

**Chemistry Placement Exam  
Practice Problems**

Name \_\_\_\_\_

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

1) How many hydrogen atoms are represented in the formula  $(\text{CH}_3)_2\text{CH}_2$ ? 1) \_\_\_\_\_

- A) 8                      B) 6                      C) 9                      D) 5

2) Which has the highest percent mass of Cl? 2) \_\_\_\_\_

- A)  $\text{C}_2\text{Cl}_6$                       B)  $\text{CCl}_4$                       C)  $\text{C}_2\text{Cl}_4$                       D)  $\text{C}_2\text{Cl}_2$

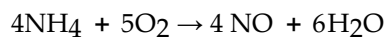
3) The correct formula for Sodium Nitride is: 3) \_\_\_\_\_

- A)  $\text{Na}_3\text{N}$                       B)  $\text{NaNO}_2$                       C)  $\text{NaNO}_3$                       D)  $\text{Na}_2\text{NO}_3$

4) How many moles of  $\text{NO}_3$  are there in 6.2g? 4) \_\_\_\_\_

- A) 0.05                      B) 10                      C) 0.10                      D) 384

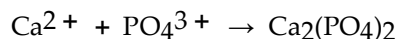
5) Consider the following equation: 5) \_\_\_\_\_



How many moles of water are produced when 2 moles of  $\text{NH}_4$  react with excess Oxygen gas?

- A) 6                      B) 3                      C) 4                      D) 5

6) When the following equation is balanced what is the smallest whole number coefficient for  $\text{Ca}^{2+}$ ? 6) \_\_\_\_\_



- A) 4                      B) 1                      C) 3                      D) 2

7) Which molecule contains a bent geometry? 7) \_\_\_\_\_

- A) HF                      B)  $\text{OF}_2$                       C)  $\text{CO}_3^{2-}$                       D)  $\text{SiO}_2$

8) Which element has properties most similar to Bromine? 8) \_\_\_\_\_

- A) F                      B) Kr                      C) S                      D) Se

9) Which of the following has the most electrons? 9) \_\_\_\_\_

- A)  $\text{Sr}^{2+}$                       B) Rb                      C)  $\text{Cl}^-$                       D) Kr

10) Which bond is most polar? 10) \_\_\_\_\_

- A) N-H                      B) C-H                      C) O-H                      D) H-H

11) Which of the following is not a metal? 11) \_\_\_\_\_

- A) Ca                      B) Se                      C) Zn                      D) Mn

12) Which of the following has tetrahedral geometry? 12) \_\_\_\_\_

- A)  $\text{PCl}_3$                       B)  $\text{H}_2\text{O}$                       C)  $\text{CF}_4$                       D)  $\text{BCl}_3$

13) Which has the smallest radius? 13) \_\_\_\_\_

- A)  $\text{Li}^+$                       B)  $\text{Li}^-$                       C) Li                      D)  $\text{Li}^{2-}$

14) What is the most likely formula for a compound consisting of Sr and Se? 14) \_\_\_\_\_

- A)  $\text{SrSe}_3$                       B)  $\text{Sr}_2\text{Se}$                       C) SrSe                      D)  $\text{SrSe}_2$

15) How many "dots" would be around the central atom in the Lewis structure of S? 15) \_\_\_\_\_

- A) 5                      B) 6                      C) 7                      D) 4

16) What volume of a 12.0 M HCl solution is needed to provide 0.6 mol of HCl? 16) \_\_\_\_\_

- A) 12 mL                      B) 50 mL                      C) 5 mL                      D) 50 mL

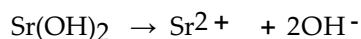
17) Which is the strongest acid in aqueous solution? 17) \_\_\_\_\_

- A)  $\text{CH}_4$                       B)  $\text{HNO}_2$                       C) KCl                      D)  $\text{NH}_3$

18) KCl is soluble in water but not in toluene this is because water has a high \_\_\_\_\_. 18) \_\_\_\_\_

- A) molecular weight                      B) boiling point  
C) density                      D) polarity

19)  $\text{Sr}(\text{OH})_2$  dissolves by the following formula: 19) \_\_\_\_\_



How many moles of  $\text{Sr}(\text{OH})_2$  are needed to make a 500 mL solution that has a n  $\text{OH}^-$  of 0.1 M ?

- A) 1                      B) 0.50                      C) 2                      D) 0.25

20) Evaluate the following expression: 20) \_\_\_\_\_

$$7.0 \times 10^4 + 6.0 \times 10^3$$

- A)  $13 \times 10^7$                       B)  $42 \times 10^7$                       C)  $67 \times 10^3$                       D)  $76 \times 10^3$

KEY

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