Biology Spring Final Review

1. What is the theory of evolution?
2. What is the difference between homologous and vestigial structures?
3. What are fossils? Where are they mostly found?
4. What is the difference between Lamarck's and Darwin's theory of evolution?
5. View and interpret a cladogram.
6. What suggests common ancestry?
7. What is natural selection?
8. What are the 4 different types of natural selection and how are they different?
9. What is Hardy-Weinberg's theory of genetic equilibrium?
10. What five things disrupt genetic equilibrium?
11. What is the difference between variations and adaptations in a population?
12. What is the definition of a species?
13. What can cause speciation?
14. What is the main function of nervous tissue?
15. Name the basic functional unit (cell) of the nervous system.
16. Describe the difference between a sensory neuron and a motor neuron.
17. What are neurotransmitters and what are they used for in the nervous system?
18. What is the purpose of the endocrine system?
19. Describe hormones and how they work.
20. What is diabetes?
21. Name the two hormones associated with keeping stable blood sugar and identify how they work.
22. What is the purpose of vaccinations?
23. What is the difference between an antigen and an antibody?
24. What is the function of a macrophage? What type of cell is it?
25. Describe the difference between nonspecific, cell-mediated and humoral immunity. Give examples from each type of response.
26. What type of cell does HIV infect?
27. Define ecology.
28. Define each levels of organization in ecology.
29. Describe the effects of increased greenhouse gases.
30. What is an organism's niche?
31. Identify density-dependent and density-independent limiting factors for a population.
32. What is the carrying capacity of an ecosystem?
33. Identify growth rate characteristics on a population model.
34. Explain biodiversity.
35. Distinguish species richness and species evenness. How do they contribute to species diversity?
36. Where on the planet is the most biodiversity found? Why?
37. Describe succession.
38. What is biomass?
39. What part of the ecosystem contains the most biomass (levels of ecological pyramid)?
40. Describe the flow of energy through an ecosystem (trophic levels).
41. View and interpret a food web.
42. View and interpret an ecological pyramid.
43. Describe the ten-percent rule for trophic levels.
44. Summarize the 3 biogeochemical cycles (carbon, water & nitrogen).
45. View and interpret a biogeochemical cycle diagram.
46. Identify the importance of and participants in the nitrogen cycle.

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Evolution- Chapter 15
- 15-1 Fossil Record
- 15-2 Theories of Evolution (Lamarck vs. Darwin)
- 15-3 Types of Evidence

Evolution- Chapter 16
- 16-1 Genetic Equilibrium
- 16-2 Disruption of Genetic Equilibrium (natural selection, migration, genetic drift, etc)
- 16-3 Formation of Species (speciation, isolating mechanisms)

The Immune System- Chapter 48
- 48-1 Nonspecific Defenses (inflammatory response, etc)
- 48-2 Specific Defenses (cell-mediated vs. humoral response)
- 48-3 HIV & AIDS

Homeostasis- Endocrine System- Chapter 51 & Nervous System Ch. 50-1
- 51-1 Hormones
- 51-2 Pancreas Function & Diabetes Article (insulin vs. glucagon)
- 51-3 Feedback Mechanisms

Ecology- Chapter 19
- 19-1 Ecology (Levels of Organization, Models)
- 19-2 Ecology of Organisms (Biotic & Abiotic Factors, Niche)

Ecology- Chapter 20
- 20-1 Understanding Populations
- 20-2 Measuring Populations (Limiting factors)
- 20-3 Human Population Growth

Ecology- Chapter 21
- 21-2 Properties of Communities (Species Richness & Diversity)
- 21-3 Succession

Ecology- Chapter 22
- 22-1 Energy Transfer (Food Web, etc.)
- 22-2 Ecosystem Recycling (Cycles of Matter)

Environmental Science- Chapter 23
- 23-2 Biodiversity

Experimental Design
- General considerations (independent variable, control, etc)

120 QUESTIONS TOTAL (110 multiple choice with 20 matching- evolution vocab & limiting factors)