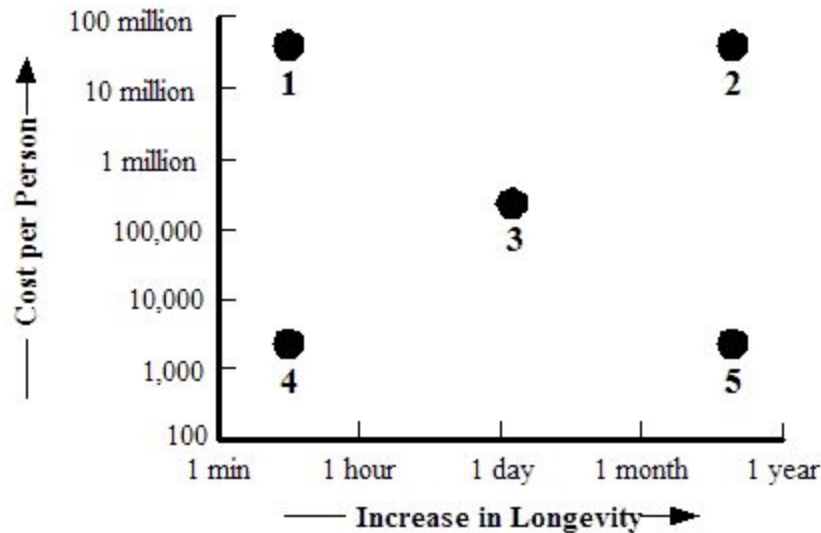


1.	What does the “tragedy of the commons” lead to?
a)	indirect costs
b)	policy instruments
c)	marginal costs
d)	overexploitation of resources
e)	direct costs
	Ans: d Difficulty: Medium Link to: 27.2

2.	An expense that is easily given a dollar value and that typically is paid by a manufacturer and passed on to consumers is called a(n):
a)	indirect cost
b)	policy instrument
c)	marginal cost
d)	negative utility
e)	direct cost
	Ans: e Difficulty: Easy Link to: 27.3

3.	Mechanisms available to a government or to a society for implementing its goals are called:
a)	indirect cost
b)	policy instrument
c)	marginal cost
d)	negative utility
e)	direct cost
	Ans: b Difficulty: Medium Link to: 27.9

4. The figure below shows one way to rank the effectiveness of five different strategies for reducing pollutants.



In this scheme, Strategy _____ is the least effective, and Strategy _____ is the most effective.

- | | |
|----|------|
| a) | 1; 5 |
| b) | 4; 2 |
| c) | 3; 2 |
| d) | 2; 5 |
| e) | 5; 4 |

Ans: a
Difficulty: Medium
Link to: 27.7

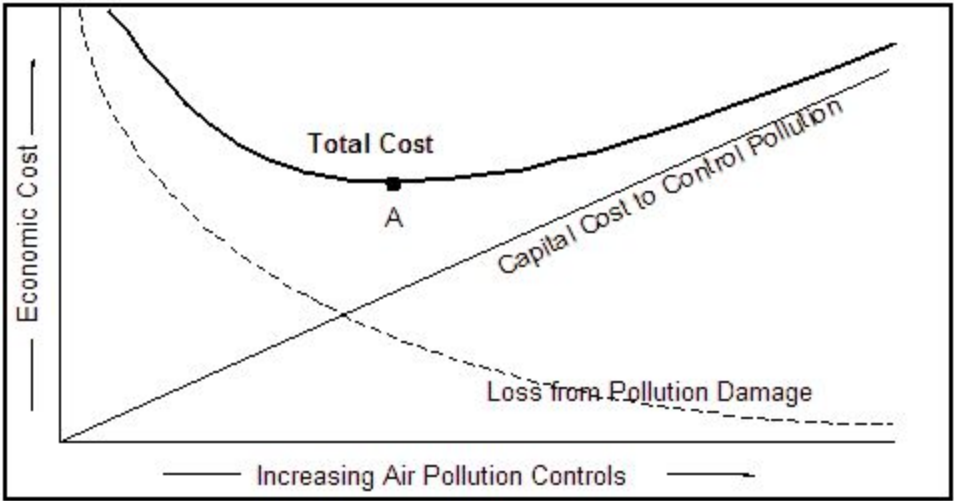
5. In order to achieve a desired goal, society can use one or more possible "policy instruments." All of the following are common policy instruments except:

- | | |
|----|-------------------------------------|
| a) | direct controls (regulations) |
| b) | halt all development and production |
| c) | taxation and subsidies |
| d) | licenses |
| e) | suasion |

Ans: b
Difficulty: Medium
Link to: 27.9

6.	The Critical Thinking Issue discussed at the end of Chap. 28 in the <u>Environmental Science</u> text discusses the decline in groundfish off the New England coast. After extensive study, the primary cause of that decline was found to be:	
a)	ocean pollution	
b)	the natural El Niño cycle	
c)	agricultural runoff	
d)	overfishing	
e)	ocean dumping of nuclear waste	
	Ans: d Difficulty: Easy Link to: Critical Thinking Issue	

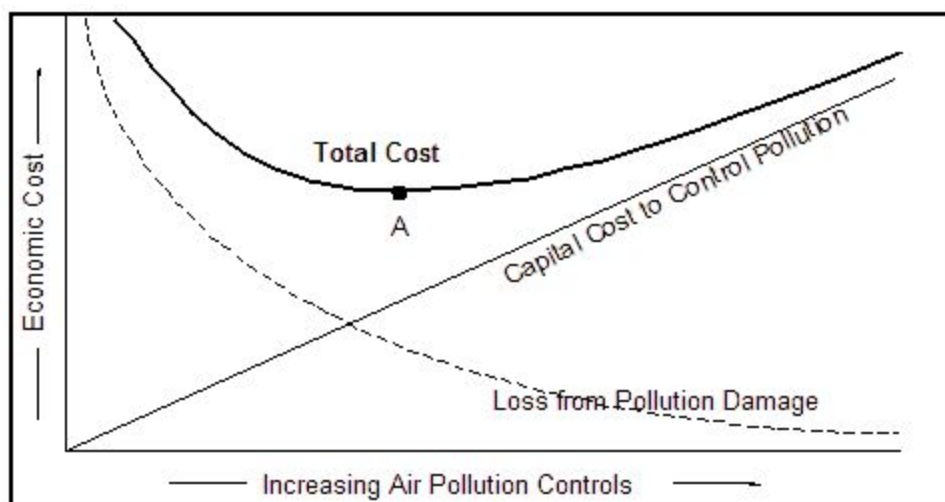
7.	Some abuse of natural resources is explained by the fact that short-term profits from use of the resource go to individuals, but long-term costs of abuse are borne by society as a whole. As a result, individuals are encouraged to utilize the resource until it is degraded or gone. This principle is called:	
a)	uniformitarianism	
b)	environmental unity	
c)	tragedy of the commons	
d)	externality	
e)	environmental ethics	
	Ans: c Difficulty: Easy Link to: 27.2	

8.	On the figure below, point A refers to:	
		

a)	minimum environmental damage
b)	minimum cost to pollution producers
c)	maximum legal control of air pollution
d)	optimum balance of capital costs and environmental losses
e)	minimum level of government regulation of industry

Ans: d
 Difficulty: Difficult
 Link to: 27.7

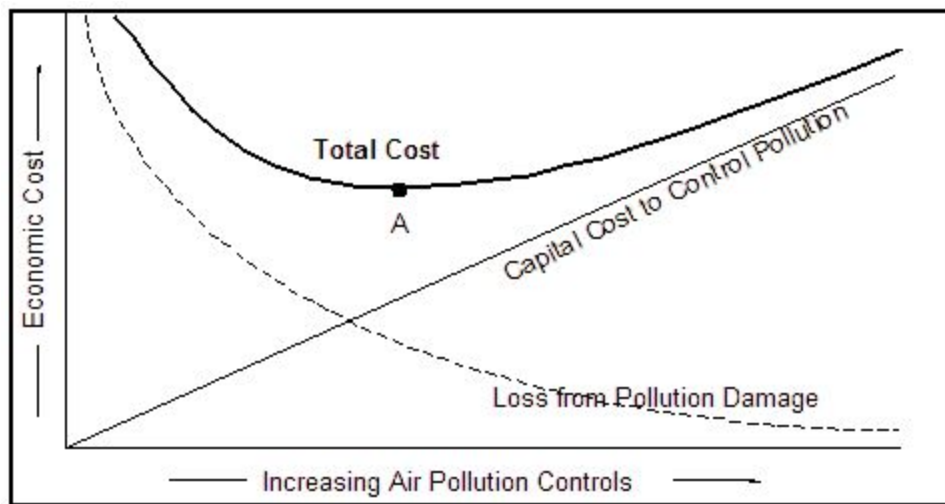
9. The diagram below illustrates the concept of:



a)	marginal cost
b)	low growth rate of natural resources
c)	exponential growth
d)	optimum sustainable yield
e)	impending doom

Ans: a
 Difficulty: Difficult
 Link to: 27.9

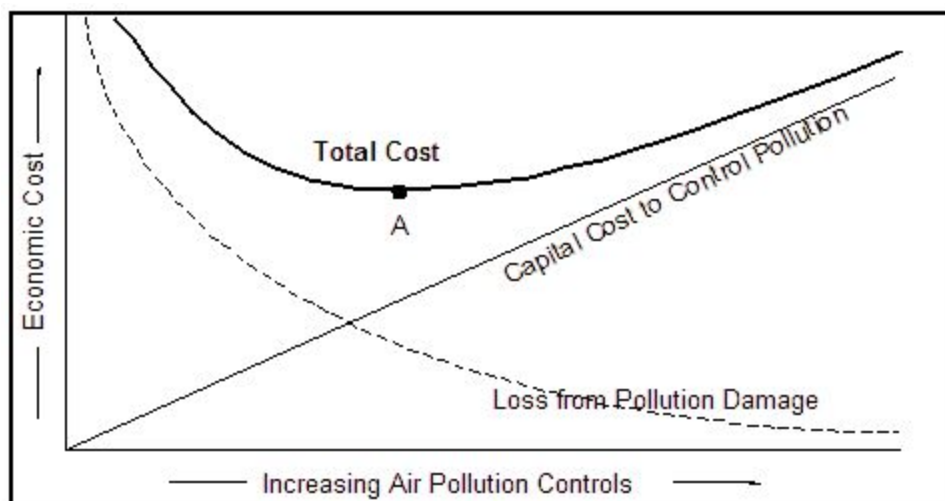
10. If lawmakers decide that the level of environmental loss should be cut to half of that at Point A, the graphs below tells us that the resulting level of capital cost will be:



- a) unchanged
- b) half of the cost at Point A
- c) increased, but less than double the cost at Point A
- d) double the cost at Point A
- e) more than double the cost at Point A

Ans: e
 Difficulty: Difficult
 Link to: 27.9

11. According to the figure below, total cost reaches a minimum at Point A because:



- a) politicians are unwilling to regulate industry more

b)	additional controls result in increasing government bureaucracy
c)	the incremental benefit to the environment decreases with increasing capital spending
d)	emissions cannot be reduced beyond a certain level
e)	natural hydrocarbon emissions would be unaffected
	Ans: c Difficulty: Difficult Link to: 27.9

12.	Use of DDT as a pesticide in the 1940s and 50s led to widespread damage to various wildlife species, from sharks to eagles. Which of the following terms most closely describes the adverse environmental impact of DDT use:
a)	direct cost
b)	environmental intangible
c)	discount factor
d)	externality
e)	marginal cost
	Ans: d Difficulty: Medium Link to: A Closer Look 27.1

13.	In an analysis of the total costs of developing a new coal mine, which of the following would be considered an externality ?
a)	the market price of coal
b)	cost of diesel fuel to run the mining machinery
c)	cost of operating a public relations center at the mine
d)	damage from acid rain downwind of coal-fired utilities
e)	cost of treating and disposing of mine tailings
	Ans: d Difficulty: Medium Link to: 27.4

14.	In a town with a common grazing area (a "commons"), who most profits by adding more cattle to the commons?
a)	the mayor
b)	individual cattle owners
c)	residents of the nearest neighboring town
d)	the community as a whole

e)	the cows
	Ans: b Difficulty: Easy Link to: 27.2

15.	In a town with a common grazing area (a “commons”), the cost of adding more cattle – in terms of environmental degradation of the commons – is borne by:
a)	the mayor
b)	individual cattle owners
c)	residents of the nearest neighboring town
d)	the community as a whole
e)	the cows
	Ans: d Difficulty: Easy Link to: 27.2

16.	All of the following are among the measures enacted or proposed to control overfishing off the New England coast, except:
a)	Individual Transferable Quotas
b)	loan guarantees for replacing older vessels and equipment with new boats and equipment for locating fish
c)	the U.S. expanded its territorial waters from 12 to 200 miles
d)	setting minimum net mesh sizes
e)	establishing trip limits on some fish
	Ans: b Difficulty: Easy Link to: Critical Thinking Issue

17.	The field of environmental economics seeks to:
a)	find the most effective way to achieve rational solutions for environmental problems
b)	treat environmental problems no matter how expensive they might be
c)	solve environmental problems by government fiscal policies
d)	understand the purpose of scientific and technical solutions to environmental problems
e)	bear the burden and the cost of environmental catastrophes

	<p>Ans: a Difficulty: Easy Link to: 27.7</p>
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18.	Biological resources are threatened by the so-called "tragedy of the commons" when they occur in:
a)	Third World countries
b)	land owned by multinational corporations, with no specific national loyalty
c)	areas with access open to many different parties
d)	privately owned land
e)	anywhere on Earth
	<p>Ans: c Difficulty: Medium Link to: 27.2</p>

19.	Consider the following analogy: You are in the desert and dying of thirst. Two people come and want to sell you a glass of water. One will deliver it today, and the other one will deliver the water tomorrow. If you think you would die today, the glass of water you can get today would be worth all the money you have while the water you could get tomorrow would be completely worthless. The textbook used this analogy to illustrate:
a)	that water is a scarce resource in many areas
b)	the concept of the "commons"
c)	that sometimes a lesser value is placed on having something in the future than for having it today
d)	that water is an environmental intangible
e)	free-market pricing for pollution prevention
	<p>Ans: c Difficulty: Medium Link to: 27.2</p>

20.	The "tragedy of the commons" explains why individuals don't always act in such a way as preserves the environment. At its core, the principle is that:
a)	individuals are interested in the short-term, not the long-term
b)	benefits go to the individual; costs go to society as a whole
c)	common land is valued less highly than private land
d)	governments don't do enough to instill environmental values

e)	people would rather clean up a mess than not make it in the first place
	Ans: b Difficulty: Medium Link to: 27.2

21.	The Chagos Archipelago contains the Great Chagos Bank, the largest atoll structure in the world. What the major function of the Great Chagos Bank that makes it a global commons?
a)	home to rare reptile species
b)	tuna fishery
c)	international boat racing events
d)	eco tourism
e)	all of the above
	Ans: b Difficulty: Medium Link to: 27.3

22.	Garrett Hardin, in "The Tragedy of the Commons," identifies _____ as the most likely way to successfully reduce problems of human overpopulation.
a)	laissez-faire policies regarding family size
b)	appeals to individual's consciences
c)	totalitarian political control
d)	redistribution of global wealth
e)	mutual coercion
	Ans: e Difficulty: Medium Link to: 27.8

23.	In the field of environmental economics, the central characteristic of an "externality" is that it is:
a)	intangible
b)	overt
c)	damaging to the environment
d)	expensive
e)	based on factors outside the ecosystem
	Ans: a Difficulty: Medium Link to: 27.4

24.	In a total free-market system, commercial enterprises maximize profits by paying only _____ costs and ignoring _____.
a)	indirect; direct costs
b)	intangible; externalities
c)	direct; externalities
d)	mandatory; supply and demand
e)	direct; the discount factor
	Ans: c Difficulty: Medium Link to: 27.4

25.	Which of the following was not one of the measures enacted or proposed to control overfishing off the New England coast of the U.S.?
a)	the U.S. expanded its territorial waters from 12 to 200 miles
b)	harvest quotas
c)	prohibiting fishing at certain times
d)	limited number of fishing permits
e)	banning all fishing until the populations recovered to safe levels
	Ans: e Difficulty: Easy Link to: Critical Thinking Issue

26.	The pesticide DDT has been outlawed in the United States, but is still widely used in other areas of the world. It can be argued that both of these decisions are the result of rational analyses balancing risks and benefits. The principle risk of the use of DDT and the reason it is <u>not</u> used in the U.S. is _____. The principle benefit of DDT and the reason it still <u>is</u> used elsewhere is _____.
a)	thinning of eggshells of wild species; mosquito control
b)	it is carcinogenic; control of crop pests
c)	it is toxic to humans after biomagnification; cleanses drinking water and controls spread of infectious diseases
d)	thinning of eggshells of wild species; control of crop pests
e)	it is carcinogenic; cleanses drinking water and controls spread of infectious diseases

	<p>Ans: a Difficulty: Medium Link to: A Closer Look 27.1</p>
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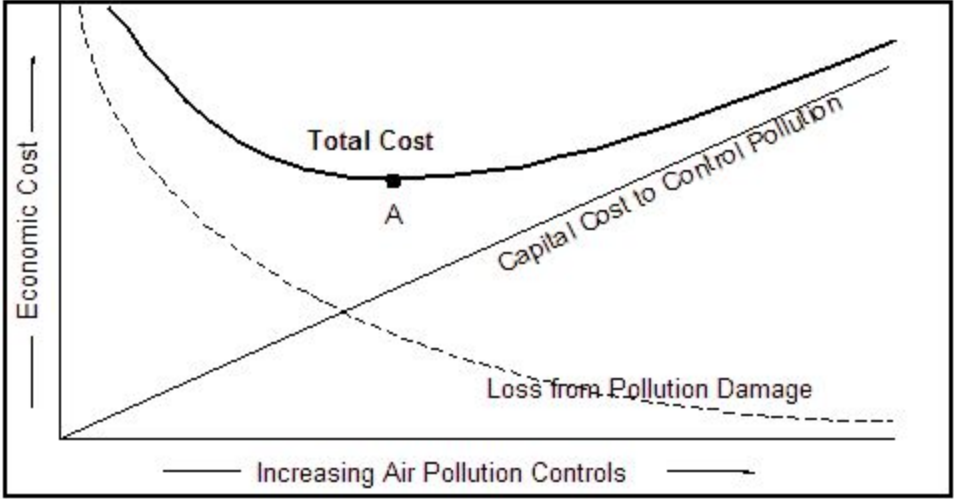
27.	A new computer chip manufacturing plant has been proposed for a site near the town of Ecopolis. Various factors are being considered to determine whether the plant will be profitable and whether it will be good for the town. Which of the following factors would be considered an "externality"?	
a)	the effect on exports of foreign trade barriers to computer chips	
b)	the cost of silicon on the Chicago commodities exchange	
c)	the cost of purchasing new land to mitigate damage to wetlands at the factory site	
d)	jobs that the factory will create in Ecopolis	
e)	an unpleasant smell sometimes emitted by such factories	
	<p>Ans: e Difficulty: Easy Link to: 27.4</p>	

28.	A new computer chip manufacturing plant has been proposed for a site near the town of Ecopolis. Various factors are being considered to determine whether the plant will be profitable and whether it will be good for the town. Which of the following factors would not be considered an "externality"?	
a)	the loss of habitats for woodland animals at the factory site	
b)	the cost of purchasing new land to mitigate damage to wetlands at the factory site	
c)	an unpleasant smell sometimes emitted by such factories	
d)	degradation of the rustic Ecopolis scenery	
e)	loss of rare plant species that live at the factory site	
	<p>Ans: b Difficulty: Easy Link to: 27.4</p>	

29.	An example of an "externality" in the whaling industry is the:	
a)	loss of the ecological role played by the whale in the ecosystem	
b)	cost of the whaling boats	
c)	loss of predator species in the environment	
d)	opening of a new ecological niche	

e)	all of these
	Ans: a Difficulty: Easy Link to: 27.4

30.	Many natural organisms and ecosystems perform service functions that are beneficial to humans. These include all of the following except:
a)	bees pollinating crops
b)	bacteria fixing nitrogen in the ocean
c)	salt marshes convert toxic compounds to nontoxic forms
d)	biological degradation of toxic material applied to land
e)	water in the atmosphere combines with sulfurous pollutants and rains to the ground
	Ans: e Difficulty: Easy Link to: 27.8

31.	<p>The figure below demonstrates the balance between the costs of pollution controls and environmental damage caused by pollution. Explain the significance of Point A on the graph. What would be the effect of an incremental increase in Air Pollution Controls beyond the level at Point A?</p> 
Ans:	optimum balance of capital costs and environmental losses; the increased capital cost would outweigh the reduced environmental losses

	Difficulty: Difficult Link to: 27.7
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32.	Consider the example of a coal-burning electric power plant. List three direct costs of running the plant and three indirect costs.
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Ans:											
	<table> <tr> <th><u>Direct Costs</u></th><th><u>Indirect Costs</u></th></tr> <tr> <td>buying coal</td><td>acid-rain damage to vegetat</td></tr> <tr> <td>labor costs</td><td>damage associated with min</td></tr> <tr> <td></td><td>cost of lobbying Congress</td></tr> <tr> <td></td><td>costs of global warming</td></tr> </table>	<u>Direct Costs</u>	<u>Indirect Costs</u>	buying coal	acid-rain damage to vegetat	labor costs	damage associated with min		cost of lobbying Congress		costs of global warming
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labor costs	damage associated with min										
	cost of lobbying Congress										
	costs of global warming										

	Difficulty: Medium Link to: 27.3
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33.	Why would it cost an infinite amount of money to remove 100% of the pollution from the environment?
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Ans:	It would cost an infinite amount of money because the marginal cost increases exponentially as the percentage reduction increases.
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	Difficulty: Medium Link to: 27.3
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34.	List four options for managing a fishery that is threatened with overfishing.
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Ans:	establish total catch quotas issue restricted number of licenses tax on catch allocate catch quotas
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	Difficulty: Medium Link to: Critical Thinking Issue
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35.	Name the one reason that individuals tend to over-exploit natural resources held in common.
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Ans:	1. When a resource is shared, an individual's personal share of profit from exploitation of the resource is usually greater than that individual's share of the resulting loss. 2. the low growth rate of the resource in question
	Difficulty: Easy Link to: 27.2

36.	The value of Foresight Forest is \$50 million and the average rate of growth of trees is 5% per year. There are two plans to harvest the timber in the forest. Plan A calls for clear-cutting the forest in one year. Plan B calls for harvesting 5% of the trees in the forest indefinitely. What would be the profit (\$-value) in each of the two plans in the first year? In the first 100 years?
Ans:	First year - A=\$50 million; B=\$2.5 million 100 years - A=\$50 million; B=\$250 million
	Difficulty: Medium Link to: 27.3

37.	Consider the production of nickel from ore at the Sudbury, Ontario, smelters. Production of nickel requires direct costs and indirect cost (externalities). Name two externalities of the production of nickel.
Ans:	destruction of vegetation which led to soil erosion air pollution (acid rain as a result) water pollution
	Difficulty: Easy Link to: 27.4

38.	List four policy instruments available to a government for reducing the environmental impacts of a given industry or other activity.
Ans:	moral persuasion, direct controls, taxation, subsidies, licenses
	Difficulty: Easy Link to: 27.9

39.	Define the term "commons" in "the tragedy of commons" and explain where the term comes from.
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Ans:	The commons were part of old English and New England towns, where every farmer could graze his cattle. The term means that this land is commonly owned by the population.
	Difficulty: Easy Link to: 27.2

40.	The "tragedy of the commons" provides explanations for why individuals don't always act in ways that promote the long-term health and sustainability of the environment. Name three different national or international examples of "a commons".
Ans:	e.g., national forests, international fisheries, the atmosphere
	Difficulty: Easy Link to: 27.2

41.	In the late 1950s, DDT was discovered in the livers of sharks, but DDT has never been used in the ocean. Explain briefly how DDT could accumulate in the livers of sharks.
Ans:	DDT had spread from the farmland where it was applied to control insects, through surface water runoff and through the air into the ocean.
	Difficulty: Medium Link to: A Closer Look 27.1

42.	The "tragedy of the commons" provides an explanation why individuals don't always act in ways that promote the long-term health and sustainability of the environment. In one or two sentences, explain the basis of this principle.
Ans:	Given a communal resource, profits are taken by individuals, but liabilities are borne by the community as a whole.
	Difficulty: Easy Link to: 27.2

43.	Why does our society tend to pay more to reduce new risks than to reduce natural or long established risks?
Ans:	New risks appear to be less acceptable than long established risks.

	Difficulty: Medium Link to: 27.7
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44.	Name three tangible natural resources
Ans:	e.g., air, water, forests, minerals
	Difficulty: Easy Link to: 27.1

45.	Consider the following analogy: You are in the desert and dying of thirst. Two people come and want to sell you a glass of water. One will deliver it today, and the other one will deliver the water tomorrow. If you think you would die today, the glass of water you can get today would be worth all the money you have while the water you could get tomorrow would be completely worthless. How is this concept related to discussions of environmental economics?
Ans:	Traditional economic analyses value profit today more than the potential for the same profit at some time in the future. Environmental preservation depends on placing the proper value on natural resources in the future.
	Difficulty: Medium Link to: 27.2