

Common Terms

Ch. 18. Succession, seral stage, primary succession, secondary succession, autogenic and allogenic environmental change, chronosequence or chronosere, intermediate disturbance hypothesis, paleoecology

Ch. 20. Primary production, gross primary production, net primary production, biomass, compensation depth, secondary production, Assimilation efficiency, grazing food chain, detrital food chain, consumption (trophic) efficiency

Ch. 21. Retranslocation or Reabsorption, decomposition, microbivores, mineralization, immobilization, net mineralization rate, nutrient spiraling, tidal subsidy

Ch. 22. Biogeochemical cycle, gaseous and sedimentary, dryfall, wetfall, carbon, CO₂, net ecosystem productivity, ammonium and nitrate, nitrogen fixation, denitrification, Nitrate, phosphorus, stoichiometry

Ch. 23 Biogeography, biome, tropical rain, tropical savanna, Shrublands, Conifer, tundra

Ch. 29. Greenhouse gases, fossil fuel, carbonates or bicarbonates, photosynthesis, stomata, circulation models, precipitation, aerosols,

Sample Essay Questions

- 1) Using specific examples for each, explain the differences between primary and secondary succession.
- 2) Describe an example of an important autogenic (such as light) environmental change that drives succession.
- 3) Give two reasons that productivity is typically higher in coastal areas of the ocean, compared to the areas away from shore.
- 4) Explain the difference between primary production and secondary production, and discuss the factors that are most limiting to each of them in terrestrial ecosystems.
- 5) What are the two main food chains of ecosystems? Which is more dominant in terrestrial ecosystems and why?
- 6) Explain why, on average, decomposition proceeds faster in southern Mexico than in Canada.
- 7) Explain how the "quality" of plant-derived organic matter changes during the course of decomposition.

- 8) Describe two major differences between decomposition in terrestrial environments and decomposition in aquatic environments.
- 9) Describe how you might go about measuring the rate of decomposition of leaf litter in the upper layer of a forest soil.

- 10) Explain the difference between the two basic types of biogeochemical cycles, using specific examples of each.

- 11) Describe three ways that nutrients can be lost from an ecosystem.

- 12) Trace the cycle of an atom of carbon from CO₂, through plant material, an herbivore, a carnivore, a decomposer, and into solution in an ocean.

- 13) Describe why and how oxygen is intimately involved in the biogeochemical cycles of many other elements.

- 14) What are thought to be the main causes of the recent rise in atmospheric concentrations of carbon dioxide?

- 15) Discuss the major trends in global climatic changes expected to occur as a consequence of elevated concentrations of greenhouse gases in the atmosphere.

- 16) Discuss the anticipated changes in the distribution of plants, animals and ecosystems in response to global climate change.