

HOME WORK 5  
CHEM 1305 - CHAPTER 5

Name \_\_\_\_\_

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

- 1) Which of the following is a representative element? 1) \_\_\_\_\_  
A) Br  
B) B  
C) Ba  
D) all of the above  
E) none of the above
- 2) Which of the following is a transition element? 2) \_\_\_\_\_  
A) Cu  
B) Au  
C) Ag  
D) all of the above  
E) none of the above
- 3) Which of the following is an alkali metal? 3) \_\_\_\_\_  
A) Cs  
B) Al  
C) Mg  
D) Cu  
E) none of the above
- 4) Which of the following is a halogen? 4) \_\_\_\_\_  
A) H  
B) Hg  
C) Ar  
D) Br  
E) none of the above
- 5) Which of the following is a general trend in the periodic table for the metallic character of the elements? 5) \_\_\_\_\_  
A) decreases from left to right, increases from bottom to top  
B) increases from left to right, increases from bottom to top  
C) decreases from left to right, decreases from bottom to top  
D) increases from left to right, decreases from bottom to top  
E) none of the above
- 6) Which of the following is a general trend from left to right in the periodic table of elements? 6) \_\_\_\_\_  
A) atomic radius increases; metallic character decreases  
B) atomic radius decreases; metallic character decreases  
C) atomic radius increases; metallic character increases  
D) atomic radius decreases; metallic character increases  
E) none of the above

- 7) Which of the following elements has the largest atomic radius? 7) \_\_\_\_\_  
 A) Na                      B) Mg                      C) Li                      D) Be                      E) B
- 8) Calculate the predicted atomic radius for potassium, K, given the atomic radius of rubidium, Rb, (0.247 nm) and cesium, Cs, (0.265 nm). 8) \_\_\_\_\_  
 A) 0.256 nm              B) 0.018 nm              C) 0.238 nm              D) 0.283 nm              E) 0.229 nm
- 9) Given the chemical formulas MgO, Al<sub>2</sub>O<sub>3</sub>, and SiO<sub>2</sub>, predict the formula for germanium oxide, Ge<sub>?</sub>O<sub>?</sub>. 9) \_\_\_\_\_  
 A) Ge<sub>2</sub>O<sub>3</sub>                      B) Ge<sub>3</sub>O<sub>2</sub>                      C) Ge<sub>2</sub>O                      D) GeO                      E) GeO<sub>2</sub>
- 10) Which energy sublevel is being filled by the elements K to Ca? 10) \_\_\_\_\_  
 A) 4s                      B) 3d                      C) 4f                      D) 4d                      E) 4p
- 11) Which element has the following electron configuration: [Xe] 6s<sup>2</sup>? 11) \_\_\_\_\_  
 A) Ba                      B) Sr                      C) Pb                      D) Hf                      E) Cs
- 12) Which of the following is the electron dot formula for an atom of fluorine? 12) \_\_\_\_\_  
 (a) F ·                      (b) ·F ·                      (c) ·Ḟ ·                      (d) :Ḟ:                      (e) :Ḟ:̇:  
 A) (a)                      B) (b)                      C) (c)                      D) (d)                      E) (e)
- 13) Which of the following is the electron dot formula for an atom of nitrogen? 13) \_\_\_\_\_  
 (a) N ·                      (b) ·N ·                      (c) ·Ṅ:                      (d) :Ṅ:                      (e) :Ṅ:̇:  
 A) (a)                      B) (b)                      C) (c)                      D) (d)                      E) (e)
- 14) What is the electron configuration for a magnesium ion, Mg<sup>2+</sup>? 14) \_\_\_\_\_  
 A) 1s<sup>2</sup> 2s<sup>2</sup> 2p<sup>6</sup>  
 B) 1s<sup>2</sup> 2s<sup>2</sup> 2p<sup>6</sup> 3s<sup>2</sup>  
 C) 1s<sup>2</sup> 2s<sup>2</sup> 2p<sup>6</sup> 3s<sup>2</sup> 3p<sup>1</sup>  
 D) 1s<sup>2</sup> 2s<sup>2</sup> 2p<sup>6</sup> 3s<sup>1</sup>  
 E) none of the above
- 15) Which of the following is a general trend for the ionization energy of elements in the periodic table? 15) \_\_\_\_\_  
 A) increases from left to right; decreases from bottom to top  
 B) increases from left to right; increases from bottom to top  
 C) decreases from left to right; decreases from bottom to top  
 D) decreases from left to right; increases from bottom to top  
 E) none of the above
- 16) Which of the following elements has the lowest ionization energy? 16) \_\_\_\_\_  
 A) B                      B) H                      C) Ba                      D) Li                      E) He

- 17) What is the electron configuration using core notation for  $P^{3-}$ ? 17) \_\_\_\_\_
- A)  $[\text{Ne}] 3p^6$
  - B)  $[\text{Ne}] 3s^2 3p^3$
  - C)  $[\text{Ne}] 3s^2$
  - D)  $[\text{Ar}]$
  - E) none of the above
- 18) Which of the following is a liquid metal at normal conditions? 18) \_\_\_\_\_
- A) Zn
  - B) Hg
  - C) Ge
  - D) all of the above
  - E) none of the above
- 19) What is the predicted ionic charge for a K ion? 19) \_\_\_\_\_
- A) 1-
  - B) 2-
  - C) 1+
  - D) 2+
  - E) none of the above
- 20) What is the predicted ionic charge for an Al ion? 20) \_\_\_\_\_
- A) 3+
  - B) 3-
  - C) 1+
  - D) 1-
  - E) none of the above