Biology Review Questions

Answer the following on separate paper. You will submit upon entering AP Biology. Due the first day of class.

1. What is Biology?
2. List the characteristics of all organisms.
3. Differentiate between: Unicellular/multicellular; autotroph/heterotrophy; sexual/asexual.
4. Define and explain the importance of homestasis.
5. Explain feedback mechanisms.
6. Explain the importance of The Scientific Method, list the steps in order.
7. Explain the importance of microscopes in Biology, list and briefly descript the basic parts of a compound light microscope, explain the magnification and resolution.
8. Primary differences between scanning and electron microscopes.
9. Explain the structure of water and relate it to polarity. List and explain 3 major properties of water.
10. Explain each of the following: Matter, mass, element, compound.
11. Explain the difference between a solute and a solvent.
12. What is the pH scale?
13. Explain the difference between an acid and a base.
14. Explain the difference between anabolic and catabolic reactions.
15. Explain covalent, ionic, and hydrogen bonds.
16. What are valence electrons?
17. Differentiate between hydrophilic and hydrophobic.
18. Name the parts of a reaction.
19. Define organic compound. List and briefly describe the importance of the 4 major classes of organic compounds.
20. Explain the importance of enzymes to living things.
21. Differentiate between condensation and dehydration reactions, give an example of each.
22. CELLS- Eukaryote vs. Prokaryote, Animal vs. Plant, list and briefly describe the major organelles found in eukaryotic cells (animal and plant).
23. Describe the basic structure of the cell membrane using the following terms: peripheral and integral proteins, phospholipid, selectively permeable.
24. What is cell transport? Explain the difference between active and passive transport. Briefly describe the following processes- Osmosis, diffusion, facilitated diffusion, ion channels, sodium-potassium pump, endocytosis, exocytosis.

25. Explain the function of photosynthesis. Where does it occur? What are the overall products of the entire process? List the products of The Light Reactions and The Calvin Cycle.
26. Explain the function of cellular respiration. Where does it take place?
27. Explain the relationship between photosynthesis and cellular respiration
28. DNA- Explain the structure and function, and location within a cell. Relate DNA to genes.
29. Explain the importance of RNA.
30. List and briefly explain the function of 3 types of RNA
31. List 3 structural differences between DNA and RNA.
32. Explain the relationship between transcription and translation. Where does each occur?
33. CHROMOSOMES- Explain the basic structure of a chromosome. What is the characteristic chromosome number of a human diploid and haploid cell? Explain the difference between autosomes and sex chromosomes.
34. What is a mutation? Explain the difference between a point mutation and a chromosome mutation.
35. List and briefly describe the steps of The Cell Cycle.
36. List and briefly describe the steps of Mitosis.
37. Explain the importance of Meiosis.
38. Explain the following terms: Allele, dominant, recessive, homozygous, heterozygous, genotype, phenotype, punnett square.
39. Explain Charles Darwin's contribution to the field of evolution. Name the book written.
40. List and briefly describe the 6 major kingdoms of organisms.
41. List and briefly describe the 3 major domains.
42. List the levels in The Hierarchy of Classification.
43. Explain each of the following: Producer, consumer, herbivore, carnivore, omnivore.
44. What is a trophic level?
45. Explain the difference between a food chain and a food web.
46. Explain succession.
47. Briefly diagram the following ecological cycles: Water, carbon, nitrogen.
48. Explain the difference between terrestrial and aquatic biomes.
49. List and briefly describe the characteristics of 5 biomes.
50. In what areas are you most interested in as far as Biology?