ENVIRONMENTAL STUDIES (SC111)
HOMEQUIZ 2 (Ch. 4) **Friday, January 31, 2014**
Due: Wednesday, February 5, 2014

NAME: _____

MULTIPLE CHOICE: (18 pts)

1. Which of the following is not an element of the scientific method?
   a) Observation
   b) Hypothesis
   c) Conventional knowledge
   d) Communication with other scientists
   e) Theory

2. Which of the following is not part of the nucleus of an atom?
   a) Electron
   b) Proton
   c) Neutron
   d) None of the above are parts of the nucleus of an atom

3. Which of the following is not a chemical compound?
   a) Sugar ($C_6H_{12}O_6$)
   b) Salt (NaCl)
   c) Oxygen (O_2)
   d) Sulfur dioxide (SO_2)

4. Which of the following is an example of organic matter?
   a) Sea salt
   b) Sand
   c) Cadmium
   d) Iron oxide
   e) Gasoline

5. Which of the following is a byproduct of photosynthesis?
   a) Oxygen
   b) Carbon dioxide
   c) Water
   d) None of the above

6. The smallest particle exhibiting the characteristics of an element is a/an
   a) Atom
   b) Molecule
   c) Isotope
   d) Ion

7. Atoms that have become either positively or negatively charged are called
   a) Atoms
   b) Molecules
   c) Isotopes
   d) Ions

8. Atoms of the same element but with different atomic mass are called
   a) Radioactive
   b) Molecules
   c) Isotopes
   d) Ions

9. Chemical bonds are
    a) Forces that hold atoms together
    b) An important form of potential energy
    c) A direct byproduct of photosynthesis
    d) All of the above

10. Organic compounds are those substances
    a) Found only in living organisms
    b) Containing long chain or rings of carbon
    c) Composed of atoms of a single element
    d) Exhibiting radioactive decay

11. Energy is defined as
    a) Sugar, gasoline, and other such substances
    b) Any chemical substance that can be broken down
    c) Heat
    d) The capability of doing work

12. The first law of thermodynamics states that
    a) matter and energy can readily be transformed into one another
    b) energy can neither be created nor destroyed under normal conditions
    c) energy cannot be shifted from one form to another
    d) matter cannot be shifted from one form to another

13. The second law of thermodynamics states that
    a) whenever energy is used, some becomes converted to a form difficult to use to do work (i.e.less concentrated)
    b) energy cannot be shifted from one form to another
    c) life forms cannot survive without energy
    d) energy exists in both potential and kinetic form

14. The central accomplishments of photosynthesis include
    a) converting solar energy into chemical bond energy
    b) providing the energy base for almost all life forms
    c) producing sugar form simple molecules
    d) all of the above

15. Cellular respiration is the process by which organisms
    a) release energy from sugar for metabolic use
    b) create complex organic molecules form simple molecules
    c) convert heat to chemical bond energy for metabolic work
    d) do more than one of the above

16. Photosynthesis occurs in
    a) All animals
    b) Soil particles
    c) Plants
    d) Fish

17. Anything that takes up space and has mass is termed
    a) Molecular
    b) Massive
    c) Molar
    d) Matter

18. A theory
    a) Is based on assumptions
    b) Can't explain why something happens
    c) May result from a hypothesis
    d) None of the above

TRUE OR FALSE: (10 pts)

_____ An hypothesis can not always be proven.

_____ Pollution is never created as a byproduct of energy conversion.

_____ The Scientific Method begins with an observation.

_____ Matter may be solid, liquid or gas depending on the amount of available energy.

_____ Energy can be destroyed by certain types of chemical reactions.

_____ Many common bases release hydroxide (OH^-) ions.

_____ The ocean is a good example of a system that has a high quantity of energy, but low quality energy.

_____ The second law of thermodynamics says that, when converting energy from one form to another, there can be a loss (dissipation) of useful energy (i.e. energy is dissipated into a less concentrated form).

_____ An acid is an ionic compound that releases hydrogen ions in solution.

_____ A scientific theory is an idea or a hunch that a scientist has about a particular phenomenon.

DEFINITIONS: (12 pts)

_____ The energy of position

_____ A kind of matter consisting of two or more kinds of matter intermingled with no specific ratio of the kinds of matter

_____ The process that organisms use to release chemical bond energy from food

_____ Any substance that, when dissolved in water, releases hydrogen ions

_____ The basic subunit of elements, composed of protons, neutrons, and electrons

_____ Substance with measurable mass and volume

_____ Energy of moving objects

_____ Atoms of the same element that have different numbers of neutrons

_____ A logical statement that explains an event or answers a question that can be tested

_____ The ability to do work

_____ Any substance that, when dissolved in water, removes hydrogen ions from solution; forms a salt when combined with an acid.

_____ The positively charge particle located in the nucleus of an atom.

A- Acid	B- Isotope	C-Atom
D- Energy	E- Potential Energy	F- Base
G- Hypothesis	H- Theory	I- Matter
J- Respiration	K- Photosynthesis	L- Mixture
M- Kinetic Energy	N- Entropy	O- Proton
P- Neutron	Q- Compound	R- Scientific method