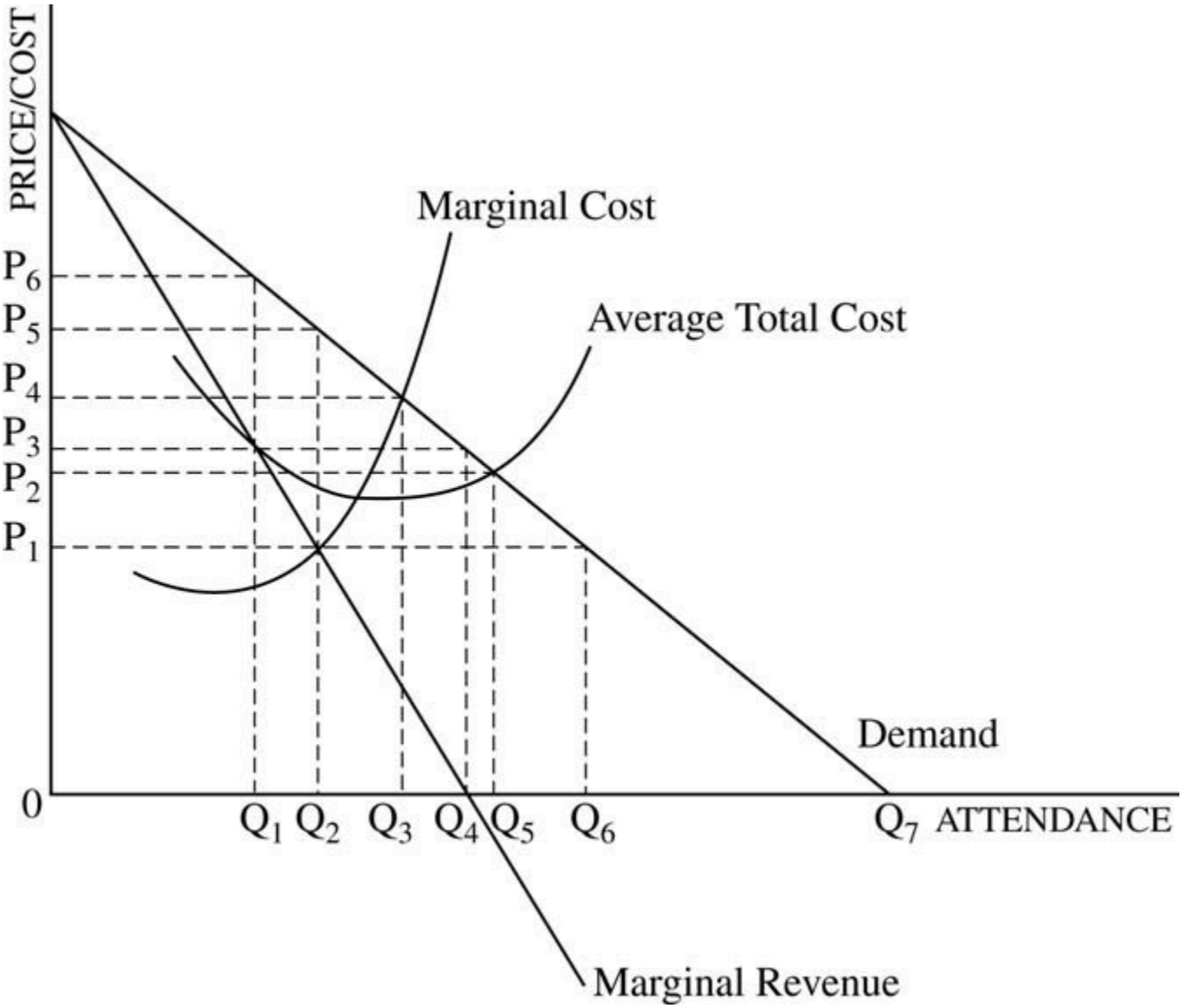
m



There is one art museum on the island of Watsonia. The museum's demand and cost curves are shown in the graph above. The museum currently relies on an admission charge for some of its funding. Its directors are debating about how to set the admission charge.

a. Using the labeling of the graph above, identify the price and quantity associated with the following objectives.

   i. The museum maximizes its profit.

   ii. The museum maximizes its total revenue.

   iii. The museum maximizes the sum of consumer and producer surplus.

   iv. The museum maximizes its attendance, as long as it breaks even.

b. When the attendance is Q_1, is the demand price elastic, inelastic, or unit elastic? Explain.

m

c. Assume that the price is set at P_2. Assuming the existence of an opportunity cost, indicate whether the museum's accounting profits would be positive, negative, or zero. Explain why.

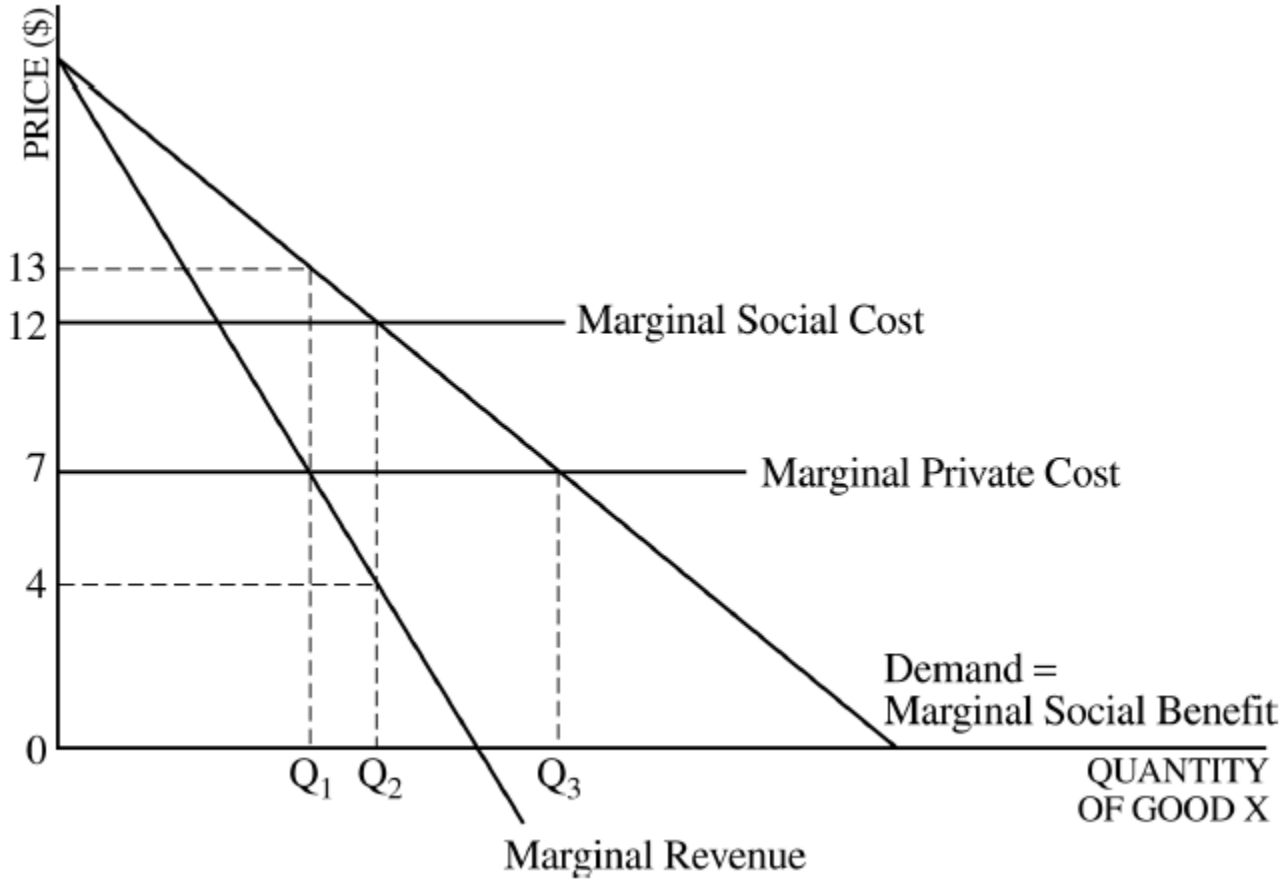
d. Assume that the government decides the museum should charge no admission and agrees to subsidize the museum for any losses.

    i. Using the labeling in the graph, identify the museum's attendance under that circumstance.

    ii. Would the outcome be allocatively efficient? Explain.

1. Respond to all parts of the question.

m



The production of good X creates an externality. The following questions are based on the graph above, which shows the marginal revenue, marginal social benefit, marginal private cost, and marginal social cost associated with the production of good X.

a. Is the externality positive or negative? Explain.

b. Using labeling from the graph above, identify the socially optimum output. Explain how you determined your answer.

c. Suppose that good X is produced by a profit-maximizing monopoly. Answer each of the following.

   i. Using labeling from the graph above, identify the unregulated firm's output. Explain how you determined your answer.

   ii. To produce the socially optimum output, indicate whether the government should tax or subsidize the firm.

   iii. Calculate the dollar value of the needed per-unit tax or subsidy.

d. Suppose that good X is produced in a perfectly competitive industry. Answer each of the following.

m

i. Using labeling from the graph on the previous page, identify equilibrium output in the absence of regulation. Explain how you determined your answer.

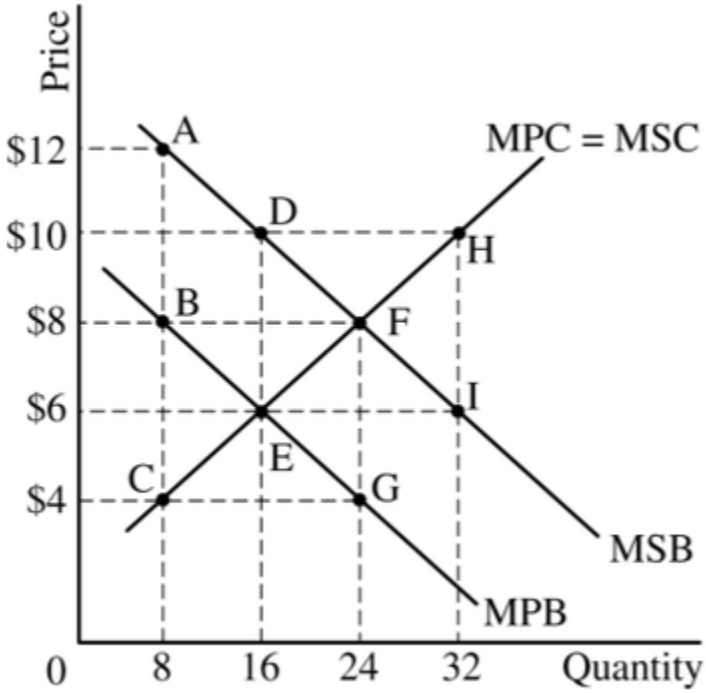
ii. To produce the socially optimum output, indicate whether the government should tax or subsidize the firms in the industry.

iii. Calculate the dollar value of the needed per-unit tax or subsidy.

2. Respond to all parts of the question.

m

Modern-day word processing software gives consumers the ability to create and save documents in different file formats that can then be accessed by multiple computer operating systems. The graph below depicts a perfectly competitive market for word processing software. In the graph, MSB is the marginal social benefit, MPB is the marginal private benefit, MPC is the marginal private cost, and MSC is the marginal social cost.



a. Identify the type of market failure illustrated by the graph. Explain.

b. Using the numbers on the graph, identify the market equilibrium price and quantity.

c. Using the labeling on the graph, identify the area representing the deadweight loss at the quantity identified in part (b).

d. Suppose the government is considering granting a subsidy to correct the market failure. What is the dollar value of the per-unit subsidy that would achieve the socially optimal quantity?

e. Suppose the government does not grant the subsidy and instead imposes a price floor at $8.

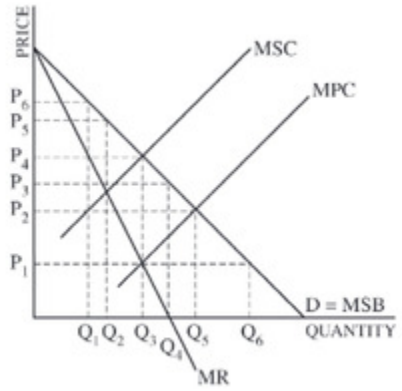
   i. How many units will consumers and producers exchange at the price floor?

   ii. Does the price floor correct the market failure? Explain.

3. Respond to all parts of the question.

m

The graph below shows the marginal social cost (MSC), marginal private cost (MPC), marginal social benefit (MSB), demand (D), and marginal revenue (MR) curves for a monopoly.



a. Identify the monopolist's

   i. profit-maximizing quantity

   ii. profit-maximizing price

b. What information in the graph indicates that there is a negative externality?

c. Identify the socially optimal quantity.

d. In the case in which the government imposes a per-unit tax equal to the marginal external cost, identify each of the following.

   i. The dollar value of the tax, using the price labels from the graph

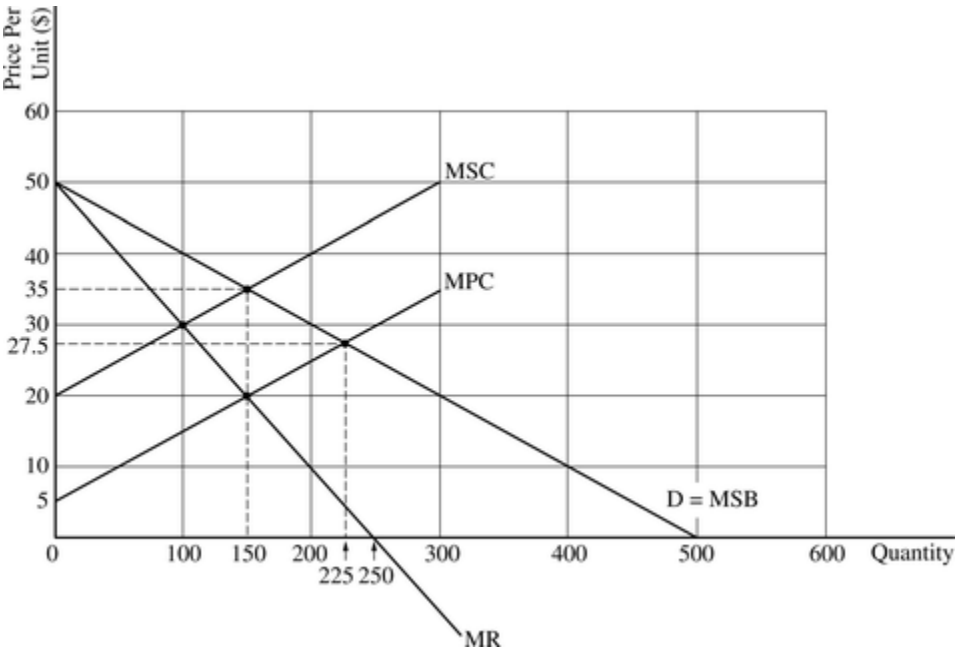
   ii. The profit-maximizing quantity associated with the tax

e. Given the monopoly facing the negative externality, would the deadweight loss increase, decrease, or stay the same as a result of imposing the per-unit tax? Explain.

4. Respond to all parts of the question.

m

1. The graph below depicts the market conditions Zhao, Inc., faces in the zizzles market, where D = demand, MSB = marginal social benefit, MR = marginal revenue, MSC = marginal social cost, and MPC = marginal private cost.



a. What two potential sources of market failure exist in the market for Zhao's zizzles? Explain each potential source of market failure using the information in the graph.

b. Using numerical values from the graph, identify Zhao's profit-maximizing quantity and price.

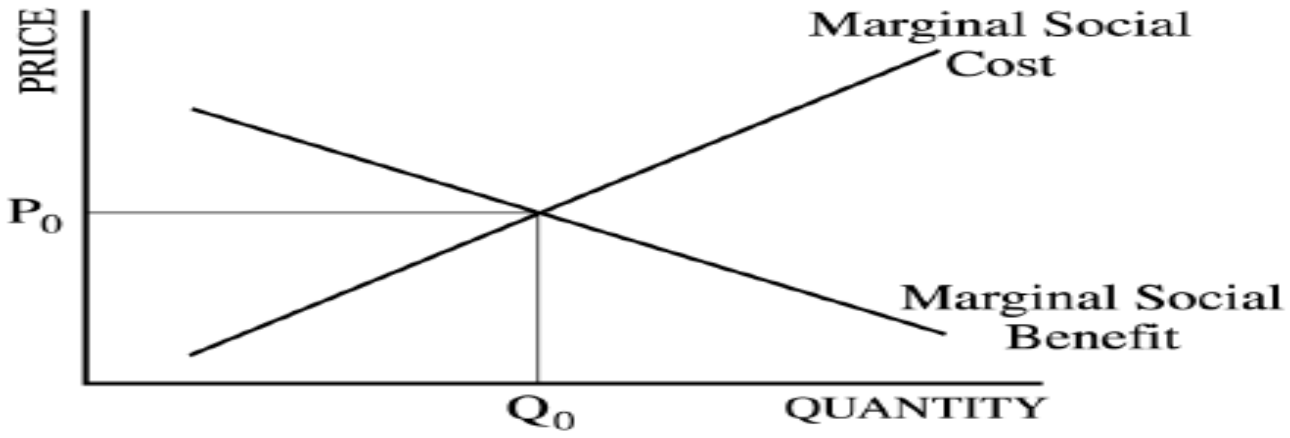
c. Assume a $15 per-unit tax is imposed on the zizzles market. Using numerical values from the graph, identify Zhao's profit-maximizing quantity and price.

d. Zhao opposes the $15 per-unit tax analyzed above in part (c) and instead proposes a policy of no government intervention. If economic advisers are only interested in maximizing social welfare, would they support the policy of no government intervention? Explain.

5. Respond to all parts of the question.

m

The graph below shows the price (P_0) and quantity (Q_0) at which there is an efficient allocation of resources.



However, in some cases the market fails to allocate resources efficiently.

a. Assume the chemical industry is polluting the air.

    i. Using marginal benefit and marginal cost analysis, explain how the chemical industry is misallocating resources.

    ii. Identify one policy or action the government could take to correct this market failure.

b. Assume it is difficult to exclude nonpayers from enjoying the benefits of national defense.

    i. Using marginal benefit and marginal cost analysis, explain how the private market will fail to produce the efficient level of national defense.

    ii. Identify one policy or action the government could take to correct this market failure.

6. Respond to all parts of the question.

m

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

Suppose a good is produced in a perfectly competitive market. In this market the marginal social benefit (MSB) exceeds the marginal private benefit (MPB) at every quantity. The marginal social cost (MSC) equals the marginal private cost (MPC) at every quantity.

(a) Draw a correctly labeled graph of the MSB, MPB, MSC, and MPC curves and show each of the following.

(i) The market equilibrium quantity, labeled Q_M
(ii) The socially optimal quantity, labeled Q_S
(iii) The deadweight loss at the market equilibrium, shaded completely

(b) Suppose the government is considering two proposals to make consumers internalize the consumption externality.

- Proposal I: Imposing a binding price ceiling
- Proposal II: Granting a per-unit subsidy to consumers

(i) Compared to the market equilibrium in part (a), would the deadweight loss increase, decrease, or remain the same under Proposal I? Explain.
(ii) Compared to the market equilibrium in part (a), would the quantity produced increase, decrease, or remain the same under Proposal II? Explain.

7. Respond to all parts of the question:

m

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

A medical vaccine is produced and sold in a perfectly competitive market. Assume that the medical vaccine generates a positive externality in consumption within the society.

(a) Draw a properly labeled graph for a competitive market providing this medical vaccine and show each of the following.

(i) The market equilibrium quantity, labeled Q_C

(ii) The socially optimal quantity, labeled Q_S

(iii) The area of the deadweight loss, shaded completely

(b) Identify one policy action that would lead to the production of the socially optimal quantity of the vaccine.

(c) Would a binding price ceiling result in the production of the socially optimal quantity of the vaccine? Explain.

8. Respond to all parts of the question.

m

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

Copper is produced in a perfectly competitive market with an upward-sloping supply curve and a downward-sloping demand curve. Assume the production of copper results in liquid waste, which seeps into local rivers. The contaminated river water causes human illnesses and crop failures downstream. The marginal external cost from producing copper is constant across all quantities of copper produced.

(a) Draw a correctly labeled graph of the copper market with the marginal social benefit (MSB), marginal private benefit (MPB), marginal social cost (MSC), and marginal private cost (MPC) curves, and show each of the following.

(i) The market equilibrium quantity, labeled Q_M
(ii) The socially efficient quantity, labeled Q_S

(b) Suppose the demand for copper decreases. On your graph in part (a), show the deadweight loss at the new market equilibrium, shaded completely.

(c) Suppose the government is considering levying a tax on copper.

(i) What per-unit tax level would achieve the socially optimal quantity?
(ii) Explain why a lump-sum tax on producers will not achieve the socially optimal quantity in the short run.

9. Respond to all parts of the question:

The government has decided to take action to reduce the pollution caused by the chemical industry. This industry is composed of profit-maximizing, perfectly competitive firms.

a. Identify one policy that the government could implement to reduce pollution.

b. Explain the effect the policy you identified in part (a) would have on each of the following for the firms in the chemical industry.

   i. Marginal cost

   ii. Output

   iii. Price

c. Explain the effect of the policy you identified in part (a) on the efficiency of the allocation of society's resources.

10. Respond to all parts of the question.

---

m

Assume that product X is produced in a perfectly competitive industry and that product X yields costs to individuals who are neither consumers nor producers of product X.

a. Using one correctly labeled graph, show the industry output and price under each of the following conditions.

   i. The industry ignores the externality.

   ii. The industry produces the socially optimum level of output.

   Assume that the market is producing the level of output you identified in (i).

b. Identify one policy the government might use to achieve the level of output you identified in (ii).

11. Respond to all parts of the question.

m

Assume soybeans are produced by a perfectly competitive, constant-cost industry. Fresh Farm is a typical firm producing soybeans and is currently operating with an economic loss.

a. *Using a correctly labeled graph for Fresh Farm, show each of the following in the short run.*

   i. *The marginal cost curve and average total cost, labeled MC and ATC, respectively*

   ii. Fresh Farm's price and loss-minimizing quantity, labeled P_F and Q_F, respectively

   iii. The average variable cost curve, labeled AVC

b. Suppose that newspapers have recently reported that excessive soybean consumption can cause health problems. As a result, will the new loss-minimizing quantity for Fresh Farm be greater than, less than, or equal to Q_F in the short run? Explain.

c. Is the long-run market supply for soybeans perfectly inelastic, relatively inelastic, unit elastic, relatively elastic, or perfectly elastic?

d. Assume now that the soybean market is in a long-run equilibrium and that fertilizers used in soybean production cause water pollution. Using a correctly labeled graph for the soybean market, show each of the following.

   I. Market equilibrium quantity and price, labeled Q_M and P_M

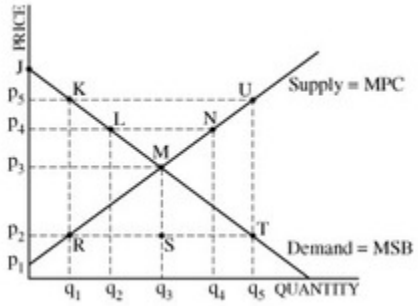
   II. Marginal social cost curve, labeled MSC

   III. Socially optimal quantity, labeled Q_S

   IV. The area representing deadweight loss, shaded completely

12. Respond to all parts of the question.

m



The graph above shows the perfectly competitive market for hard candies in Country Alpha. In the graph the letters correspond to points, not areas. MPC denotes marginal private cost and MSB denotes marginal social benefit.

(a) Using the labeling on the graph, identify the area representing each of the following at the market equilibrium.

(i) The consumer surplus

(ii) The producer surplus

(b) Assume that the production of each unit of candy creates a negative externality equal to (p_5-p_2).

Using the labeling on the graph, identify the socially optimal quantity.

(c) Assume that the government imposes a per-unit tax of (p_5-p_2) to correct for the negative externality. Using the labeling on the graph, identify the area representing each of the following.

(i) The consumer surplus

(ii) The deadweight loss

13. Respond to all parts of the question.