

## **APES Unit 7 Exam: Common Study Guide**

### **Human Population Growth, Agriculture, and Land Use**

You should know the following topics thoroughly. Be able to describe, explain, and/or give examples. You MAY NOT use a calculator on the exam.

#### **Chapter 8: Human Population**

- Rule of 70
- World Population = 7 billion; United States Population = 311 million
- What are the three most populous countries?
- IPAT Model
- The Study of Demography
  - Population Size, Population Density and Distribution, Age Structure Diagrams, Sex Ratios, and Population Growth Rate
- Analyze Age Structure Diagrams
- Population Growth Rate Formula – Solve Problem using the formula
- Total Fertility Rate and Factors that affect Total Fertility Rate
- Replacement-level Fertility
- Population Momentum
- Indicators of Quality of Life of a Nation (life expectancy and infant mortality rate)
- Stages of the Demographic Transition

#### **Chapter 10: Agriculture, Biotechnology, and the Future of Food**

- Three major crops that provide many of our calories and protein
- Factors that contribute to world hunger
- Definition of Arable Land
- The Green Revolution - Characteristics
- Pesticide Use (Advantages, Disadvantages, Alternatives)
- Biocontrol
- Integrated Pest Management
- Genetically Modified crops (examples, positives, negatives)
- Benefits of Organic Farming and Locally Supported Agriculture
- Review methods of sustainable agriculture
  - Crop Rotation, Contour Farming, Intercropping, Cover Crops, Reduced Tillage (Pages 247-249)
  - Irrigation Practices (Page 252)

#### **Chapter 12: Resource Management, Forestry, Land Use, and Protected Areas**

- Ecological Value of Forests including ecosystem services
- Why was the National Forest System formed?
- Timber Harvesting on Public and Private Lands
  - Even-Aged Stands  
Because all trees in a given stand are planted at the same time, the stands are even aged. Most ecologists view these plantations more as crop agriculture than as ecologically functional forests.
  - Uneven-Aged Stands  
Some harvesting methods aim to maintain uneven aged stands where mix of ages, and species makes the stand more similar to a natural forest. Sustainable use would encourage cutting small groups of medium to large trees in uneven aged forests.
  - Clear-Cutting  
Clear cutting is the most cost effective method for timber companies, but it can have severe ecological consequences including soil erosion, and species turnover.
  - Seed-Tree Approach  
Small numbers of seed producing trees are left standing so they can reseed the logged area.
  - Shelter wood Approach  
Small numbers of mature trees are left in place to provide shelter for seedlings as they grow.
  - Selection Systems  
Allow uneven aged stand management, where only some trees in a forest are cut at any time.
- Fire Suppression vs. Controlled Burns – Pros and Cons