**CHAPTER 1—ENVIRONMENTAL PROBLEMS, THEIR CAUSES, AND SUSTAINABILITY**

**MULTIPLE CHOICE**

1. A fictional vision of a more environmentally healthy planet in the future uses which of the following fuels and renewable energy resources?

|  |  |
| --- | --- |
| a. | underground heat only |
| b. | algae only |
| c. | sun and wind only |
| d. | flowing water only |
| e. | underground heat, algae, sun and wind and flowing water |

ANS: E PTS: 1 DIF: Easy

TOP: CORE CASE STUDY-CHAPTER 1

BLOOM’S TAXONOMY: APPLICATION

2. Which of the following best describes the areas of study that are important in the discipline of environmental science?

|  |  |
| --- | --- |
| a. | Biology. |
| b. | Chemistry and geology |
| c. | Economics and biology |
| d. | Economics and chemistry |
| e. | Biology, chemistry, geology and economics |

ANS: E PTS: 1 DIF: Easy

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

3. Which of the following is a goal of environmental science?

|  |  |
| --- | --- |
| a. | Learn how life on earth has thrived and survived.. |
| b. | Understand how we interact with the environment. |
| c. | Live more sustainably and find ways to deal with environmental problems. |
| d. | Learn how life on earth has thrived and survived and understand how we interact with the environment. |
| e. | Learn how life on earth has thrived and survived, understand how we interact with the environment, and live more sustainably and find ways to deal with environmental problems. |

ANS: E PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

4. Which of the following is a social movement dedicated to the protection of the Earth's natural capital?

|  |  |
| --- | --- |
| a. | Ecology |
| b. | environmental science |
| c. | Environmentalism |
| d. | natural science |
| e. | Sustainability |

ANS: C PTS: 1 DIF: Easy

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

5. Which of the following terms encompasses all of the others?

|  |  |
| --- | --- |
| a. | natural capital |
| b. | natural resources |
| c. | natural services |
| d. | renewable resources |
| e. | nonrenewable resources |

ANS: A PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: COMPREHENSION

6. Which of the following is a form of natural capital gained directly or indirectly as a result of solar energy?

|  |  |
| --- | --- |
| a. | Forests |
| b. | flowing water and wind energy |
| c. | wind energy only |
| d. | coal and oil |
| e. | forests, flowing water, wind energy, coal and oil. |

ANS: E PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

7. You have decided to install solar collectors on the roof of your home that will cut your use of propane gas to heat both your hot water tank and the living spaces in your home. In doing so, you are using a \_\_\_\_\_\_\_\_\_\_\_\_\_\_resource rather than a \_\_\_\_\_\_\_\_\_\_\_\_\_\_resource.

|  |  |
| --- | --- |
| a. | renewable; nonrenewable |
| b. | perpetual; renewable |
| c. | renewable; perpetual |
| d. | nonrenewable; renewable |
| e. | perpetual; nonrenewable |

ANS: E PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: APPLICATION

8. One of the reasons biodiversity is such an important aspect of sustainability is the fact that

|  |  |
| --- | --- |
| a. | cycling chemicals maintains a ready supply of new materials for water, soil and food |
| b. | it is the ultimate source of energy for plants |
| c. | interactions among species provide population controls that limits ultimate population sizes of many species |
| d. | it provides water purification and topsoil renewable |
| e. | two of these answers are correct |

ANS: E PTS: 1 DIF: Moderate

TOP: 1-1WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: COMPREHENSION

9. Which of the following is best categorized as an example of a natural service?

|  |  |
| --- | --- |
| a. | renewable energy |
| b. | nonrenewable energy |
| c. | water purification |
| d. | Oil |
| e. | Soil |

ANS: C PTS: 1 DIF: Easy

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

10. When we speak of protecting the environment*,* we are referring to

|  |  |
| --- | --- |
| a. | all living things on the planet |
| b. | all non-living things such as air, fresh water, and energy |
| c. | all living and non-living things |
| d. | humans and the living and non-living things that affect them only |
| e. | humans and the living things that affect them only |

ANS: C PTS: 1 DIF: Easy

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

11. A group of organisms with a unique set of characteristics that distinguishes them from other organisms, is called a

|  |  |
| --- | --- |
| a. | Species |
| b. | Ecosystem |
| c. | sustainable society |
| d. | natural resource |
| e. | Population |

ANS: A PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

12. Nutrient recycling is a vital natural service carried out by which natural resource?

|  |  |
| --- | --- |
| a. | natural gas |
| b. | clean air |
| c. | Topsoil |
| d. | grazing animals such as deer |
| e. | two of these answers |

ANS: C PTS: 1 DIF: Easy

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

13. The three principles of sustainability are:

|  |  |
| --- | --- |
| a. | solar energy, biodiversity and perpetual energy |
| b. | use of natural capital to support human economies |
| c. | use of renewable resources, but no use of nonrenewable resources |
| d. | solar energy, biodiversity and chemical cycling |
| e. | biodiversity, use of perpetual resources and widespread reduction of use |

ANS: D PTS: 1 DIF: Moderal

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

14. Which of the following would best be categorized as a perpetual resource?

|  |  |
| --- | --- |
| a. | oil reserves |
| b. | Fisheries |
| c. | solar energy |
| d. | Forests |
| e. | coal reserves |

ANS: C PTS: 1 DIF: Easy

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: COMPREHENSION

15. What is an essential characteristic that indicates whether a resource should be categorized as a renewable resource?

|  |  |
| --- | --- |
| a. | It must be an energy resource. |
| b. | It must be a biological resource. |
| c. | It must be recyclable. |
| d. | It must have the capacity to be replenished within days to several hundred years. |
| e. | It must have the capacity to be utilized for immediate economic benefit. |

ANS: D PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

16. Select the choice that correctly states the best priority for use of non-renewable resources, such as metals and plastics, from the environmentally sustainable perspective.

|  |  |
| --- | --- |
| a. | recycle, reuse, reduce |
| b. | reuse, reduce, recycle |
| c. | reduce, reuse, recycle |
| d. | reduce, recycle, refuse |
| e. | repurpose, recycle, remake |

ANS: C PTS: 1 DIF: Easy

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: COMPREHENSION

17. Which of the following is an example of recycling?

|  |  |
| --- | --- |
| a. | collecting and remelting aluminum beer cans and making them into new cans |
| b. | cleaning and refilling soft-drink bottles |
| c. | selling used clothing at a garage sale |
| d. | saving leftovers in a peanut butter jar |
| e. | using household water to water a garden |

ANS: A PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: APPLICATION

18. Developed countries

|  |  |
| --- | --- |
| a. | are high-income |
| b. | are low-income |
| c. | use about 88% of the world’s resources |
| d. | make up about 80% of the world's population |
| e. | Are high-income *and* use about 88% of the worlds resources |

ANS: E PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

19. Which of the following statements about developing countries is *true*?

|  |  |
| --- | --- |
| a. | They are highly industrialized. |
| b. | They have high-average per capita income. |
| c. | They include the United States, Germany, and Japan. |
| d. | They are classified as middle-income or low-income. |
| e. | They have about 85% of the world's wealth and income. |

ANS: D PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

20. About \_\_\_\_ of the world's human population lives in the developing countries.

|  |  |
| --- | --- |
| a. | 20% |
| b. | 40% |
| c. | 60% |
| d. | 80% |
| e. | 90% |

ANS: D PTS: 1 DIF: Easy

TOP: 1-WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY

BLOOM’S TAXONOMY: KNOWLEDGE

21. All of the following are potentially renewable resources *except*

|  |  |
| --- | --- |
| a. | Groundwater |
| b. | trees in a forest |
| c. | fertile soil |
| d. | Oil |
| e. | fish populations |

ANS: D PTS: 1 DIF: Easy

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY

BLOOM’S TAXONOMY: KNOWLEDGE

22. You generally buy and eat microwave dinners. After dinner, cardboard tops and plastic trays remain. The *least* effective way to deal with this type of solid waste problem is to

|  |  |
| --- | --- |
| a. | Store leftovers in the plastic trays. |
| b. | Put all of the solid waste in the household trash to be taken to the landfill. |
| c. | Donate the plastic containers to the local nursery schools to use with preschoolers. |
| d. | Recycle the components. |
| e. | Save the containers in a stash in your garage for future use. |

ANS: B PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: APPLICATION

23. Nonrenewable resources include

|  |  |
| --- | --- |
| a. | Oil |
| b. | Minerals |
| c. | salt and sand |
| d. | Coal |
| e. | oil, minerals, salt, sand and coal |

ANS: E PTS: 1 DIF: Easy

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

24. S*ustainable yield* is the highest rate at which we can use a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_without reducing its available supply.

|  |  |
| --- | --- |
| a. | renewable resource |
| b. | perpetual resource |
| c. | energy resource |
| d. | mineral resource |
| e. | nonrenewable resource |

ANS: A PTS: 1 DIF: Moderate

TOP: 1-1 WHAT ARE THREE PRINCIPLES OF SUSTAINABILITY?

BLOOM’S TAXONOMY: KNOWLEDGE

25. The *tragedy of the commons* refers to

|  |  |
| --- | --- |
| a. | overuse of privately held resources |
| b. | overuse of shared common resources |
| c. | human deaths from polluted shared resources such as air or water |
| d. | government over-regulation of fresh water use |
| e. | a Shakespeare play |

ANS: B PTS: 1 DIF: Moderate

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: KNOWLEDGE

26. Evidence that we are living unsustainably includes which of the following?

|  |  |
| --- | --- |
| a. | Renewable forests are shrinking. |
| b. | Topsoil is eroding, and the lower atmosphere is warming. |
| c. | Deserts are expanding. |
| d. | Deserts are shrinking. |
| e. | Deserts are expanding, renewable forests are shrinking, topsoil is eroding and the lower atmosphere is warming. |

ANS: E PTS: 1 DIF: Easy

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: COMPREHENSION

27. Which of the following best describes what is meant by an ecological footprint?

|  |  |
| --- | --- |
| a. | It is the average size of the lot on which a family home is built. |
| b. | It is the number of acres necessary to grow enough food to support a family. |
| c. | It is the geographic area in which a person travels during the course of their average daily activities. |
| d. | It is the amount of biologically-productive land and water needed to supply the people in a particular country or area with the resources they need. |
| e. | It is the amount of tillable agricultural land necessary to supply the food requirements of a nation. |

ANS: D PTS: 1 DIF: Moderate

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: KNOWLEDGE

28. If a country’s ecological footprint is larger than its biological capacity to replenish its renewable resources and absorb the resulting waste and pollution:

|  |  |
| --- | --- |
| a. | It is said to have an ecological deficit. |
| b. | It should be supported by other countries with smaller footprints. |
| c. | It is said to be a sustainable society. |
| d. | It is most likely a developing country. |
| e. | More than one of these answers is correct. |

ANS: A PTS: 1 DIF: Moderate

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: COMPREHENSION

29. Which of the following *best* describes the concept of environmental degradation?

|  |  |
| --- | --- |
| a. | using solar power at a rapid rate |
| b. | growing crops for food |
| c. | cutting trees for wood products faster than the trees can regrow to maturity |
| d. | letting agricultural runoff cause oxygen depletion and fish kills downstream |
| e. | two of these answers |

ANS: E PTS: 1 DIF: Moderate

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: APPLICATION

30. The IPAT model states that the key factor in environmental impact in

|  |  |
| --- | --- |
| a. | developing countries is resource use |
| b. | developing countries is population size |
| c. | developed countries is resource use |
| d. | developed countries is population size |
| e. | more than one of these answers |

ANS: E PTS: 1 DIF: Easy

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: KNOWLEDGE

31. Point sources of pollution

|  |  |
| --- | --- |
| a. | enter ecosystems from dispersed and often hard-to-identify sources |
| b. | include runoff of fertilizers and pesticides from farmlands and suburban lawns |
| c. | are cheaper and easier to identify than nonpoint sources |
| d. | are more difficult to control than nonpoint sources |
| e. | are always found in rural areas |

ANS: C PTS: 1 DIF: Moderate

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: KNOWLEDGE

32. Nonpoint sources of pollution

|  |  |
| --- | --- |
| a. | enter ecosystems from single identifiable sources |
| b. | are more difficult to control than point sources |
| c. | include smokestacks and automobile exhaust pipes |
| d. | are cheaper and easier to identify than point sources |
| e. | are always found in rural areas |

ANS: B PTS: 1 DIF: Moderate

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: KNOWLEDGE

33. The total ecological footprint for humanity is expected to be

|  |  |
| --- | --- |
| a. | twice the planet’s ecological capacity by the year 2015 |
| b. | 30% higher than the planet’s ecological capacity by the year 2035 |
| c. | 60% higher than the planet’s ecological capacity by the year 2035 |
| d. | 30% higher than the planet’s ecological capacity by the year 2015 |
| e. | twice the planet’s ecological capacity by the year 2035 |

ANS: E PTS: 1 DIF: Moderate

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: KNOWLEDGE

34. Pollution cleanup efforts can be ineffective because

|  |  |
| --- | --- |
| a. | They often transfer pollutants from one part of the environment to another. |
| b. | Once pollutants are dispersed, it costs too much to reduce them to acceptable levels. |
| c. | They can be overwhelmed by growth in population and consumption. |
| d. | They often transfer pollutants from part of the environment to another, once they are dispersed it costs too much to reduce them to acceptable levels, and they can be overwhelmed by growth in population and consumption. |
| e. | There are not enough people with the necessary technical training to deal with the problems. |

ANS: D PTS: 1 DIF: Difficult

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: COMPREHENSION

35. China currently

|  |  |
| --- | --- |
| a. | has the second largest economy on the planet |
| b. | is the world’s largest producer of wind turbines, and is projected to soon be the largest producer of solar cells |
| c. | is the second largest economy on the planet and is the world’s largest producer and consumer of cars. |
| d. | is the world’s largest producer and consumer of cars, and is the largest producer of solar cells. |
| e. | is the second largest economy on the planet, is the world’s largest producer of wind turbines and cars, and is is projected to soon be the world’s largest producer of solar cells. |

ANS: E PTS: 1 DIF: Easy

TOP: 1-2 HOW ARE OUR ECOLOGICAL FOOTPRINTS AFFECTING THE EARTH?

BLOOM’S TAXONOMY: KNOWLEDGE

36. Root causes of unsustainability include all of the following *except*

|  |  |
| --- | --- |
| a. | wasteful use of resources |
| b. | Poverty |
| c. | rapid population growth |
| d. | inclusion of environmental and social costs in market prices |
| e. | widespread recycling programs |

ANS: D PTS: 1 DIF: Moderate

TOP: 1-3 WHY DO WE HAVE ENVIRONMENTAL PROBLEMS?

BLOOM’S TAXONOMY: COMPREHENSION

37. Which of the following is an environmental benefit of affluence and wealth?

|  |  |
| --- | --- |
| a. | Increasing wealth allows for an increased capacity for resource consumption. |
| b. | Increased wealth provides resources to apply toward the creation of environmentally beneficial technologies. |
| c. | Increasing affluence often leads to a desire to travel widely and frequently in order to see the world. |
| d. | The affluence of developed nations is highly desirable and sought after by citizens of developing nations. |
| e. | The typical consumption patterns of affluent nations leads to beneficial environmental conservation practices. |

ANS: B PTS: 1 DIF: Moderate

TOP: 1-3 WHY DO WE HAVE ENVIRONMENTAL PROBLEMS?

BLOOM’S TAXONOMY: KNOWLEDGE

38. Which of the following is a major factor contributing to the degradation of natural capital associated with the pricing of consumable goods?

|  |  |
| --- | --- |
| a. | They are priced in such a way that they do not reflect the environmental damage caused by their production. |
| b. | They are priced in such a way as to allow even those in poverty in developing nations to acquire them. |
| c. | They are priced in such a way that only the most affluent purchaser is able to acquire them. |
| d. | Consumers are typically aware of the kinds of environmental damage resulting from the production of the item. |
| e. | It is fashionable in some local cultures to purchase items that are expensive because of the social status it brings. |

ANS: A PTS: 1 DIF: Moderate

TOP: 1-3 WHY DO WE HAVE ENVIRONMENTAL PROBLEMS?

BLOOM’S TAXONOMY: KNOWLEDGE

39. The resource consumption of the average person in the United States is about \_\_\_\_\_ times that of the average citizen of India, and about \_\_\_\_\_ times that of the average person in the world’s poorest countries.

|  |  |
| --- | --- |
| a. | 2, 10 |
| b. | 5, 10 |
| c. | 8.6, 15 |
| d. | 25, 50 |
| e. | 30, 100 |

ANS: E PTS: 1 DIF: Easy

TOP: 1-3 WHY DO WE HAVE ENVIRONMENTAL PROBLEMS?

BLOOM’S TAXONOMY: KNOWLEDGE

40. A worldview that holds that we can and should manage the Earth for our own benefit but that we also have an ethical responsibility to be caring stewards is called the

|  |  |
| --- | --- |
| a. | planetary management worldview |
| b. | stewardship worldview |
| c. | environmental wisdom worldview |
| d. | socialist worldview |
| e. | monarchy worldview |

ANS: B PTS: 1 DIF: Easy

TOP: 1-3 WHY DO WE HAVE ENVIRONMENTAL PROBLEMS?

BLOOM’S TAXONOMY: KNOWLEDGE

41. In 2009, the world population is about

|  |  |
| --- | --- |
| a. | 6.0 billion people |
| b. | 2.0 billion people |
| c. | 9.0 billion people |
| d. | 8.0 million people |
| e. | 7.0 billion people |

ANS: E PTS: 1 DIF: Easy

TOP: 1-3 WHY DO WE HAVE ENVIRONMENTAL PROBLEMS?

BLOOM’S TAXONOMY: KNOWLEDGE

42. Every day, approximately \_\_\_\_\_ new people are added to the global population.

|  |  |
| --- | --- |
| a. | 53 million |
| b. | 100 million |
| c. | 83 million |
| d. | 153 million |
| e. | 250,000 (a quarter of a million) |

ANS: C PTS: 1 DIF: Easy

TOP: 1-3 WHY DO WE HAVE ENVIRONMENTAL PROBLEMS?

BLOOM’S TAXONOMY: KNOWLEDGE

43. The actual cost of gasoline that U.S. consumers purchase for their cars is

|  |  |
| --- | --- |
| a. | about $1 per gallon which makes it even more unfair that we are currently paying around $4 per gallon. |
| b. | about $4 per gallon, so the current prices at the pump are right on target. |
| c. | about $6 per gallon which is more in line with fair prices paid in European countries |
| d. | about $14 per gallon when one considers estimated harmful environmental and health costs. |
| e. | it was $2 per gallon until Hurricane Katrina and Deep Horizon oil spill caused increases in production costs and decreases in availability. |

ANS: D PTS: 1 DIF: Moderate

TOP: 1-3 WHY DO WE HAVE ENVIRONMENTAL PROBLEMS?

BLOOM’S TAXONOMY: KNOWLEDGE

44. Billions of poverty-stricken people do not have access to basic necessities of life. The lack of which one of the following basic necessities affects the largest number of people?

|  |  |
| --- | --- |
| a. | enough fuel for heating and cooking |
| b. | adequate sanitation facilities |
| c. | clean drinking water |
| d. | adequate housing |
| e. | enough food for good health |

ANS: B PTS: 1 DIF: Easy

TOP: 1-3 WHY DO WE HAVE ENVIRONMENTAL PROBLEMS?

BLOOM’S TAXONOMY: KNOWLEDGE

45. With respect to making a shift from unsustainable lifestyles to sustainable lifestyles, it is estimated that we have about \_\_\_\_\_\_\_\_\_\_\_\_\_years to accomplish this, but that it takes about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_per cent of the population to bring about such major social changes.

|  |  |
| --- | --- |
| a. | 50 to 100; 50 to 100 |
| b. | 100 to 1,000; 5 to 10 |
| c. | 50 to 100; 5 to 10 |
| d. | 5 to 10; 50 to 100 |
| e. | 75; 75 |

ANS: C PTS: 1 DIF: Moderate

TOP: 1-4 WHAT IS AN ENVIRONMENTALLY SUSTAINABLE SOCIETY?

BLOOM’S TAXONOMY: KNOWLEDGE

**TRUE/FALSE**

1. An environmentally sustainable society must be based only on policies that provide for economic growth and development.

ANS: F PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: COMPREHENSION

2. An important goal of environmental science is to learn how life on the earth has thrived and survived.

ANS: T PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

3. Recycling nonrenewable metallic resources takes much less energy, water, and other resources and produces less pollution and environmental degradation than exploiting virgin metallic resources.

ANS: T PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

4. Polluting chemicals enter the environment only through human activities.

ANS: F PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

5. Natural resources are considered natural capital, but natural services are not..

ANS: F PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

6. The United States has the world's largest per capita ecological footprint.

ANS: T PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

7. Government subsidies can actually encourage companies to conduct business in ways that result in environmental degradation.

ANS: T PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

8. In an environmentally sustainable society, most affluent citizens work to decrease their consumption of products.

ANS: T PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

9. Pollution cleanup is considered a short-term solution if population and consumption levels grow without corresponding improvement in pollution control technology.

ANS: T PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: COMPREHENSION

10. Rapid population growth and associated poverty are primarily occurring in developing countries and have little impact on environmental degradation.

ANS: F PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

11. In order for the social changes to occur that will produce sustainable economies, fully 50% of the population of a country must support the change.

ANS: F PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

12. We can say that *biodiversity* is a factor in maintaining life on this planet.

ANS: T PTS: 1 DIF: Difficult

BLOOM’S TAXONOMY: KNOWLEDGE

13. Perpetual resources exist in a fixed quantity or stock in the Earth’s crust.

ANS: F PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

14. If industry managers ask the question “How can my company avoid producing polluting air exhaust from my factory?” they are seeking pollution prevent, which is preferable to pollution cleanup.

ANS: T PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: APPLICATION

15. The *tragedy of the commons* is a phenomenon that occurs only when the number of users is small.

ANS: F PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

16. One of the ways we can slow population growth is to elevate the status of women.

ANS: T PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

17. A massive cloud of air pollution largely generated in China affects only China, but causes serious respiratory problems there.

ANS: F PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

**COMPLETION**

1. A resource such as solar energy that is renewed continuously is a called a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: perpetual resource

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

2. The three principles of sustainability are chemical cycling, reliance on solar energy, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: biodiversity

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

3. A(n )\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a set of organisms within a defined area or volume that interact with one another and with their environment of nonliving matter and energy.

ANS: Ecosystem

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the ability of the Earth's various natural systems and human cultural systems and economies to survive and adapt to changing environmental conditions indefinitely.

ANS: Sustainability

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are materials and energy in nature that are essential or useful to humans.

ANS: Natural resources

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

6. A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is anything obtained from the environment to meet our needs and wants.

ANS: resource

PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

7. The action of processing plastic or aluminum cans into another usable product is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: recycling

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are functions of nature, such as purification of air and water, that support life and human economies.

ANS: Natural services

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

9. The IPAT model of environmental impact takes into consideration population size, technology, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: affluence

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the contamination of the environment by a chemical or other agent such as noise or heat to a level that is harmful to the health, survival or activities of humans of other organisms..

ANS: Pollution

PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

11. The highest rate at which a renewable resource can be used *indefinitely* without reducing its available supply is called its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: sustainable yield

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

12. A single, identifiable source of pollution is called a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: point source

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

13. Pollution \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is cheaper and more effective than pollution \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: prevention, cleanup

PTS: 2 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

14. Developing countries can be classified as moderately developed, middle-income, or as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, least developed.

ANS:

low-income

low income

PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

15. Old drink bottles that are collected, washed, and refilled are an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: reuse

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

16. Natural capital is comprised of natural resources and natural \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: services

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

17. When we exceed a renewable resource's natural replacement rate, the available supply begins to shrink through a process known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: environmental degradation

PTS: 1 DIF: Easy

BLOOM’S TAXONOMY: KNOWLEDGE

18. Pesticides blown from agricultural lands into the air is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pollution.

ANS: non-point source

PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

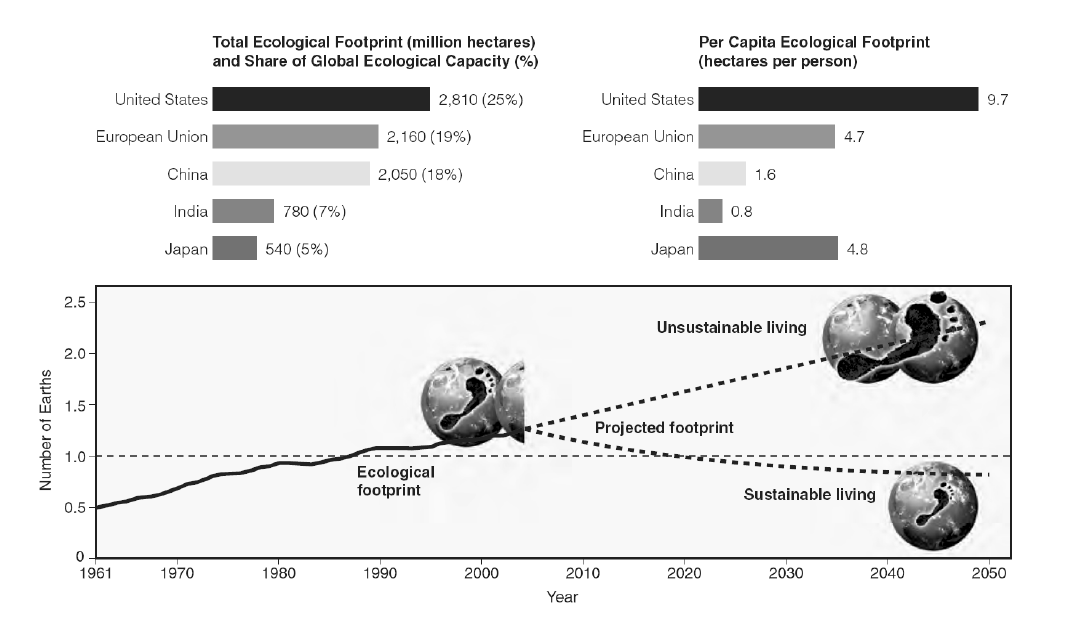
19. It has been estimated that humanity's global ecological footprint exceeds the Earth's *biological capacity* by about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: 30%

PTS: 1 DIF: Moderate

BLOOM’S TAXONOMY: KNOWLEDGE

**SHORT ANSWER**



1. Is India's per capita ecological footprint greater than that of Japan?

ANS:

No, India’s per capita ecological footprint is smaller than Japan’s.

PTS: 1 DIF: Easy OBJ: Critical Thinking

BLOOM’S TAXONOMY: ANALYSIS

2. Is India’s total ecological footprint greater than that of Japan?

ANS:

Yes.

PTS: 1 DIF: Easy OBJ: Critical Thinking

BLOOM’S TAXONOMY: ANALYSIS

3. What is the significance of this difference between India and Japan?

ANS:

Although the per capita footprint of India is small, its large population size means India’s overall effect on the environment is greater.

PTS: 3 DIF: Moderate OBJ: Critical Thinking

BLOOM’S TAXONOMY: APPLI CATION

4. What can be interpreted about the ecological footprints of the United States from the above graphs?

ANS:

The United States has both the largest per capita ecological footprint on the planet and the largest total ecological footprint on the planet.

PTS: 3 DIF: Moderate OBJ: Critical Thinking

BLOOM’S TAXONOMY: ANALYSIS

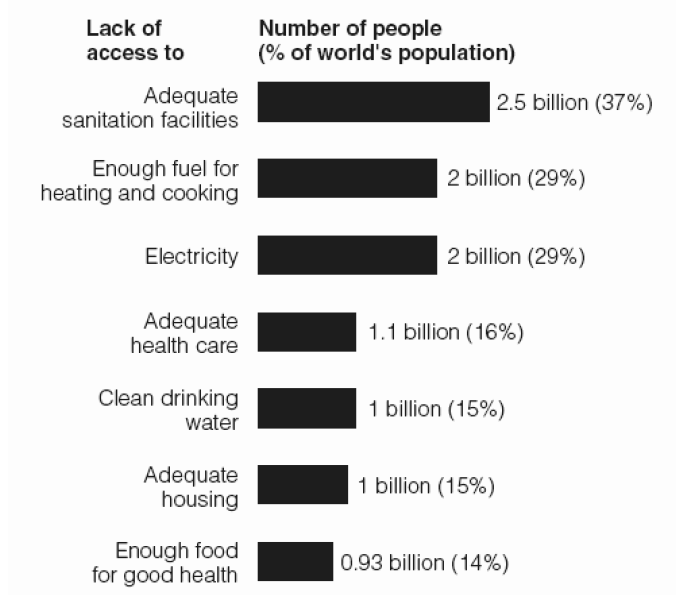
5. Compared to other developed countries such as Japan and the European Union countries, how does the per capita ecological footprint of the United States measure up? Why?

ANS:

The per capita ecological footprint of the United States is double that of the other developed countries. This reflects the much higher consumption of natural resources in the United States

PTS: 3 DIF: Moderate OBJ: Critical Thinking

BLOOM’S TAXONOMY: ANALYSIS



6. What percentage of the world's population does not have adequate sanitation?

ANS:

37%

PTS: 1 DIF: Easy OBJ: Critical Thinking

BLOOM’S TAXONOMY: ANALYSIS

7. Identify problems that result from lack of sanitation.

ANS:

-- widespread disease

-- polluted water and air

-- decrease in workforce because of disease, etc.

PTS: 3 DIF: Moderate OBJ: Critical Thinking

BLOOM’S TAXONOMY: COMPREHENSION

8. If poverty stricken people in developing countries engage in activities that degrade valuable natural resources, which two statistics do you think are driving those actions?

ANS:

Lack of enough fuel for heating and cooking, as they harvest wood from forests, and lack of enough food for good health as they hunt and take fish or wildlife to feed themselves

PTS: 3 DIF: Difficult OBJ: Critical Thinking

BLOOM’S TAXONOMY: APPLICATION

**ESSAY**

1. Clearly describe how wealth and affluence can have both harmful and beneficial environmental effects.

ANS:

The typical lifestyles of the citizens of developed nations are built on high levels of consumption and unsustainable use of natural resources. This type of affluence has an enormously harmful environmental impact.

On the other hand, affluence can lead people to become more educated, environmentally aware, and concerned. It also provides money for the development of improved technologies that can help to reduce pollution, resource waste, and environmental degradation.

PTS: 5 DIF: Moderate

BLOOM’S TAXONOMY: COMPREHENSION

2. Explain how poverty drives population growth.

ANS:

To many poor people, having more children is a matter of survival. Children are effectively the labor force for a poor family, helping with crop tending, gathering wood or fuel, hauling water and livestock tending. Additionally, the children become caretakers of their parents when the parents age. This is very important in poor countries that do not have social security, health care or retirement funds.

PTS: 5 DIF: Moderate

BLOOM’S TAXONOMY: COMPREHENSION

3. Explain how the IPAT model and the ecological footprint model emphasize different aspects of how natural resources are affected by unsustainable use.

ANS:

The IPAT model includes the per capita use of both renewable and nonrenewable resources, while the ecological footprint model emphasizes the use of renewable resources.

PTS: 3 DIF: Moderate

BLOOM’S TAXONOMY: ANALYSIS