Name: _____ Period: _____ Date: _____

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I. Write the scientific term for each of the following statements:

1. The concise description which is universally true under specific conditions. (_____)
2. The sciences that are mainly concerned with the study of non-living objects. (_____)
3. A proposed explanation based on evidence that can be investigated to prove whether it is right or wrong. (_____)
4. A scientific procedure that is carried out to validate whether a hypothesis is correct. (_____)
5. The series of steps that engineers follow to come up with a solution to a problem. (_____)
6. The first step in the technological design process in which the engineers highlight the problem.(_____)
7. The smallest building block of matter.(_____)
8. The bond in which the electrons are unequally shared between the two atoms of different elements.(_____)
9. The process in which the chemical bonds between atoms are formed or broken.(_____)
10. The type of bond that is responsible for the unique properties of water.(_____)
11. A long chain of repeating molecules.(_____)
12. The molecule that forms when two monosaccharides join via a condensation reaction. (_____)
13. The chemical signals that are released by endocrine glands.(_____)
14. The building blocks of nucleic acids.(_____)
15. A chemical reaction which breaks down the polymer.(_____)

II. Multiple Choice: Select the best answer.

1. Which of the following is not a feature of scientific theory? _____.

a) It is usually formed from multiple hypotheses.
b) It is more certain than a scientific law or hypothesis
c) It has been extensively tested
d) It is dynamic

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2. Which of the following does not mean that an experiment is valid?
   a) Only one variable has been changed
   b) All other variables have been controlled
   c) Accurate measuring instruments were used
   d) The hypothesis was incorrect

3. Which of the following is not a feature of a hypothesis?
   a) It is supported by scientific evidence
   b) It can form a testable question called an aim.
   c) It must be correct in order to be valid
   d) It provides the experiment with direction

4. _____ are mainly concerned with the study of living organisms.
   a) Social sciences
   b) Formal sciences
   c) Life sciences
   d) Physical sciences

5. _____ is the final step of the scientific method that justifies the results and the reliability of the investigation.
   a) Evaluation
   b) Hypothesis
   c) Interpretation
   d) Observation

6. _____ are macromolecules that are able to transfer information from one parent to offspring.
   a) Carbohydrates
   b) Proteins
   c) Lipids
   d) Nucleic acids

7. _____ is the property that makes water able to dissolve many compounds.
   a) Polarity
   b) High boiling point
   c) Neutral
   d) High melting point

8. _____ are the monomers of the protein molecules.

a) Nucleic acids
b) Amino acids
c) Monomers
d) Nucleotides

9. What is the function of enzymes?

a) Quick energy
b) Movement
c) Serve as thermal insulator
d) Speeding up biochemical reactions

10. _____ functions as energy storage molecule in mammalian muscles.

a) Starch
b) Glucose
c) Glycogen
d) Cellulose

III. Compare:

1. Monosaccharides and disaccharides.

_____

_____

_____

_____

2. Polar covalent bonds and ionic bonds.

_____

_____

_____

_____

_____

_____

3. Science and technology.

4. Social sciences and formal sciences.

5. Saturated and unsaturated fatty acids.

IV. Outline the steps in the technological design process.

V. What is the relationship between glucose, fructose, and sucrose?

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VI. Each sentence below describes a step of the scientific method. **Match each sentence from column A with a step of the scientific method listed in column B.**

Column A	Column B
1. Stephen predicted that seeds would start to grow faster if an electric current traveled through the soil in which they were planted. _____ 2. Jonathan's data showed that household cockroaches moved away from raw cucumber slices. _____ 3. Kathy used a survey to determine how many of her classmates were left-handed and how many were right-handed. _____ 4. Justin wondered if dyes could be taken out of plant leaves, flowers, and stems. _____	A. Recognize a problem B. Form a hypothesis C. Test the hypothesis with an experiment D. Draw conclusions

VII. **Draw the general chemical structure of an amino acid and describe how the structure of an amino acid determines its function.**

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VIII. Why is the water molecule polar? What are the consequences of this property?

IX. Explain how a hypothesis can become a theory, and then a scientific law.