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 $(CH_3)_2CH_2$? 1) _____

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

2) Which has the highest percent mass of Cl? 2) _____

A) C_2Cl_6 B) CCl_4 C) C_2Cl_4 D) C_2Cl_2

3) The correct formula for Sodium Nitride is: 3) _____

A) Na_3N B) $NaNO_2$ C) $NaNO_3$ D) Na_2NO_3

4) How many moles of NO_3 are there in 6.2g? 4) _____

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

5) Consider the following equation: 5) _____

$4NH_4 + 5O_2 \rightarrow 4\,NO + 6H_2O$

How many moles of water are produced when 2 moles of 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 Ca^{2+}? 6) _____

$Ca^{2+} + PO_4^{3+} \rightarrow Ca_2(PO_4)_2$

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

7) Which molecule contains a bent geometry? 7) _____

A) HF B) OF_2 C) CO_3^{2+} D) 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) Sr^{2+} B) Rb C) 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) PCl_3 B) H_2O C) CF_4 D) BCl_3

13) Which has the smallest radius? 13) _____

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

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

A) $SrSe_3$ B) Sr_2Se C) SrSe D) $SrSe_2$

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) CH_4 B) HNO_2 C) KCl D) 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) $Sr(OH)_2$ dissolves by the following formula: 19) _____

$Sr(OH)_2 \rightarrow Sr^{2+} + 2OH^-$

How many moles of $Sr(OH)_2$ are needed to make a 500 mL solution that has a n 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) 13×10^7 B) 42×10^7 C) 67×10^3 D) 76×10^3

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