AP ENVIRONMENTAL SCIENCE CHAPTER 1 REVIEW QUESTIONS

ANSWER THE FOLLOWING QUESTIONS THOROUGHTLY AND COMPLETELY WITH DETAILS USING THE AP TEXTBOOK .

1. Define the boldfaced terms in this chapter. (Complete this while answering questions)
2. What is *exponential growth*? Give two examples of exponential growth.
3. Distinguish among *environment, ecology, environmental science*, and *environmentalism*.
4. Distinguish between *solar capital* and *natural capital (natural resources)*.
5. What is an *environmentally sustainable society*? Distinguish between living on the earth's natural capital and living on the renewable biological income provided by this capital. How is this related to the sustainability of (a) the earth's life-support system and (b) your lifestyle?
6. How rapidly is the world's population growing? How many people does this growth add each year?
7. Distinguish between *economic growth, gross domestic product*, and *economic development*. Distinguish between *developed countries* and *developing countries* and give four characteristics of each category.
8. List five pieces of *good news* and five pieces of *bad news* about economic development.
9. What are *perpetual resources* and *renewable resources*? Give an example of each.
10. What are *sustainable yield* and *environmental degradation*? Give five examples of environmental degradation.
11. Define and give three examples of *common-property resources*. What is the *tragedy of the commons*? Give three examples of this tragedy on a global scale. List two ways to deal with the tragedy of the commons.
12. What is the *ecological footprint* per person? What useful information does it give us about the use of renewable resources?
13. What is a *nonrenewable resource*? Draw a full production and depletion curve for a nonrenewable resource and distinguish between a *physically depleted resource* and an *economically depleted resource*.
14. Distinguish between *reuse* and *recycling*, and give an example of each.
15. What is *pollution*? Distinguish between *point sources* and *nonpoint sources* of pollution. List three types of harm caused by pollution.
16. Distinguish between *pollution prevention (input pollution control)* and *pollution cleanup (output pollution control)*. What are three problems with relying primarily on pollution cleanup? Why is pollution prevention better than pollution control?
17. According to environmentalists, what are five basic causes of the environmental problems we face?
18. List five ways in which poverty is related to environmental quality, peoples' quality of life, and premature deaths of poor people. Why does it make sense for a poor family to have a large number of children?
19. What is affluenza and what are its harmful environmental effects? Are you infected with the affluenza virus?
20. How can affluence help improve environmental quality?
21. Describe a simple model of relationships between population size, resource consumption per person, and technology, and overall environmental impact. How do these factors differ in developed and developing countries?
22. From an environmental standpoint, are things getting better or worse?
23. What is an *environmental worldview*? Distinguish between the *planetary management, stewardship*, and *environmental wisdom* environmental worldviews. Which one comes closest to your own environmental worldview?
24. List the five major environmental risks in terms of the estimated number of premature deaths per year.
25. What is *environmentally sustainable economic development*? How does it differ from traditional economic growth and economic development?

AP ENVIRONMENTAL SCIENCE CHAPTER 4 REVIEW QUESTIONS

ANSWER THE FOLLOWING QUESTIONS THOROUGHTLY AND COMPLETELY WITH DETAILS USING THE AP TEXTBOOK .

1. Define the boldfaced terms in this chapter. (Complete this within your answer for each questions)
2. Why are insects important for many forms of life and for you and your lifestyle?
3. What is *ecology*? What five levels of the organization of matter are the main focus of ecology?
4. Distinguish among *organism, cell, eukaryotic cell, prokaryotic cell*, and a *species*.
5. Explain why microbes (microorganisms) are so important.
6. Distinguish among a *species, population, genetic diversity, habitat, community, ecosystem*, and *biosphere*.
7. Distinguish among the *atmosphere, troposphere, stratosphere, hydrosphere, lithosphere*, and *biosphere*.
8. What three processes sustain life on earth?
9. How does the sun help sustain life on the earth? How is this related to the earth's natural greenhouse effect?
10. What are *biomes*, and how are they related to climate? What are *aquatic life zones*?
11. Distinguish between the *abiotic* and *biotic* components of ecosystems, and give three examples of each.
12. Distinguish among *range of tolerance* for a population in an ecosystem, and the *law of tolerance*. How does each of these factors affect the composition (structure) of ecosystems?
13. What is a *limiting factor*, and how do such factors affect the composition of ecosystems? What are two important limiting factors for (a) terrestrial ecosystems and (b)aquatic ecosystems?
14. Distinguish between *producers* and *consumers* in ecosystems, and give three examples of each type. What is *photosynthesis*, and why is it important to both producers and consumers? What is*chemosynthesis*?
15. Distinguish among *primary consumers (herbivores), secondary consumers (carnivores), tertiary consumers, omnivores, scavengers, detritivores, detritus feeders*, and *decomposers*. Why are decomposers important, and what would happen without them?
16. Distinguish between *aerobic respiration* and *anaerobic respiration*.
17. What are the four components of biodiversity? Why is biodiversity important to (a) the earth's life-support systems and (b) the economy?
18. Distinguish between a *food chain* and a *food web*.
19. What is *biomass*? What is the *pyramid of energy flow* for an ecosystem? What is *ecological efficiency*? What is the effect of the second law of thermodynamics on (a) the flow of energy through an ecosystem and (b) the amount of food energy available to top carnivores and humans?
20. Distinguish between *gross primary productivity* and *net primary productivity*. Explain how net primary productivity affects the number of consumers in an ecosystem and on the earth. List two of the most productive ecosystems or aquatic life zones and two of the least productive ecosystems or aquatic life zones. Use the concept of net primary productivity to explain why harvesting plants from estuaries, clearing tropical forests to grow crops, and harvesting the primary producers in oceans to feed the human population are not good ideas.
21. About what percentages of total potential net primary productivity of (a) the entire earth and (b) the earth's terrestrial ecosystems are used, wasted, or destroyed by humans?
22. What is *soil*? Distinguish between a *soil horizon* and a *soil profile*.
23. What is *humus*, and what is its importance? What does the color of topsoil tell you about its usefulness as a soil for growing crops?
24. Distinguish between *soil infiltration* and *leaching*. Distinguish among *soil texture, soil porosity*, and*soil permeability*.
25. What is a *biogeochemical cycle*? How do such cycles connect past, present, and future forms of life?
26. Describe the *water cycle*, and list three human activities that alter this cycle.
27. Describe the *carbon cycle* and explain the roles of photosynthesis and aerobic respiration in this cycle. List two human activities that alter this cycle.
28. Describe the *nitrogen cycle*. Distinguish among *nitrogen fixation, nitrification, assimilation, ammonification*, and *denitrification*. Explain why the level of nitrogen in soil often limits plant growth. List six ways in which humans alter this cycle.
29. Describe the *phosphorus cycle*. Explain why the level of phosphorus in soil often limits plant growth on land and why phosphorus also limits the growth of producers in many freshwater streams and lakes. List three ways in which humans alter this cycle.
30. Describe the *sulfur cycle*, and list three ways in which humans alter this cycle.
31. Distinguish among *field research, laboratory research*, and *systems analysis* as methods for learning about ecosystems. What are *geographic information systems*, and how are they used to learn about ecosystems?
32. What are two basic principles of ecosystem sustainability?