Name: _____

Homework Assignment #1

1) A phospholipid is usually:
   A) partially hydrophilic and partially hydrophobic.
   B) hydrophobic.
   C) hydrophilic.
   D) neither hydrophilic nor hydrophobic.

2) In general, the category of lipids that we refer to as oils have:
   A) a high water content.
   B) short fatty acid chains.
   C) a high degree of saturated bonds.
   D) a high degree of unsaturated bonds.

3) The genetic information is coded in DNA by:
   A) the regular alteration of sugar and phosphate molecules.
   B) the sequence of the nucleotides.
   C) the three-dimensional structure of the double helix.
   D) the structure of the histones.

4) Which of the following is not true of proteins?
   A) May be denatured or coagulated by heat or acidity.
   B) Some types are called enzymes.
   C) Appear to be the molecular carriers of the coded hereditary information.
   D) Function depends on the three-dimensional shape.

5) The single most abundant protein in the body is:
   A) DNA.
   B) hemoglobin.
   C) collagen.
   D) glucose.

6) Carbohydrates are stored in the liver and muscles in the form of:
   A) glucose.
   B) triglycerides.
   C) glycogen.
   D) cholesterol.

7) Coenzymes are:
   A) organic molecules derived from vitamins.
   B) two enzymes that perform the same function.
   C) metal ions.
   D) enzymes that work together.

8) The speed or rate of a chemical reaction is influenced by all of the following except:
   A) the concentration of the reactants.
   B) the temperature.
   C) the presence of catalysts or enzymes.
   D) the presence or absence of carbon.

9) A chemical reaction in which bonds are broken is associated with:
A) the release of energy.
B) the consumption of energy.
C) a synthesis.
D) forming a larger molecule.

10) A chain of 25 amino acids would be called a:
A) peptide.
B) nucleotide.
C) protein.
D) starch.

11) The coiling of the protein chain backbone into an alpha helix is referred to as the:
A) primary structure.
B) secondary structure.
C) tertiary structure.
D) quaternary structure.

12) Carbohydrates and proteins are built up from their basic building blocks by the:
A) addition of a water molecule between each two units.
B) addition of a carbon molecule between each two units.
C) removal of a water molecule between each two units.
D) removal of a nitrogen atom between each two units.

13) Which statement about enzymes is false?
A) Enzymes raise the activation energy needed to start a reaction.
B) Enzymes are composed mostly of protein.
C) Enzymes are organic catalysts.
D) Enzymes may be damaged by high temperature.

14) Select the statement that is most correct regarding chemical bonds.
A) Covalent bonding involves the transfer of one or more electrons from one atom to another.
B) Multiple bonds are not possible with covalent bonding.
C) Hydrogen bonds are very weak and often involve water.
D) Ionic bonds involve the sharing of electrons between two atoms.

15) Select which reactions will usually be irreversible regarding chemical equilibrium in living systems.
A) complete glucose decomposition
B) ADP + Pi to make ATP
C) $H_20 + CO_2$ to make H_2CO_3
D) glucose molecules joined to make glycogen

16) In redox reactions:
A) both decomposition and electron exchange occur.
B) the electron acceptor is oxidized.
C) the electron donor is reduced.
D) the reaction is always easily reversible.

17) Fibrous proteins:
A) rarely exhibit secondary structure.
B) are very stable and insoluble in water.
C) are usually called enzymes.
D) are cellular catalysts.

18) Globular proteins:
A) exhibit tertiary structure.
B) are water soluble and usually chemically inactive.
C) are usually called enzymes.
D) are cellular catalysts.

19) Select the most correct statement regarding nucleic acids.
A) Three forms exist: DNA, RNA, and TDNA.
B) DNA is a long, double-stranded molecule made up of A, T, G, and C nucleotides.
C) RNA is a long, single-stranded molecule made up of the nucleotides A, T, G, and C.
D) TDNA is considered a molecular slave of DNA.

20) The four elements that make up about 96% of body matter are:
A) carbon, oxygen, phosphorus, calcium.
B) nitrogen, hydrogen, calcium, sodium.
C) carbon, oxygen, hydrogen, nitrogen.
D) sodium, potassium, hydrogen, oxygen.