

Environmental Issues Final Exam Study Guide

Chapter 1, Science and the Environment, p. 4

1. What are some results of the Industrial Revolution?
 - Use of fossil fuels
 - Population Boom
 - Improved Quality of Life
 - Growth of Cities
2. List the fields of environmental science:
 - Biology
 - Earth Science
 - Chemistry
 - Physics
 - Social Sciences
3. What is biodiversity? Why should loss of biodiversity be of concern to humans? Why is biodiversity so important to ecosystems?
 - Amount and variety of life
 - Humans depend on other organisms for food & oxygen
4. Describe what a sustainable world would look like:
 - Never-Ending existence of people in healthy & wealthy conditions
5. What is an ecological footprint?
 - Amount of land & ocean needed to support one person; US Residents currently have the largest ecological footprint in the world
6. Compare and contrast developed and developing nations.

Developed Countries Have the Following Characteristics:

- Slower Population Growth
- Better Health Care
- Greater Personal Wealth
- Clean Water
- Reduced Poverty

Chapter 3, The Dynamic Earth, p. 62

7. List the layers of the atmosphere. Where is the ozone layer located?
 - Troposphere
 - Stratosphere (Ozone Layer)
 - Mesosphere
 - Thermosphere
8. What is the greenhouse effect? What role does it play in the atmosphere?
 - Sustains life by holding heat near earth like a blanket. Without the Greenhouse Effect, the surface of Earth would mostly consist of rock & ice.
9. List places where freshwater is found on Earth. Where is a majority of it stored? What is a tributary? What is an estuary?
 - Most of Earth's fresh water is frozen in polar ice caps & glaciers
 - A tributary is a smaller river that feeds into a larger one
 - An estuary is an area of semi-salt water; where a river meets the ocean
10. Define open and closed systems. Which one would describe the Earth? Which one would describe matter?
 - Earth is an open system in regards to energy; closed in regards to matter
11. List examples of non-renewable resources and renewable resources:
 - Non-Renewable: Copper, Ore, Fossil Fuels, Diamonds
 - Renewable: Trees, Water, Forests, Sunlight, Air
12. List examples of natural resources:
 - Sunlight, fresh air, forests, minerals, fresh water

Chapter 4, The Organization of Life, p. 98

13. List examples of biotic and abiotic factors:
 - Biotic: Roots, leaves, insects
 - Abiotic: Temperature, wind, climate
14. What role does the sun play in ecosystems?
 - The energy in most ecosystems comes from the sun.
15. Define the following definitions:
 - Artificial Selection: The selective breeding of organisms by humans for specific desirable characteristics
 - Selective Breeding: The practice of artificial selection
 - Coevolution: The process of two species evolving in response to long-term interactions with each other
 - Resistance: The ability of an organism to tolerate a chemical or disease-causing agent

Chapter 5, How Ecosystems Work, p. 124

16. Define the role that each of the following organisms play in ecosystems:
 - Decomposers: Breaks down dead organisms; returns nutrients to the soil
 - Herbivores: Obtain energy only from producers; eats only plants
 - Omnivores: Obtains energy from producers AND consumers; eats plants & animals
 - Carnivores: Obtains energy only from consumers; eats only animals
 - Consumers: Get energy from eating other organisms
17. What is a pioneer species? Give an example of one found in primary succession:
 - A pioneer species is the first or one of the first species to inhabit an area that has recently undergone either primary or secondary succession. Examples: Lichen (similar to moss)
18. What is nitrogen fixation? (Nitrogen makes up 78% of the air we breathe.) Certain types of plants are able to convert this nitrogen into a form animals can use to build DNA etc.
19. What role does fire play in ecosystems? Fire helps some forest communities by enabling pine cones to release seeds, clearing away dead wood, & encouraging new growth
20. How are the nitrogen and phosphorus cycles effected by the use of fertilizers? Excessive use of fertilizers impact nitrogen & phosphorous cycles in nearby lakes & streams; resulting in fish death.
21. What is a climax community? A final & stable community that develops after either primary or secondary succession.

Chapter 6, Biomes, p. 152

22. Describe where savannahs are found, what they look like and what animals are found in them: If you visit an African savannah, you are likely to see large herds of grazing mammals such as rhinos, gazelles, & giraffes.
23. Describe where deserts are found, what they look like and what animals are found in them: In North America, deserts are often found on the dry (east) side of mountain ranges.
24. How do temperature and precipitation affect the different biomes? Biomes with higher temperatures and less precipitation tend to have shorter and less dense vegetation.
25. What is an adaptation? What are some adaptation of plants and animals? Plants in a particular biome have ADAPTATIONS that help them survive in that biome.
26. What are some threats to tropical rainforests? Where are then located? What kind of species diversity do they have? What is the extinction rate like in this part of the world?
 - The main threats to tropical rainforests are deforestation and illegal trade of plants & animals.
 - Near the equator. They have the greatest species diversity on earth as well as the highest extinction rate.

Chapter 7, Aquatic Ecosystems, p. 184

27. What are some environmental functions of wetlands?
1. DECREASING RUNOFF
 2. Absorbing & removing pollutants from water
 3. Trapping carbon
 4. Controlling floods
28. Where does most ocean pollution come from? What causes most coastal pollution?
- Most ocean pollution can be traced back to activities on land. Specifically, it is mostly caused by industrial waste and sewage.

Chapter 8, Understanding Populations, p. 210

29. What is population density? The number of individuals living per unit area; example: number of wild horses per square kilometer in a prairie
30. Describe and give examples of the following relationships between species:
- Parasite and host: Malaria/Human
 - Mutualism: Acacia Trees and Ants
 - Predator and Prey: Snowshoe Rabbit and Red Fox
 - Commensalism: Neither Species is harmed
 - Competition: Cannot occur between animals living in distant ecosystems

Chapter 9, Understanding Human Population, p. 234

31. What is an age structure diagram? It is created by graphing the distribution of ages in a population at a specific time.
32. What are some reasons birth rates have declined worldwide? Women become educated and learn family planning techniques.
33. What is the Earth's population estimated to be at in the year 2050? It is expected to stabilize near 9 billion by 2050.
34. What are some diseases that are spread through unsafe drinking water? Dysentery & cholera.

Chapter 10, Biodiversity, p. 258

35. What is an endangered species? List some examples: An endangered species is a species in danger of extinction. Examples: Bengal tiger, large whales, cougars
36. How many species are estimated to be living on earth today? Between 10 and 50 million
37. What is the Endangered Species Act of 1973? Reintroducing the gray wolf in Yellowstone is in accordance with this act.
38. List some major human causes of extinction: Habitat Destruction, Poaching
39. What are some areas in the United States that have the highest levels of biodiversity? Biodiversity is important because it helps populations adapt to ecological changes. Areas such as islands, tropical rain forests, and coastal areas have the greatest. In the US this means coastal California, the Hawaiian Islands, & the Florida Everglades.

Chapter 20, The Environment and Human Health, p. 548

40. What are some natural causes of pollution?

Dust storms, volcanoes, and wildfires

41. What are some sources of air pollution?

Burning of fossil fuels in vehicles, home furnaces, power plants and factories, etc.

42. How are most infectious diseases transmitted? Three Fourths of the world's infectious diseases are spread through dirty water

Chapter 21, Economics, Policy, And The Future, p. 572

43. What are some issues that slow efforts in achieving worldwide sustainability? It is difficult to determine who is responsible for the following: 1) Who will solve environmental problems? 2) Who is responsible for environmental problems? 3) Who pays the costs of implementing solutions?

44. What is an economic incentive? An example is the government offering low-interest loans to people who build solar homes.

45. What are some solutions to environmental problems? Solutions include: individual action, cooperation of many people, and a basis in scientific methods and knowledge

46. What is lobbying? What is the overall goal of lobbying?

Lobbying is working with legislators to influence them to pass laws that benefit a specific cause

47. What is an environmental impact statement?

An environmental impact statement must be filed by the developers of any project that could have a significant impact on the environment.