Bio 112 Practice Exam 1: Scientific Method and Basic Chemistry

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. When an overwhelming body of observations and measurements supports a scientific hypothesis or group of related hypotheses, it becomes a(n)
   a. hypothesis
   b. scientific law
   c. scientific variable
   d. scientific theory
   e. conclusion

2. Hypotheses are
   a. often in the form of a statement.
   b. sometimes generalizations.
   c. sometimes crude attempts to offer a possible explanation for observations.
   d. used to make predictions.
   e. all of these

3. In order to test a hypothesis, a scientist usually devises one or more
   a. laws.
   b. theories.
   c. experiments.
   d. principles.
   e. facts.

4. The control in an experiment
   a. makes the experiment less valid.
   b. is an additional copy for statistical purposes.
   c. reduces the experimental errors.
   d. minimizes experimental inaccuracy.
   e. allows a standard of comparison for the experimental group.

5. Which of the following is NOT used in the development of science?
   a. evaluation of data
   b. personal conviction
   c. prediction
   d. systematic observation
   e. experiments

6. Which of the following is not related to the General Linear Model?
   a. ANOVA
   c. Correlation
   d. Regression

7. What statistical analysis tests for a significant difference among more than two variables?
   a. ANOVA
   c. Correlation
   d. Regression

8. What General Linear Model analysis would determine whether two variables are related?
   a. ANOVA
   c. Correlation
   d. Regression
9. The most basic building block of matter is a(n)
   a. atom
   b. element
   c. molecule
   d. compound
   e. ion

10. The atomic number is the number of
    a. atoms in a molecule
    b. protons in an atom
    c. neutrons in a molecule
    d. electrons in an atom
    e. protons, electrons, and neutrons

11. Hydrophobic molecules are _?_ water.
    a. attracted to
    b. absorbed by
    c. repelled by
    d. mixed with
    e. polarized by

12. The measurement of the concentration of hydrogen ions in a solution is called
    a. ionization
    b. pH
    c. alkalinity
    d. covalent bonding
    e. isotope

13. A salt will dissolve in water to form
    a. acids.
    b. gases.
    c. ions.
    d. bases.
    e. polar solvents.

14. Carbon usually forms how many bonds with other atoms?
    a. 2
    b. 3
    c. 4
    d. 5
    e. 6

15. The monomer for the protein polymer is the
    a. hydrocarbon
    b. glycerol
    c. amino acid
    d. carbohydrate
    e. nucleotide

16. Which of the following could be used to describe a monomer of carbohydrates?
    a. glycogen
    b. nucleotide
    c. simple sugar
    d. monosaccharide
    e. both simple sugar and monosaccharide
17. Which of the following are lipids?
   a. sterols
   b. triglycerides
   c. oils
   d. waxes
   e. all of these

18. Amino acids are linked by what kind of bonds to form the primary structure of a protein?
   a. disulfide
   b. hydrogen
   c. ionic
   d. peptide
   e. none of these

19. The negative subatomic particle is
   a. the neutron.
   b. the proton.
   c. the electron.
   d. both the neutron and proton.
   e. both the proton and electron.

20. The positive subatomic particle is
   a. the neutron.
   b. the proton.
   c. the electron.
   d. both the neutron and proton.
   e. both the proton and electron.

21. The neutral subatomic particle is
   a. the neutron.
   b. the proton.
   c. the electron.
   d. both the neutron and proton.
   e. both the proton and electron.
22. The formation of the molecule in figure "B" is the result of
   a. hydrolysis.
   b. cleavage.
   c. condensation.
   d. ionization.
   e. randomization.

23. In figure "D" the polar portion of the molecule is
   a. upper "head."
   b. lower "tails."

24. In figure "C" the unsaturated fatty acid is
   a. on the left.
   b. in the middle.
   c. on the right.

25. The molecule in figure "A" is
   a. polar.
   b. a protein.
   c. ionized.
   d. a sterol.
   e. water soluble.
Bio 112 Practice Exam 1: Key
Answer Section

MULTIPLE CHOICE

1. D
2. E
3. C
4. E
5. B
6. B
7. A
8. C
9. A
10. B
11. C
12. B
13. C
14. C
15. C
16. E
17. E
18. D
19. C
20. B
21. A

SHORT ANSWER

22. C
23. A
24. C
25. D