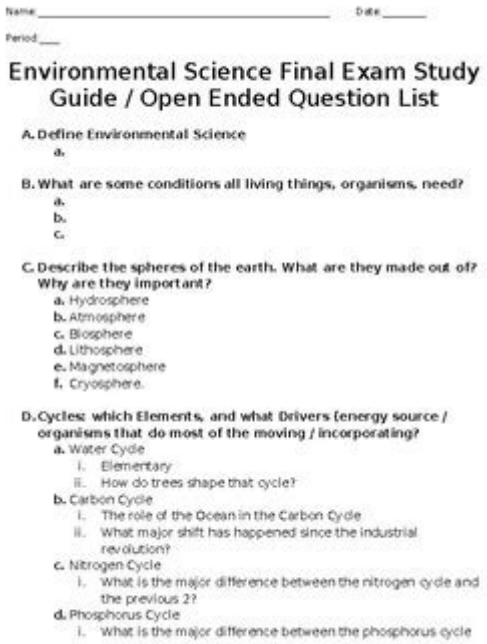
Environmental Science Second Semester Final Study Guide



Name:_____ Date:_____

Period:___

Environmental Science Final Exam Study Guide / Open Ended Question List

A. Define Environmental Science
   a.

B. What are some conditions all living things, organisms, need?
   a.
   b.
   c.

C. Describe the spheres of the earth. What are they made out of? Why are they important?
   a. Hydrosphere
   b. Atmosphere
   c. Biosphere
   d. Lithosphere
   e. Magnetosphere
   f. Cryosphere.

D. Cycles: which Elements, and what Drivers (energy source / organisms that do most of the moving / incorporating?
   a. Water Cycle
      i. Elementary
      ii. How do trees shape that cycle?
   b. Carbon Cycle
      i. The role of the Ocean in the Carbon Cycle
      ii. What major shift has happened since the industrial revolution?
   c. Nitrogen Cycle
      i. What is the major difference between the nitrogen cycle and the previous 2?
   d. Phosphorus Cycle
      i. What is the major difference between the phosphorus cycle

Environmental science second semester final study guide is an essential resource for students preparing for their final examinations in environmental science. This guide will help students consolidate their understanding of key concepts, theories, and applications discussed throughout the semester. The study guide will cover major topics, important definitions, and essential case studies that are vital for success in the final exam.

Key Topics to Review

In environmental science, several key topics are fundamental to understanding the subject as a whole. Below are some of the most critical areas to focus on:

1. Ecosystems and Biomes

- Definition and Importance: Ecosystems are communities of living organisms interacting with their physical environment. Understanding ecosystems is crucial because they provide services such as clean air, water, and food.

- Types of Biomes:

- Terrestrial Biomes: Tundra, Taiga, Temperate Forest, Tropical Rainforest, Desert, Grassland.
- Aquatic Biomes: Freshwater (lakes, rivers) and Marine (oceans, coral reefs).

2. Biodiversity

- Definition: Biodiversity refers to the variety of life in a particular habitat or ecosystem.

- Importance of Biodiversity:
- Ecosystem stability and resilience.
- Economic benefits (e.g., tourism, pharmaceuticals).
- Cultural significance.

- Threats to Biodiversity: Habitat destruction, pollution, climate change, invasive species, and overexploitation.

3. Human Impact on the Environment

- Pollution: Types (air, water, soil) and sources (industrial, agricultural, urban).

- Climate Change:
- Causes: Greenhouse gas emissions, deforestation.
- Effects: Rising sea levels, extreme weather events, loss of biodiversity.

- Sustainable Practices: Conservation, renewable energy, sustainable agriculture, and waste management.

4. Environmental Policies and Ethics

- Key Legislation: Clean Air Act, Clean Water Act, Endangered Species Act.

- International Agreements: Kyoto Protocol, Paris Agreement, Convention on Biological Diversity.

- Ethical Frameworks: Anthropocentrism, biocentrism, ecocentrism.

Important Definitions

Understanding key terms is vital for grasping the fundamental concepts of environmental science. Here are

some important definitions to study:

1. **Ecosystem Services**: Benefits provided by ecosystems to humans, including provisioning, regulating, cultural, and supporting services.

2. **Carrying Capacity**: The maximum number of individuals of a species that an environment can support sustainably.

3. **Renewable Resources**: Resources that can be replenished naturally over time, such as solar energy, wind, and biomass.

4. **Nonrenewable Resources**: Resources that cannot be replaced within a human timescale, such as fossil fuels and minerals.

5. **Invasive Species**: Non-native species that spread widely and cause harm to the environment, economy, or human health.

Case Studies to Consider

Case studies serve as practical examples of environmental concepts in action. Here are a few notable cases that may be beneficial for examination preparation:

1. The Dust Bowl

- Overview: A period of severe dust storms in the 1930s that greatly damaged the ecology and agriculture of the American prairies.

- Causes: Poor agricultural practices, drought, and high winds.

- Consequences: Forced migration of farmers, economic hardship, and changes in land management practices.

2. The Love Canal Tragedy

- Overview: A neighborhood in Niagara Falls, New York, where an industrial waste dump led to severe

health issues among residents.

- Causes: Improper disposal of toxic waste by Hooker Chemical Company.

- Consequences: Birth defects, cancer rates increased, and the establishment of the Superfund program for cleaning hazardous waste sites.

3. The Amazon Rainforest Deforestation

- Overview: The ongoing destruction of the Amazon rainforest for agriculture and logging.

- Causes: Cattle ranching, soy production, and illegal logging.

- Consequences: Loss of biodiversity, disruption of carbon cycles, and contributions to climate change.

Study Tips and Strategies

Preparing for your environmental science final exam can be daunting, but effective study strategies can help. Here are some tips to enhance your study experience:

- **Review Class Notes Regularly**: Regularly revisiting your notes and highlights can reinforce your understanding of key concepts.
- **Utilize Flashcards**: Create flashcards for important terms and definitions to facilitate memorization.
- **Engage in Group Study**: Joining a study group can provide different perspectives and enhance your understanding of complex topics.
- **Practice Past Exams**: Completing past exam questions can help familiarize you with the exam format and types of questions asked.
- **Seek Help When Needed**: Don’t hesitate to ask your instructor or classmates for clarification on topics you find challenging.

Conclusion

The **environmental science second semester final study guide** serves as a comprehensive resource to help students prepare effectively for their exams. By focusing on key topics, understanding important definitions, exploring relevant case studies, and employing effective study strategies, students can enhance their understanding of environmental science and increase their chances of success in their final assessments. As you study, remember that the knowledge you gain will not only benefit you academically but also empower you to contribute to critical environmental issues in the future. Good luck with your studies!

Frequently Asked Questions

What are the key components of the carbon cycle that are typically covered in a second semester environmental science course?

The key components include photosynthesis, respiration, decomposition, and combustion, as well as the role of oceans and soils in carbon storage.

How does biodiversity contribute to ecosystem resilience and stability?

Biodiversity enhances ecosystem resilience by providing a variety of species that can adapt to changes, fill different ecological roles, and maintain functionality in the face of disturbances.

What are the primary causes of climate change discussed in environmental science courses?

The primary causes include greenhouse gas emissions from fossil fuel combustion, deforestation, industrial processes, and agricultural practices.

What is the significance of the concept of 'sustainable development' in environmental science?

Sustainable development emphasizes meeting the needs of the present without compromising the ability of future generations to meet their own needs, integrating environmental health, economic viability, and social equity.

What are some effective strategies for managing waste and promoting recycling in communities?

Effective strategies include implementing curbside recycling programs, establishing composting facilities,

conducting community education campaigns, and promoting the reduction of single-use plastics.

How do human activities impact water quality and availability, as discussed in environmental science?

Human activities such as agricultural runoff, industrial discharges, urbanization, and over-extraction of water can lead to pollution, habitat destruction, and depletion of freshwater resources.

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