

Biology 11A Test 1 Study Guide

1. Life is defined by six general characteristics. What are they?
 - 1.
 - 2.
 - 3.
 - 4.
 - 5.
 - 6.
2. A species evolves webbed feet, which helps it to succeed in a particular environment. What characteristic of life is this example of?
3. Our bodies have different mechanisms for maintaining pH levels and body temperature. What characteristic of life is this an example of?
4. In lab we used what method to explore the living snail? Can you list the five steps of this method in order?

5. Fill in the atomic particles chart.

	Weight	Charge
Proton		
Electron		
Neutron		

6. An oxygen ion has 6 electrons, 8 protons, and 8 neutrons. What is the net weight and net charge of the atom?

7. Carbon-12 is a stable atom while Carbon-14 is an unstable, radioactive atom. This is because Carbon-14 contains more neutrons than its stable counterpart Carbon-12. What is Carbon-14 an example of?

8. Atoms are most stable when they contain ___ electrons in the first shell, and ___ electrons in the outer shell.

9. Fill in the chart:

Types of Bonds

A weak bond between polar molecules	
Electrons are _____	Covalent
Electrons are transferred	

10. What are the five properties of water that make it so important to life on Earth?

- 1.
- 2.
- 3.
- 4.
- 5.

11. All organic molecules contain the elements _____ and _____.

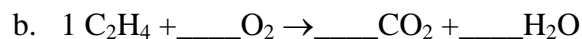
12. Water is a good solvent for dissolving sodium chloride. Draw a picture of what it would look like using sodium as a positive ion and chloride as a negative ion.

13. The pH of water is approximately 7, and the pH of coffee is around 5. How much more acidic is coffee than water?

What type of scale is pH?

14. Trees use water columns called xylem to suck water up from their roots, defying gravity. What properties of water allow this to happen?

15. Balance the following reactions:



16. In the above reactions, label the products and the reactants.

17. What is a polymer? Name the four discussed in class.

18. In a chemical synthesis reaction, what is the difference between hydrolysis and dehydration synthesis? Can you give an example of a polymer formed by dehydration synthesis?

19. Fill in the blanks

- a. Wax is an example of a _____
- b. Steroids are a type of _____
- c. DNA is an example of a _____
- d. _____ Contain 3 fatty acids and 1 glycerol
- e. _____ Have a polar head and a nonpolar tail
- f. _____ are polymers constructed from amino acid monomers
- g. _____ are the bonds between amino acid monomers

20. What factors affect a protein's shape?

21. Draw and label a general nucleotide. (basic structure, not the individual atoms)

22. What is the base-pairing sequence of DNA? What about RNA? Make up a DNA sequence 12 nucleotides long and then draw its complementary strand.

23. What are the four levels of protein structure?

24. Draw a picture of an animal cell and label: Membrane, Nucleus, Ribosome, Nucleolus, Chromatin, ER, Golgi, Peroxisome, Lysosome, mitochondria, vesicle, vacuole. Know what each of the organelle does in the cell.

25. Name the following types of cell junctions.

Forms a waterproof seal between cells

Allow for communication between cells

Link cells into tissues

26. What are the two Laws of Thermodynamics?

27. A reaction in which energy is released is _____.

A reaction which requires energy is _____.

Which of these reactions is ATP (an energy storing molecule) used to drive?

28. Give examples of kinetic and potential energy.

28. Draw an example of how an enzyme works to push a reaction forward. Can they drive non-spontaneous reactions?

29. What are the two ways to block the function of an enzyme? Draw a picture to show how each works.

30. Why are minerals and vitamin supplements important part of your diet?

- A. they are rich sources of energy
- B. they may act as coenzymes and cofactors of enzymes
- C. they are high in fats
- D. all of the above
- E. none of the above

9. Pick the order which shows the proper phases in glucose breakdown.

- a. Glycolysis→ Electron transport chain→ Krebs Cycle→ Acetyl-CoA formation
- b. Krebs Cycle→ Acetyl-CoA formation→ Glycolysis → Electron transport chain
- c. Glycolysis→ Acetyl-CoA formation→ Krebs Cycle→ Electron transport chain
- d. Krebs Cycle→ Electron transport chain→ Glycolysis→ Acetyl-CoA formation

Study Hard and Good Luck!!!