Unit 2 Assignment

Name: _____ Date: _____ Score: _____/40

1. Water is a stable molecule
    a. True
    b. False
2. The bonds that hold oxygen and hydrogen together in a water molecule are covalent bonds.
    a. True
    b. False
3. Water is an organic molecule.
    a. True
    b. False
4. The hydrogen atoms in a water molecule tend to be slightly negative and the oxygen atom tends to be slightly positive.
    a. True
    b. False
5. Water molecules can bond to other water molecules by hydrogen bonding.
    a. True
    b. False
6. Water is a non-polar molecule
    a. True
    b. False
7. Water is a universal solvent
    a. True
    b. False
8. A buffer's main function is to _____.
    a. Release energy in a chemical reaction
    b. Decrease the activation energy required for a reaction to occur
    c. Maintain a constant pH
    d. Carry oxygen to the mitochondria for cellular respiration

9. When water dissociates, it releases _____.
    a. Equal amounts of H+ and OH-
    b. Greater amounts of H+ and OH-
    c. Greater amounts of OH- than H+
    d. Only OH- ions
10. If the pH of human blood becomes higher than the average pH or 7.4, what must have occurred and what can be done to bring the pH back to normal?
    a. OH- has been added to the blood, and OH- must be added to bring it back to normal
    b. H+ has been added to the blood, and H+ must be added to bring it back to normal
    c. H+ may have been added, and buffers may be able to bring it back to normal
    d. OH- may have been added and buffers may be able to bring it back to normal

Write the letter of the term in Column A beside the definition in Column B. You may use the terms more than once.

Column A	Column B	
A. CH_2O_n	11. The elements carbon hydrogen, and oxygen are generally found in a ratio of 1:2:1	
B. Carbohydrates	12. The process of dehydration synthesis joins two monosaccharides to form this structure.	
13. Carbon	13. Each of these sugars has a similar chemical formula of $C_6H_{12}O_6$ but different structural arrangements.	
14. Cellulose	14. Plants store glucose as the molecules, which are composed of up to 4000 glucose units.	
15. Disaccharide	15. Animals store glucose as this.	
16. Glycogen	16. Reaction in which the addition of water (H2O) causes the sub-units of the macromolecule to separate and degradation takes place.	
17. Hydrolysis reaction	17. A polysaccharide found in a plant cell wall.	
18. Monosaccharides	18. The empirical or simplest formula of any carbohydrates.	
19. Starch	19. Makes up fibre that absorbs toxins as it moves through the intestinal tract of an animal's digestive system.	
	20. Because _____ has the ability to bond to four different atoms, the formation of a wide variety of organic molecules for living things is possible.	

21. Most _____ are _____.
    a. Sugars, monosaccharides
    b. Proteins, catalysts
    c. Enzymes, steroids
    d. Proteins, enzymes
22. Which of the following is not an organic molecule?
    a. Proteins
    b. Lipids
    c. Carbohydrates
    d. Table salt (NaCl)
23. Which of the following is not true about proteins?
    a. Proteins are polymers made of amino acid sub-units
    b. They contain a sugar-phosphate backbone
    c. Antibodies are proteins
    d. They make up much of the structural support in the tissues of our bodies
24. Which of the following statements is/are true about DNA?
        I. DNA has a sugar-nitrogen backbone
        II. DNA has a double helix structure
        III. The base adenine (A) will always bond with thymine (T)
        IV. The base thymine (T) will always bond with guanine (G)
    a. II ONLY
    b. I, II and III only
    c. II and III only
    d. All of the above are correct
25. _____ make up most of the cell membrane and are constructed like _____, except a phosphate group takes the place of one of the fatty acids.
    a. Carbohydrates, amino acids
    b. Phospholipids, proteins
    c. Glycoproteins, proteins
    d. Phospholipids, fats

26. Which of the following organic molecules is/are considered a lipid?

    I. Neutral fats

    II. Steroids

    III. Phospholipids

    IV. oils

    a. I only
    b. I and III only
    c. II and III only
    d. All of the above

27. _____ is the precursor of _____.

    a. Testosterone, cholesterol
    b. Cholesterol, lipids
    c. Cholesterol, testosterone and estrogen
    d. Testosterone and estrogen, cholesterol

28. Which of the following statements is NOT TRUE about phospholipids?

    a. They are constructed like fats, except in place of the third fatty acids, they have a polar phosphate group.
    b. The non-polar head is insoluble in water.
    c. The phospholipid molecules arrange themselves as bilayer in the plasma membrane of a cell.
    d. The non-polar tails face each other making up the internal structure of the phospholipid bilayer.

29. _____ are made of one glycerol and three fatty acid molecules that can be recognized by their –COOH ending.

    a. Steroids
    b. Phospholipids
    c. Triglycerides
    d. All of the above

30. _____ are liquids at room temperature and have _____ bonds between any two carbon atoms.
    a. Saturated fats, single
    b. Lipids, triple
    c. Unsaturated fats, single
    d. Unsaturated fats, double
31. Which of the following statement(s) about proteins is/are true?
        I. Proteins sometimes contain Sulphur
        II. Proteins are commonly made of carbon, hydrogen, oxygen, and nitrogen.
        III. Proteins are made of more than thirty different types of amino acids.
        IV. The amino acids that make up proteins have a central carbon atom bonded to a hydrogen atom and three groups.
    a. I and II only
    b. II and III only
    c. I, II, and IV only
    d. II, III, and IV only
32. Which of the following statements about enzymes is/are true?
        I. They speed up chemical reactions by putting energy into chemical reactions.
        II. Their function is determined by the tertiary structure of the protein.
        III. They can be identified by their –ate endings.
        IV. They are involved in blood clotting, synthesis, and digestion.
    a. I only
    b. I, II and III only
    c. II and IV only
    d. All of the above
33. Which of the following is/are a function of membrane proteins?
    a. They act as channels or pores.
    b. They act as carriers across the cell membrane.
    c. They function as pumps.
    d. All of the above.

34. Which of the following is not true about the primary structure of proteins?
    a. They are linear in sequence.
    b. Amino acids are linked by ionic bonds
    c. Bonds are formed between amino acids by dehydration synthesis.
    d. The twisting of a primary protein looks like a secondary protein
35. The joining of two amino acids is called:
    a. A covalent compound
    b. A peptide bond
    c. A dehydration reaction
    d. All of the above
36. Who were the first scientists to describe DNA as a double helix structure?
    a. Watson and Rutherford
    b. Rutherford and Crick
    c. Mandeleev and Watson
    d. Watson and Crick
37. Which of the following is not a sub-unit of a nucleotide?
    a. Phosphoric acid
    b. A phosphorus-containing base
    c. The sugar deoxyribose or ribose
    d. All of the above are units that make up a nucleotide
38. ATP is composed of all but the following:
    a. Adenine
    b. Thymine
    c. A ribose 5-sided sugar
    d. Three phosphate groups
39. How does ATP release energy to drive chemical reactions in the cell?
    a. The last two phosphate bonds are unstable and easily broken, releasing large amounts of energy
    b. The last phosphate bond is hydrolyzed
    c. ATP is changed to ADP and reused later
    d. All of the above are correct

40. What base is found in RNA but not DNA?

    a. Adenine
    b. Thymine
    c. Uracil
    d. Cytosine