

Name: _____

Date: _____

- [10 pt] 1. Complete the following table:
 Shape and Volume Columns: (D)efinite or (I)ndefinite.
 Compressibility: (H)igh, (L)ow, and (N)one.
 Picture: Sketch a picture. Attractive Forces (S)trong, (W)eak, (N)one

State	Shape	Volume	Compressibility	Picture	Attractive Forces
Solid					
Liquid					
Gas					

- [5 pt] 2. Do the following statements best describe a (S)olid, (L)iquid, or (G)as?
- | | |
|---|------------|
| (a) The atoms are very close to each other. | 2(a) _____ |
| (b) The atoms are very far apart from each other. | 2(b) _____ |
| (c) Easily compressible. | 2(c) _____ |
| (d) Fills any container fully. | 2(d) _____ |
| (e) The attractive force holding the atoms together is very weak. | 2(e) _____ |

- [4 pt] 3. Matter may be classified as either a Pure Substance or a Mixture. What **TWO** properties can be used to distinguish between them?

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[5 pt] 4. Identify the following as either a (P)ure substance or a (M)ixture. **Explain** your answer based on your observations of the item.

(a) A glass of Kool-Aid 4(a) _____

(b) Potassium Iodide (KI) 4(b) _____

(c) N₂ 4(c) _____

(d) Smog 4(d) _____

(e) Milk 4(e) _____

[2 pt] 5. What property can be used to distinguish between a homogeneous mixture and a heterogeneous mixture?

[5 pt] 6. Identify the following mixtures as either homogeneous (S) or heterogeneous (D). Explain your answer based on the physical observations of the mixture.

(a) Hot chocolate 6(a) _____

(b) Smog 6(b) _____

(c) Sugar water 6(c) _____

(d) Chocolate chip cookies 6(d) _____

(e) Brass 6(e) _____

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[4 pt] 7. What are the (2) main differences between physical and chemical properties (or changes)?

[5 pt] 8. Identify the following as a (P)hysical property or (C)hemical property.

(a) Melting Point

8(a) _____

(b) Smell

8(b) _____

(c) Toxicity

8(c) _____

(d) Changes from a liquid to a gas

8(d) _____

(e) Flammable

8(e) _____

[4 pt] 9. Define the terms Intensive property and Extensive property. Give 2 examples of each.

[3 pt] 10. What is the empirical formula for each molecular formula?

(a) C_6H_6

10(a) _____

(b) B_2H_6

10(b) _____

(c) $SiCl_4$

10(c) _____

[2 pt] 11. What do subscripts mean in a chemical formula? Which subscript do we never use? Why?

[2 pt] 12. What do parenthesis mean in a chemical formula? How will we know when to use them?

[10 pt] 13. How many atoms of the indicated element are in each formula:

- | | |
|---|-------------|
| (a) Hydrogen in H_2SO_4 | 13(a) _____ |
| (b) Carbon in H_2CO_3 | 13(b) _____ |
| (c) Oxygen in H_2CO_3 | 13(c) _____ |
| (d) Nitrogen in $(\text{NH}_4)_2\text{SO}_4$ | 13(d) _____ |
| (e) Hydrogen in $(\text{NH}_4)_2\text{SO}_4$ | 13(e) _____ |
| (f) Oxygen in $(\text{NH}_4)_2\text{SO}_4$ | 13(f) _____ |
| (g) Nitrogen in NH_4NO_3 | 13(g) _____ |
| (h) Nitrogen HNO_3 | 13(h) _____ |
| (i) Hydrogen in $\text{HC}_2\text{H}_3\text{O}_2$ | 13(i) _____ |
| (j) Chlorine in CCl_4 | 13(j) _____ |

[4 pt] 14. Interpret the difference in meaning between the following pairs:

- (a) Si and SI

- (b) Pb and PB

- (c) 4P and P_4

- (d) CO and Co