AP/CN Biology Unit 1 (Campbell Ch 2-5, IB12 Sections 2.1-2.4 & 2.6 )

Test Study Guide

1. Overall Coverage:
2. Basic Chemistry:
3. Atoms
4. Parts, structure, modeling, isotopes
5. applications of isotopes in living systems
6. Bonding
7. affects on molecules & interactions with other molecules
8. Important elements
9. most frequent, those important to living systems
10. role of elements in plants, animals & prokaryotes
11. H2O

a. properties, resulting characteristics, applications for organisms

1. pH scale

a. H+ and OH- concentrations, affects, effects, buffers

1. Organic Chemistry:
2. Organic vs Inorganic

a. differentiate, where do hydrocarbons belong?

1. Monomers & Polymers

a. match monomers to polymers

1. Dehydration synthesis vs. hydrolysis
2. outline role & relationships between **specific** monomers & polymers
3. Structural formulas
4. differentiate monomers of macromolecules
5. recognition of 6 major functional groups & where occur
6. Carbohydrates
7. 3 groups: w/ min. 3 examples & their functions in animals & plants
8. Lipids:
9. min. 4 functions
10. comparison of energy storage ability to carbohydrates & proteins
11. saturated vs unsaturated structural differences
12. hydrophilic vs. hydrophobic… regions, characteristics, etc.
13. Proteins:
14. explain 4 levels or organization
15. differentiate fibrous & globular proteins w/min. 2 examples
16. give min. 5 functions with named example
17. Nucleic Acids
18. nucleotide composition & differentiation based on bases & sugars
19. Pyrimidines vs purines… ex., structure, bonding
20. Isomers
21. define, types, characteristics, applications
22. Short Answer:
23. Compare & contrast the 4 different nucleotides in DNA. Draw simple shapes to show how they bond together to form the double stranded DNA. Make sure that you label the parts as well as the covalent and hydrogen bonds.
24. Organic macromolecules are constantly being anabolized & catabolized in any living organism. What are the tow processes used by organisms to accomplish this? Sketch labeled diagram of a simplified lipid macromolecule to give a visual for the two processes.
25. What makes water so amazing as a molecule? Draw & label a diagram of multiple water molecules interacting with each other. State & describe any 2 properties/characteristics of water that are a result of the structural characteristics of water. Finally, explain how each of these two examples can be used by living organisms for their benefit.
26. Essay:
27. What are the levels of organization for proteins? What are the bonds involved in each of the levels, the shapes of each level, and examples for each of the levels. What would happen to the protein if the primary level of organization were to be changed? Give an example of the consequences of this change.
28. Test Format:
29. Multiple Choice (30) 30pts
30. Short Answer (3) 30pts
31. Essay (1) 20pts

TOTAL = 80pts