

Name \_\_\_\_\_

Date of Final Exam \_\_\_\_\_

## Review Guide 1<sup>st</sup> Sem

### APES Cumulative Semester 1 Exam

Most Qs will come from past quizzes and tests given in class. Other Qs may come from the Barrons Review section review Qs. The Free Response will also be a repeat of one that you have already had.

#### Objectives to cover

##### Intro to APES

Tragedy of the Commons – describe it, what is the lesson learned? How can the lessons be useful today?

Review the Scientific Method (control group vs. exp. group, I.V., D.V, etc.)

##### Power of One

Know what various leaders have done for the env. movement. Wangari Maathai, John Muir, Rachel Carson, Lady Bird Johnson, Teddy Roosevelt, Wendell Berry, Al Gore

#### I. The Living World (10–15%)

##### A. Ecosystems and Energy

- Biotic and abiotic
- Levels of Ecological Organization
- Niche vs. Habitat
- Symbiotic Relationships
- Keystone, Flagship and Indicator Species
- Species Diversity
  - Competitive Exclusion
  - Resource Partitioning
- Food Chains, webs and trophic levels
- Bioaccumulation, biomagnification
- Ecological Pyramids
- Succession – primary and secondary
- 1<sup>st</sup> and 2<sup>nd</sup> law of thermodynamics and entropy
- Photosynthesis and cellular respiration

##### B. Measuring Biodiversity

- Methods, Importance, What information can be determined by measuring biodiversity?

##### C. Genetics and Biodiversity

- Green Revolution
- Genetically modified crops

##### D. Clagett Farm

- Pest Control – IMP, alternative methods of pest control

- Pollutants in the Bay (watershed)
- Sustainable Agriculture – organic farming,

### E. Loss of Biodiversity

- Endangered/Extinct Species
- Hunting/Poaching/Overharvesting
- Habitat Destruction
- Invasive Species – give specific examples and case studies
- Remember HIPPO

### F. Biomes

- Define "biome," and briefly describe the major terrestrial and aquatic biomes, giving attention to the climate, soil, and characteristic plants and animals of each.
- Relate at least one human effect on each of the biomes discussed.

## II. Earth Systems and resources (10–15%)

- Geologic time Scale – what occurred when, how does this support Darwin's theory of evolution?
- Plate Tectonics—how plates have moved, different types of movement, effects of plate movement, explain the relationship to earthquakes and volcanic eruptions
- Rock Formation, Rock Cycle, 3 main types of rock and examples of each
- Layers of the Atmosphere – name them in order, what occurs in each layer
- Weather vs Climate
- Volcanoes and Earthquakes – name the different kinds
- Diagram the carbon, nitrogen, phosphorus, and hydrologic cycles.
- Describe how humans have influenced the carbon, nitrogen, and phosphorus cycles.
- Summarize the effects of solar energy on Earth's temperatures, including the influence of albedos of various surfaces, and seasons
- Discuss the roles of solar energy and the Coriolis effect in the production of global air and water flow patterns.
- Define "El Nino–Southern Oscillation (ENSO)" and "La Nina," and their effects.
- Distinguish between weather and climate
- Define "plate tectonics," Explain its relationship to earthquakes & volcanism
- Gaia Hypothesis

## III. Land and Water Use (10–15%)

### A. Soils

- \*Composition, physical and chemical properties of soil
- \* Horizon layers,
- \*Soil types and tests used to study soil, qualities of each soil type
- \*Erosion and soil problems
- \*Conservation of soils

## B. Land Preservation/Management (Ch. 17)

Public and federal lands

Management; wilderness areas; national parks; wildlife refuges; forests; wetlands

Land conservation options: reclamation; conservation, Preservation; remediation; mitigation; restoration,

## C. Mining

Mineral formation

Extraction and types of mining and their degradation of the environment

Global reserves

Sustainable land use strategies

Urbanization

## D. Agriculture

Human nutritional requirements

Increasing crop yields and the green revolution

Sustainable agriculture – organic, IPM

Pesticide Use – problems and solutions, Bioaccumulation, persistance and biomagnification of pesticides (ie.DDT)

Genetic Engineering of Food – GM, Safety, backlash

## E. Water Resources, Use and Pollutants

Global freshwater vs saltwater supply

Global use of fresh water

Watershed, cisterns, aqueducts, reservoirs, estuaries, lakes, dams, drainage basin wetland, glaciers, water table, groundwater

Types of inorganic water pollutants, damages to the environment and/or human health and ways to test for them

Biological water contaminants and ways to test for them

Oligotrophic vs eutrophic lakes, xeroscaping, gray water

Effects of flooding and erosion

\* \* \* \* \*

## Exam Details

### Scoring:

100 Multiple Choice Questions = 80 %

**1 Free Responses (worth 10 points) = 20%**