board. College Board, Advanced Placement, AP, AP Central, and the acorn logo are registered trademarks of College Board. Visit College Board on the web: collegeboard.org.

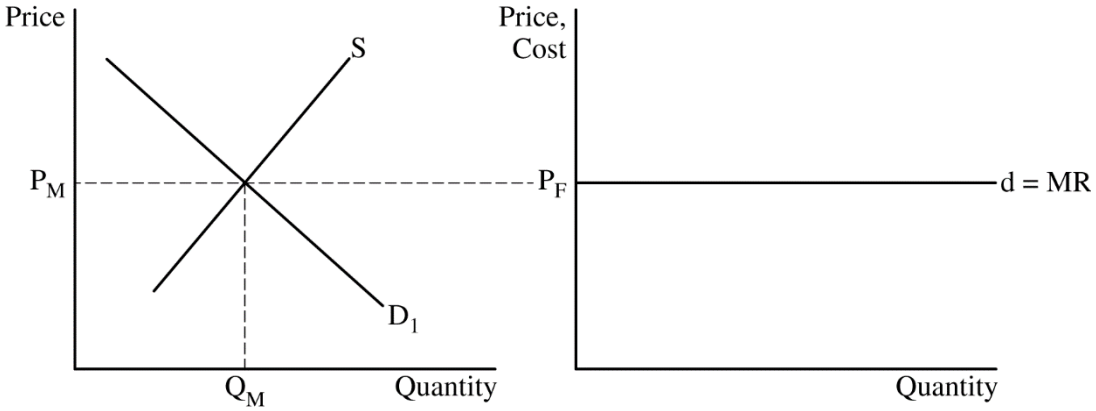
AP Central is the official online home for the AP Program: apcentral.collegeboard.org.

Question 1: Long — 10 points

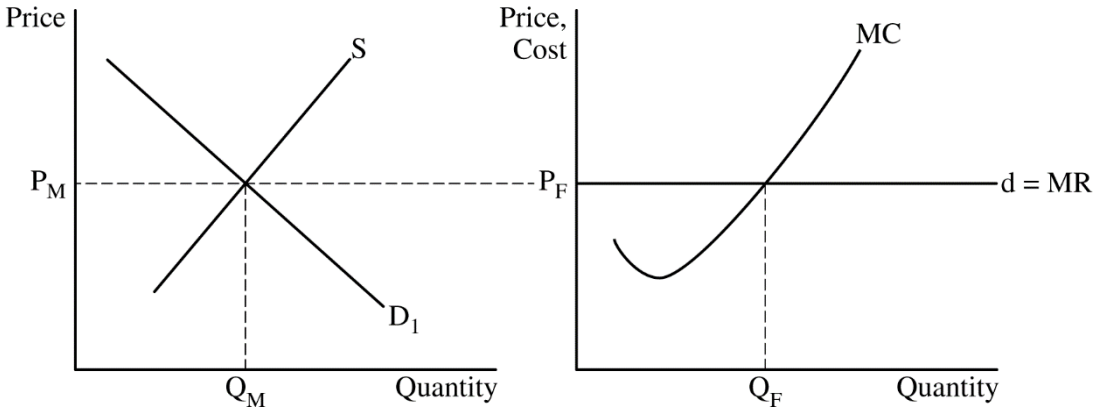
(a) Draw a correctly labeled graph of the market for sugar and show the equilibrium price and quantity, labeled P_M and Q_M, respectively. **1 point**



For the second point, the graph must show a horizontal demand curve (d = MR) for Frank Sugar Co. and label the firm's profit-maximizing price P_F at P_M. **1 point**

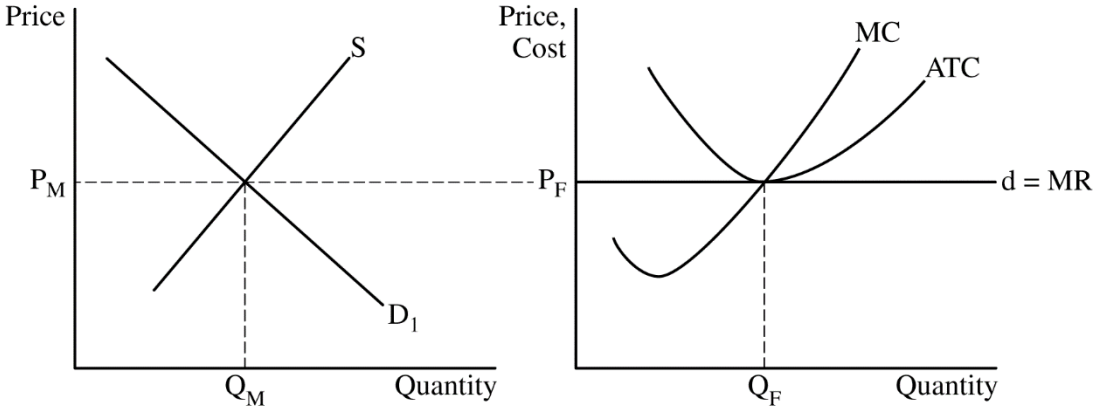


For the third point, the firm's graph must show the marginal cost (MC) curve and show the profit-maximizing quantity, labeled Q_F where MR = MC. **1 point**



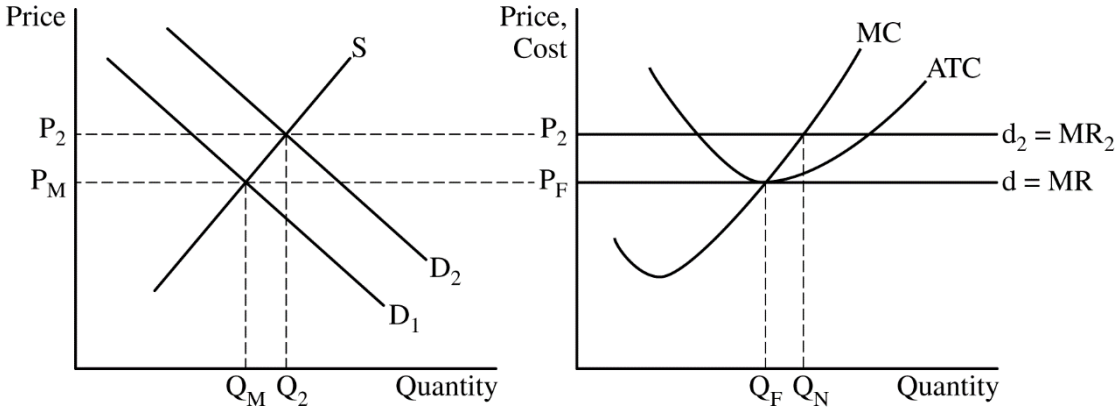
© 2022 College Board

For the fourth point, the firm's graph must show the average total cost (ATC) curve tangent to the firm's demand curve at Q_F and show the MC curve passing through the minimum point of the ATC curve. **1 point**



Total for part (a) 4 points

(b) On your market graph from part (a), show a rightward shift in the market demand curve with a higher market price, labeled P_2, and show an upward shift in the firm's demand curve with a greater quantity sold by Frank Sugar Co., labeled Q_N. **1 point**



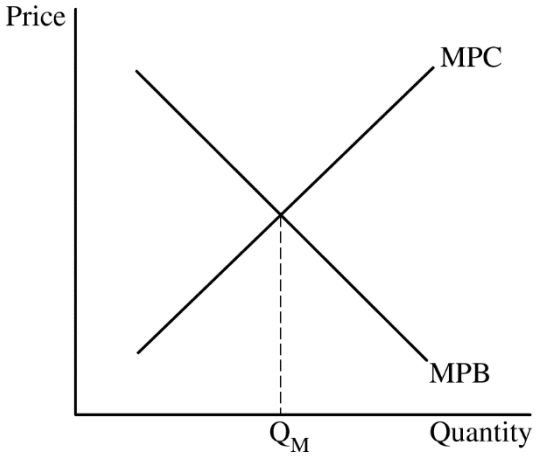
State that the profit earned by Frank Sugar Co. will increase in the short run. **1 point**

State that the market price in long-run equilibrium will be lower than P_2 and explain that new firms will enter the market, which increases the market supply, lowering the market price back to P_M where firms earn zero economic profit in the long run. **1 point**

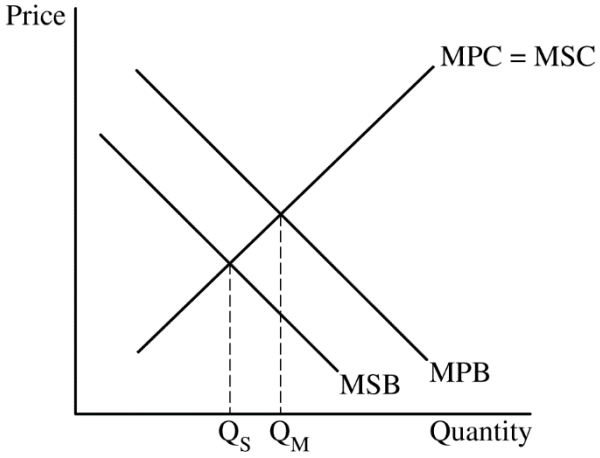
Total for part (b) 3 points

© 2022 College Board

(c) Draw a correctly labeled graph with an upward-sloping supply curve, labeled MPC, a downward-sloping demand curve, labeled MPB, and show the market equilibrium quantity, labeled Q_M at the intersection of the MPB and MPC curves. **1 point**



For the second point, the graph must show a downward-sloping marginal social benefit (MSB) curve below the MPB curve, label the upward sloping curve MPC = MSC, and show the socially optimal quantity, labeled Q_S, at the intersection of the MSB and MSC curves. **1 point**



Total for part (c) 2 points

(d) State that the government would impose a per-unit tax and explain that the tax would raise the price paid per unit **AND** decrease market equilibrium quantity to move it closer to the socially optimal quantity. **1 point**

Total for question 1 10 points

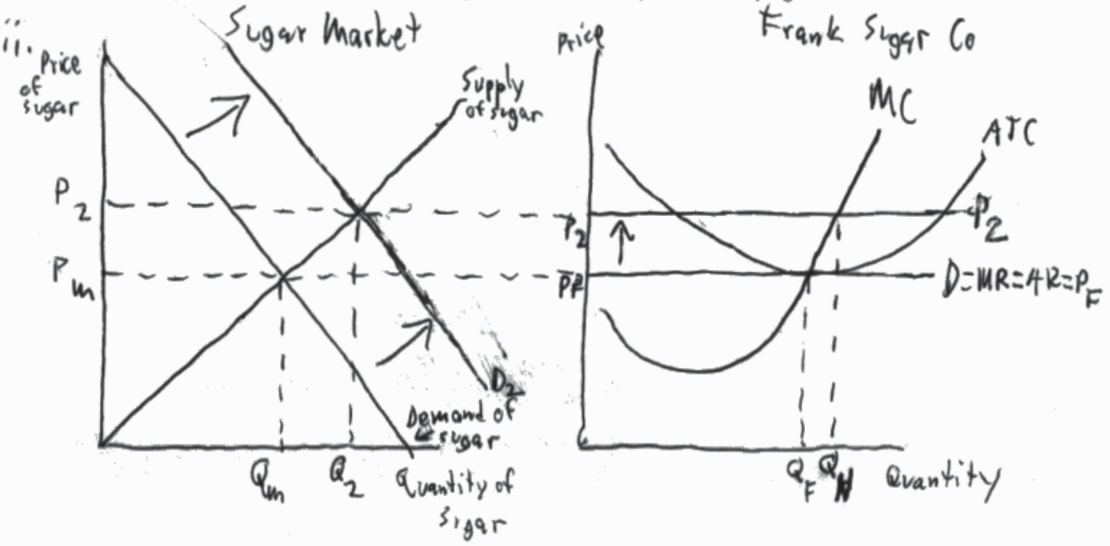
© 2022 College Board

Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1 ● Question 2 ○ Question 3 ○

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

1. a. i + ii.

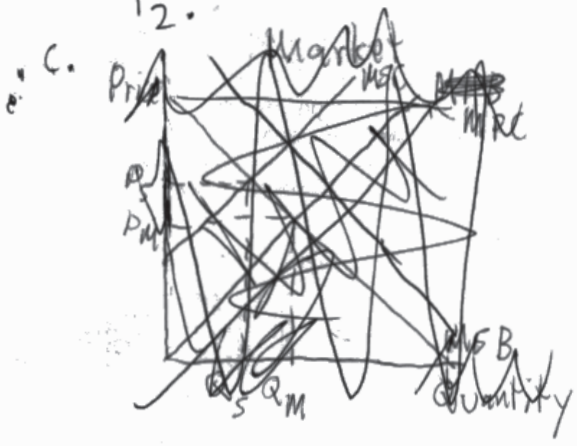


b. i. done

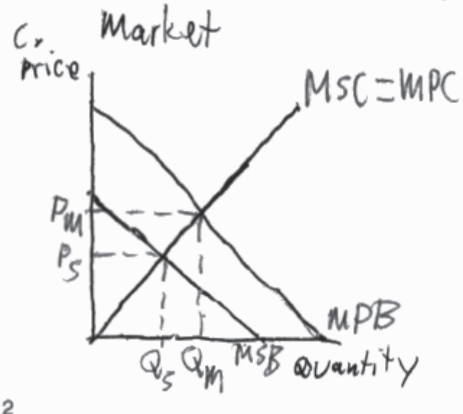
ii. The short run profit earned by Frank Sugar Co. will increase since price is greater than ATC at the profit-maximizing quantity.

iii. The market price of sugar will decrease ~~because~~ compared to P_2 because in the long-run, firms will enter the market as existing firms are making positive economic profits. When the amount of firms increases, this increases the supply of sugar, leading to a lower equilibrium price that is lower than P_2.

c.



c.



Use a pen with black or dark blue ink only. Do NOT write your name. Do NOT write outside the box.

Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1 ● Question 2 ○ Question 3 ○

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

d. A per-unit tax would best address the negative impact because a per-unit tax on consumers decreases their demand for sugar. As a result, the equilibrium quantity purchased by consumers will decrease to the socially optimal quantity of Q_S ~~if this~~ A Per-unit tax also affects the ~~addi~~ price of each individual sugar quantity, while lump-sum would ~~only affect their overall~~ not affect the price of each unit, meaning demand would not shift. Therefore, a per-unit tax is most effective as the tax raises the cost of purchasing ~~the~~ sugar by each unit, decreasing the entire demand curve of sugar to the socially optimal amount Q_S.

Use a pen with black or dark blue ink only. Do NOT write your name. Do NOT write outside the box.

0087303

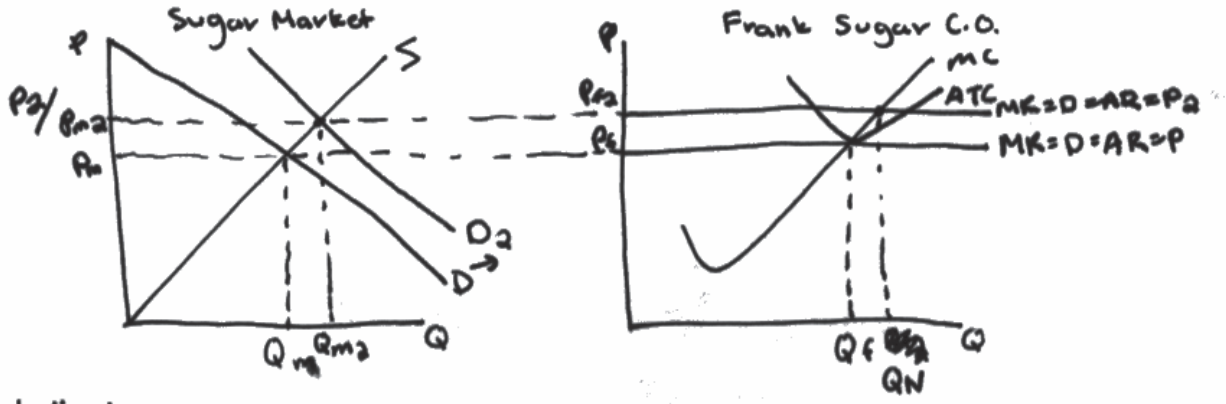
QS320/03

Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1 ● Question 2 ○ Question 3 ○

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

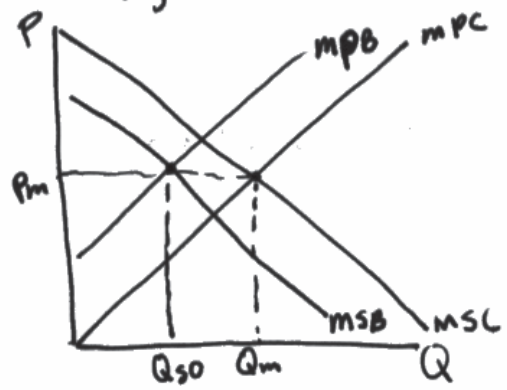
1. a.



b. ii. As a result of the increased demand for sugar, the short run profit ~~loss~~ earned by Frahk Sugar Co. will increase.

iii. firms will enter, causing an ~~decrease~~ increase of supply, which will make price indeterminate.

c.



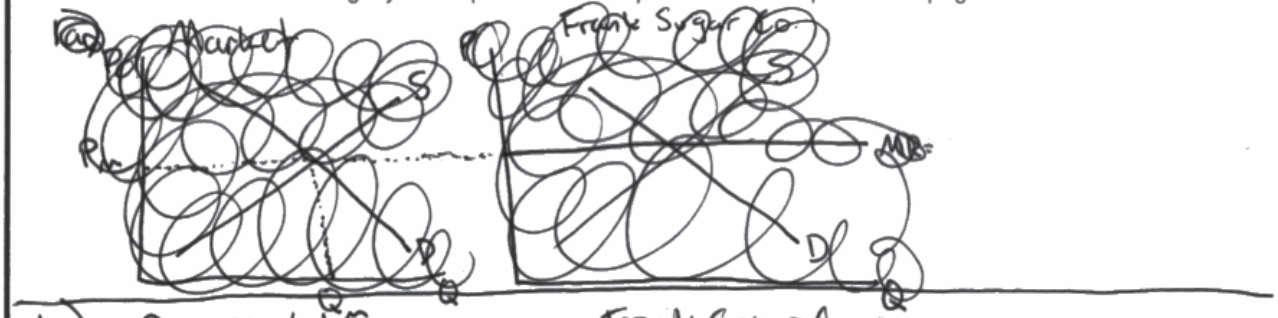
d. Lump sum tax, because in the short run, lumpsum tax will take more away from producer surplus than consumer surplus, helping to decrease supply of sugar.

Use a pen with black or dark blue ink only. Do NOT write your name. Do NOT write outside the box.

Important: Completely fill in the circle that corresponds to the question you are answering on this page.

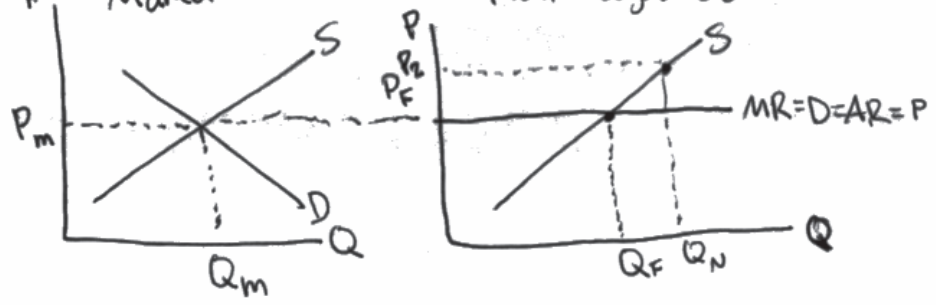
Question 1 ● **Question 2** ○ **Question 3** ○

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



1a) Market Frank Sugar Co.

b)

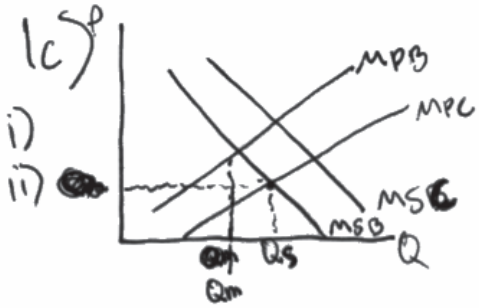


1b) (i) Shown on graph

(ii) the short-run profit will increase

(iii) the market price will be less than P_2 in the long run because demand is less than P_2.

1c)



i)

ii)

d) A lump sum tax would best achieve their goal because demand decreases in the short run.

Use a pen with black or dark blue ink only. Do NOT write your name. Do NOT write outside the box.

Question 1

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

Overview

The question assessed students' understanding of how a firm in perfect competition would maximize profit in the short run, how the firm is affected by changes in the market, and the implication of, and policy to correct for, an externality.

The question stated that Frank Sugar Co. was a representative firm in a perfectly competitive market for sugar, currently earning zero economic profit. In part (a)(i) students were asked to draw a correctly labeled graph for the market, showing the equilibrium price (P_M) and quantity (Q_M). Part (a)(ii) asked students to show the profit-maximizing price (P_F) and quantity (Q_F) for Frank Sugar Co. These parts of the question tested students' knowledge of market conditions for perfect competition and their ability to illustrate these concepts using a graph. This task included demonstrating knowledge of revenue and cost conditions by drawing a downward-sloping demand curve (D) and an upward-sloping supply curve (S) for the market, a horizontal demand and marginal revenue curve (d = MR) for the firm, and the firm's marginal cost (MC) and average total cost (ATC) curves. Students were required to show that P_M and Q_M occur where demand and supply intersect, that d = MR is horizontal at $P_F = P_M$, and that Q_F is the quantity where MR = MC. These tasks required students to demonstrate marginal analysis in a graphical format. Students also had to draw ATC consistent with the given zero economic profit condition by having ATC tangent to d = MR at Q_F and having ATC's minimum where the rising MC curve and ATC curve intersect.

Part (b) of this question asked students to illustrate and analyze the impact of an increase in market demand, assuming a constant-cost industry. This part required students to demonstrate knowledge of how a change in market conditions influences the performance of a representative firm, and how that impacts the market in the long run. In part (b)(i) students were required to show that the new market equilibrium price (P_2) occurs where the increased market demand (D_2) intersects market supply, and that the firm's profit-maximizing quantity (Q_N) occurs where P_2=MC. In part (b)(ii) students were required to state that the firm's profits increase as a result of the increase in market demand. In part (b)(iii) students were required to state that the long-run equilibrium price would be lower than P_2, because more firms would enter the market, thereby increasing the market supply.

Part (c) of this question introduced the information that sugar consumption has a negative impact on public health that is underestimated by consumers. Students were asked to draw a correctly labeled graph of the market, demonstrating knowledge of externalities with marginal social benefit (MSB), marginal private benefit (MPB), marginal social cost (MSC), and marginal private cost (MPC) curves. In part (c)(i) students were asked to show the equilibrium quantity (Q_M). Students were required to draw a downward-sloping MPB and an upward-sloping MPC and to show that Q_M occurs where MPB equals MPC. In part (c)(ii) students were asked to show the socially optimal quantity (Q_S). Students were required to draw a downward-sloping MSB below the MPB, to label the MPC as equal to MSC, and to show that Q_S occurs where MSB equals MSC.

In part (d) of this question, students were told that the government decides to intervene in the market to address the negative impact of sugar consumption on public health. Students were asked to indicate whether a lump-sum tax, a per-unit tax, a lump-sum subsidy, or a per-unit subsidy would

© 2022 College Board.
Visit College Board on the web: collegeboard.org.

Question 1 (continued)

best achieve the government's objective. This part required students to demonstrate knowledge of the impact of government taxes and subsidies on market outcomes. Students were required to state that a per-unit tax would be best and to explain that a per-unit tax would raise the price paid per unit and decrease the equilibrium quantity.

Sample: 1A
Score: 10

Part (a): 4 points

The response earned the first point in part (a) because the response shows a correctly labeled graph of the market with the equilibrium price and quantity labeled P_M and Q_M respectively. The response earned the second point in part (a) because the response shows the horizontal demand curve for the firm labeled D=MR at P_M with price labeled P_F. The response earned the third point in part (a) because the response shows a marginal cost curve and shows the profit-maximizing quantity labeled Q_F, where MR=MC. The response earned the fourth point in part (a) because the response shows an average total cost curve tangent to the D=MR curve at Q_F with the MC curve passing through minimum ATC.

Part (b): 3 points

The response earned the point in part (b)(i) because the response shows the rightward shift in market demand with higher price P_2 and an upward shift in D=MR with greater quantity Q_N. The response earned the point in part (b)(ii) because the response states that profit will increase. The response earned the point in part (b)(iii) because the response states that the long run price will be lower than P_2 and for explaining that firms will enter the market, supply will increase, and so price will fall.

Part (c): 2 points

The response earned the point in part (c)(i) because the response draws a correctly labeled graph with upward-sloping MPC and downward-sloping MPB curves and the equilibrium quantity Q_M at the intersection of MPC and MPB. The response earned the point in part (c)(ii) because the response shows the MSB curve below the MPB curve, labels MPC=MSC, and indicates the socially optimal quantity Q_S at the intersection of MSC and MSB.

Part (d): 1 point

The response earned the point in part (d) because the response states that a per-unit tax would be best, explains that the price per unit will increase, and the market equilibrium quantity will decrease.

© 2022 College Board.
Visit College Board on the web: collegeboard.org.

Question 1 (continued)

Sample: 1B
Score: 6

Part (a): 4 points

The response earned the first point in part (a) because the response shows a correctly labeled graph of the market with the equilibrium price and quantity labeled P_M and Q_M respectively. The response earned the second point in part (a) because the response shows the horizontal demand curve for the firm labeled D=MR at P_M with price labeled P_F. The response earned the third point in part (a) because the response shows a marginal cost curve and shows the profit-maximizing quantity labeled Q_F, where MR=MC. The response earned the fourth point in part (a) because the response shows an average total cost curve tangent to the D=MR curve at Q_F with the MC curve passing through minimum ATC.

Part (b): 3 points

The response earned the point in part (b)(i) because the response shows the rightward shift in market demand with higher price P_2 and an upward shift in D=MR with greater quantity Q_N. The response earned the point in part (b)(ii) because the response states that profit will increase. The response did not earn the point in part (b)(iii) because the response does not state that the long-run price will be lower than P_2.

Part (c): 2 points

The response did not earn the point in part (c)(i) because the response draws an upward-sloping MPB and a downward-sloping MSC. The response did not earn the point in part (c)(ii) because the response indicates the socially optimal quantity Q_S at the intersection of MPB and MSB.

Part (d): 1 point

The response did not earn the point in part (d) because the response states that a lump-sum tax would be best.

Sample: 1C
Score: 3

Part (a): 4 points

The response earned the first point in part (a) because the response shows a correctly labeled graph of the market with the equilibrium price and quantity labeled P_M and Q_M respectively. The response earned the second point in part (a) because the response shows the horizontal demand curve for the firm labeled D=MR at P_M with price labeled P_F. The response did not earn the third point in part (a) because the response does not show a marginal cost curve. The response did not earn the fourth point in part (a) because the response does not show an ATC curve on the graph.

© 2022 College Board.
Visit College Board on the web: collegeboard.org.

Question 1 (continued)

Part (b): 3 points

The response did not earn the point in part (b)(i) because the response does not show a rightward shift in market demand with higher price P_2 and an upward shift in D=MR with greater quantity Q_N. The response earned the point in part (b)(ii) because the response states that profit will increase. The response did not earn the point in part (b)(iii) because the response does not explain that firms will enter the market and that supply will increase.

Part (c): 2 points

The response did not earn the point in part (c)(i) because the response does not show a downward-sloping MPB curve. The response did not earn the point in part (c)(ii) because the response does not show the MSB curve below the MPB curve.

Part (d): 1 point

The response did not earn the point in part (d) because the response states that a lump-sum tax would be best.

© 2022 College Board.
Visit College Board on the web: collegeboard.org.

关注"PalmDrive Academy"公众号
获取最新资讯

添加"PalmDrive Academy"小助手
咨询课程详情