PRACTICE TEST: CLASSIFICATION OF MATTER

1. The following data was collected by students in lab.

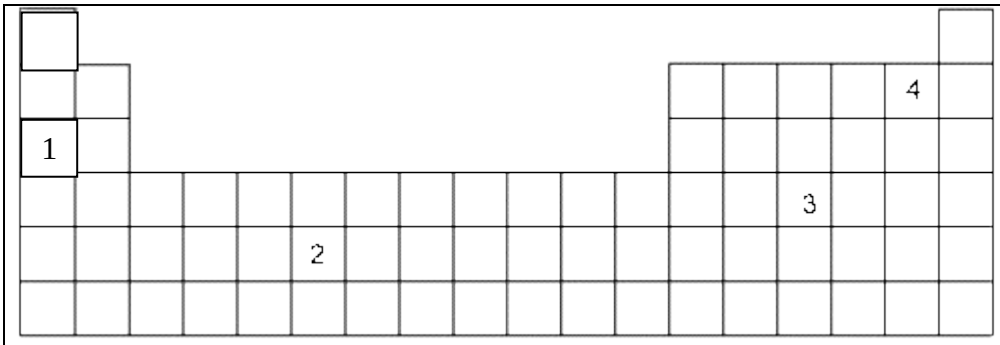
Element	Appearance	Results of Crushing	Conductivity
X	dull, yellow powder	brittle	no
Y	very shiny, gray	malleable	yes
Z	shiny, silver/gray	malleable	yes

Classify the three elements based on the data above.

A X is a metal, Y is a nonmetal, Z is a metal
B X is a metal, Y is a nonmetal, Z is a nonmetal
C X is a nonmetal, Y is a nonmetal, Z is a metal
D X is a nonmetal, Y is a metal, Z is a metal

2. How would you classify an element that is brittle, does not react with acid, and conducts electricity?

A metal B nonmetal C metalloid D nonmetalloid



3. Based on the periodic table above, what do the numbers 1, 2, 3, and 4 represent?

A metal, metal, nonmetal, metalloid
B metal, metal, metalloid, nonmetal
C nonmetal, nonmetal, metal, metalloid
D nonmetal, metal, metalloid, metal

4. A student is given several mixtures to test and classify. The results are provided in the table below.

	Shake Container/Wait 5 min	Shine Light
Sample A	After waiting 5 minutes the particles in the mixture have fallen to the bottom of the container.	Light does not easily pass through the mixture.
Sample B	No difference after shaking.	Light passes through the liquid.
Sample C	No difference after shaking.	Light spreads out and is visible in the liquid. Some passes though.

Based on the data above, what are the mixtures?

A solution, suspension, colloid C colloid, solution, suspension
B solution, colloid, suspension D suspension, solution, colloid

5. Brass is made up of a mixture of copper and zinc and is often used to make musical instruments because of its acoustic properties. Which of the following is a term for a mixture of two or more metals?

A alloy
B compound
C colloid
D homogenous mixture

6. Which of the following can be used to separate salt crystals from a solution of saltwater?

A filtering the solution through a paper filter
B adding more water to the solution
C freezing the solution very quickly
D using heat to evaporate the water

7. Which of the following best describes a compound?

A can be easily separated into its elements in the lab
B has a variable composition
C consists of more than one type of atom chemically bonded
D can consist only of liquids

8. Choose the best description for a mixture of salt and water.

A homogenous mixture
B heterogeneous mixture
C compound
D pure substance

9. Air is a mixture of nitrogen (about 78%), oxygen (about 21%), argon (about 1%), and carbon dioxide (about 0.03%). Which of the choices below best describes air?

A pure substance
B homogenous mixture
C heterogeneous mixture
D compound

10. A drop of a clear liquid is placed on a microscope slide and allowed to evaporate. Viewing the slide under a microscope white crystals are visible. What term describes the liquid?

A a pure substance
B a solution
C an element
D an alloy

11. Which of the following is a process representing a physical change?

A evaporation of water
B formation of H_2O from $H_2 + O_2$
C the reaction between Cu + S
D formation of a precipitate

12. A student drops 5 grams of a solid substance in a test-tube filled with a clear liquid. Bubbles begin to from immediately. After several minutes the solid has disappeared and a black substance can now be seen at the bottom of the test-tube. Based on the information provided, what has taken place in the test-tube?

A the water has become warmer
B the water has become colder
C a physical change has taken place
D a chemical change has taken place

13. Select the response that lists **only** physical changes.

A photosynthesis, burning paper, digesting food
B grinding chalk, burning paper, boiling water
C grinding chalk, melting ice, breaking glass
D melting plastic, lighting a match, hair growing

14. Small pieces of cork and sand are mixed together in a beaker. What physical property would allow you to easily separate them?

A solubility B density/buoyancy C boiling point D melting point

Brief Constructed Responses
(on your own paper)

1. A student plans to conduct an inquiry project that involves the use of hydrochloric acid, a corrosive substance. Describe the steps the student should take before, during, and after the investigation.

2. Describe how you would separate a mixture of water, sand, sugar, and marbles based on their physical properties. In your description be sure to include:

- any laboratory equipment you would use
- the steps you would take to separate the mixture
- the physical properties that allow you to separate the substances
- a flowchart giving an overview of the process

3. Compare and contrast physical and chemical changes. Give a real-world example of each and explain your reasoning why it is either chemical or physical.