

Name: \_\_\_\_\_

Group: \_\_\_\_\_

Date: \_\_\_\_\_

## Practice Comp #1 Chem 6

- Aluminum has become a liquid at  $660^{\circ}\text{C}$  and becomes a gas at  $2,467^{\circ}\text{C}$ . During a lab experiment, a piece of aluminum is heated from  $25^{\circ}\text{C}$  to  $700^{\circ}$ . What phase change has this metal experienced?
  - The aluminum has melted.
  - The aluminum has condensed.
  - The aluminum has deposited.
  - The aluminum has evaporated.
- How many neutrons are in the following carbon atom,  ${}^{14}_{6}\text{C}^{-4}$ ?
  - Fourteen
  - Eight
  - Six
  - Twenty
- Alkaline earth metals are most likely to have what charge?
  - 1
  - 2
  - +1
  - +2
- Which of the following elements is found in Period 3 and Group 4A?
  - Scandium (Sc)
  - Gallium (Ga)
  - Carbon (C)
  - Silicon (Si)
- Atoms of which of the following neutral elements has the electron configuration  $1s^2 2s^2 2p^6 3s^2 3p^5$ ?
  - Carbon
  - Fluorine
  - Phosphorus
  - Chlorine

6. A particular substance is brittle and has a very high melting point. This substance is most likely to be a(n) \_\_\_\_\_ .

- A. Ionic compound
- B. Covalent compound
- C. Metal
- D. Gas

7. A substance has been identified as an ionic compound. As such it can be expected to \_\_\_\_\_.

- A. Have a low melting point.
- B. Increase the electrical conductivity of water.
- C. Be malleable. In other words, it can be dented.
- D. Share electrons between atoms.

8. What is the chemical name for  $\text{Ca}_3(\text{PO}_4)_2$ ?

- A. Calcium phosphate
- B. Tricalcium diphosphate
- C. Calcium (II) phosphate
- D. Calcium phosphide

9. What is the chemical formula for chromium (III) chloride?

- A.  $\text{Cr}_3\text{Cl}$
- B.  $\text{CrCl}_3$
- C.  $\text{Cr}_2\text{Cl}_3$
- D.  $\text{Cr}(\text{III})\text{Cl}$

10. A covalent compound is likely to \_\_\_\_\_.

- A. Have a have a low boiling point.
- B. Be brittle.
- C. Be hard.
- D. Completely transfer electrons from one atom to another creating ions.

11. What is the chemical name for  $\text{N}_2\text{O}_3$ ?

- A. Nitrogen oxide
- B. Nitrogen (III) oxide
- C. Dinitrogen trioxide
- D. Tetranitrogen trioxide

12. Timmy has gone to an alien world and brought back a piece of metal. It is likely to possess which of the following properties?

- A. Low melting point
- B. Good conductor of electricity
- C. Brittle
- D. Soft

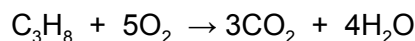
13. An atom has one valence electron. It is most likely to be a(n) \_\_\_\_\_.

- A. Nonmetal
- B. Midichlorian
- C. Metalloid
- D. Metal

14. Which of the following is an example of a synthesis reaction?

- A.  $\text{PCl}_3 + 3\text{H}_2\text{O} \rightarrow \text{H}_3\text{PO}_3 + 3\text{HCl}$
- B.  $\text{NH}_4\text{Cl} \rightarrow \text{HCl} + \text{NH}_3$
- C.  $2\text{NO} + \text{O}_2 \rightarrow 2\text{NO}_2$
- D.  $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow 2\text{Fe} + \text{Al}_2\text{O}_3$

15. Twenty two grams of propane are combusted with 80 grams of oxygen according to the following chemical equation. 36 grams of  $\text{H}_2\text{O}$  are produced. How many many grams of  $\text{CO}_2$  will also be produced?



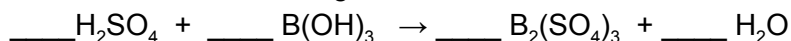
- A. 102 g  $\text{CO}_2$
- B. 132 g  $\text{CO}_2$
- C. 66 g  $\text{CO}_2$
- D.  $1.8 \times 10^{24}$  g  $\text{CO}_2$

16. What are the coefficients in the following chemical formula when it is balanced?



- A. 2, 3, 2
- B. 2, 1, 3,
- C. 3, 1, 2
- D. 2, 2, 3

17. What are the coefficients in the following chemical formula when it is balanced?



- A. 1, 4, 3, 2
- B. 3, 2, 1, 6
- C. 5, 1, 2, 7
- D. 1, 2, 1, 2

18. Which of the following is a necessary reactant in combustion reactants?

- A.  $\text{O}_2$
- B.  $\text{H}_2\text{O}$
- C.  $\text{CO}_2$
- D. A hydrocarbon ( $\text{CH}_4$ ,  $\text{C}_2\text{H}_6$ , etc)

19. How many molecules are contained in 3.7 moles of  $\text{H}_2\text{O}_2$ ?
- $6.14 \times 10^{-24}$  molecules  $\text{H}_2\text{O}_2$
  - 126 molecules  $\text{H}_2\text{O}_2$
  - $6.02 \times 10^{23}$  molecules  $\text{H}_2\text{O}_2$
  - $2.2 \times 10^{24}$  molecules  $\text{H}_2\text{O}_2$
20. A sample of potassium (K) contains  $4.3 \times 10^{24}$  atoms. How many moles of potassium is this?
- 5.6 mol K
  - 7.1 mol K
  - 9.0 mol K
  - 0.7 mol K
21. What is the mass in grams of 1.8 moles of calcium fluoride?
- 106.2 g
  - 140.4 g
  - 55.8 g
  - 90.0 g
22. A sample of aluminum nitrate has a mass of 891 g. How many moles is this?
- 4.18 moles
  - 15.6 moles
  - 5.9 moles
  - 4.6 moles
23. If 2.9 moles of potassium hydroxide are reacted with excess iron (III) sulfate, how many moles of iron (III) hydroxide will be produced?
- $$\text{Fe}_2(\text{SO}_4)_3 + 6\text{KOH} \rightarrow 3\text{K}_2\text{SO}_4 + 2\text{Fe}(\text{OH})_3$$
- 8.7 moles  $\text{Fe}(\text{OH})_3$
  - 0.96 moles  $\text{Fe}(\text{OH})_3$
  - 1.45 moles  $\text{Fe}(\text{OH})_3$
  - 5.8 moles  $\text{Fe}(\text{OH})_3$
24. According to the following equation, how many moles of lithium sulfate are required to produce 6.1 moles of lithium phosphate?
- $$\underline{\hspace{1cm}} \text{Li}_2\text{SO}_4 + \underline{\hspace{1cm}} \text{K}_3\text{PO}_4 \rightarrow \underline{\hspace{1cm}} \text{Li}_3\text{PO}_4 + \underline{\hspace{1cm}} \text{K}_2\text{SO}_4$$
- 4.1 moles  $\text{Li}_2\text{SO}_4$
  - 9.2 moles  $\text{Li}_2\text{SO}_4$
  - 12.2 moles  $\text{Li}_2\text{SO}_4$
  - 18.3 moles  $\text{Li}_2\text{SO}_4$