

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

## Bonding Multiple Choice Quiz

\_\_\_\_\_ 1. The geometry of the  $\text{SO}_3$  molecule is best described as

- (A) trigonal planar
- (B) trigonal pyramidal
- (C) square pyramidal
- (D) bent
- (E) tetrahedral

\_\_\_\_\_ 2. Which one of the following is linked with the correct intermolecular force of attraction?

- (A)  $\text{NH}_3$ ..... dipole-dipole
- (B)  $\text{AlH}_3$ ..... London dispersion forces
- (B)  $\text{H}_2$ ..... hydrogen bonding
- (D)  $\text{C}_2\text{H}_4$ ..... covalent bonding
- (E)  $\text{HCl}$ ..... ionic

\_\_\_\_\_ 3. Which of the following molecules has the shortest bond length?

- (A)  $\text{N}_2$
- (B)  $\text{O}_2$
- (C)  $\text{Cl}_2$
- (D)  $\text{Br}_2$
- (E)  $\text{I}_2$

\_\_\_\_\_ 4. Which of the following has a zero dipole moment?

- (A)  $\text{HCN}$
- (B)  $\text{NH}_3$
- (C)  $\text{SO}_2$
- (D)  $\text{NO}_2$
- (E)  $\text{PF}_5$

\_\_\_\_\_ 5. For which substance would you predict the highest heat of vaporization?

- (A)  $\text{F}_2$
- (B)  $\text{H}_2\text{O}$
- (C)  $\text{HF}$
- (D)  $\text{NaCl}$
- (E)  $\text{Br}_2$

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\_\_\_\_\_ 6. For which of the following molecules are resonance structures necessary to describe the bonding satisfactorily?

- (A)  $\text{H}_2\text{S}$
- (B)  $\text{SO}_2$
- (C)  $\text{CO}_2$
- (D)  $\text{OF}_2$
- (E)  $\text{PF}_3$

\_\_\_\_\_ 7. The Lewis dot structure of which of the following molecules shows only one unshared pair of valence electron?

- (A)  $\text{Cl}_2$
- (B)  $\text{N}_2$
- (C)  $\text{NH}_3$
- (D)  $\text{CCl}_4$
- (E)  $\text{H}_2\text{O}_2$

\_\_\_\_\_ 8.  $\text{CCl}_4$ ,  $\text{CO}_2$ ,  $\text{PCl}_3$ ,  $\text{PCl}_5$ ,  $\text{SF}_6$  Which of the following does not describe any of the molecules above?

- (A) Linear
- (B) Octahedral
- (C) Square planar
- (D) Tetrahedral
- (E) Trigonal pyramidal

\_\_\_\_\_ 9. Which of the following indicates very strong intermolecular forces of attraction in a liquid?

- (A) A very low boiling point.
- (B) A very low critical temperature.
- (C) A very low heat of vaporization.
- (D) A very low vapor pressure.
- (E) A very low surface tension.

\_\_\_\_\_ 10. The melting point of  $\text{MgO}$  is higher than that of  $\text{NaF}$ . Explanations for this observation include which of the following?

- I.  $\text{Mg}^{2+}$  is more positively charged than  $\text{Na}^+$
- II.  $\text{O}^{2-}$  is more negatively charged than  $\text{F}^-$
- III. The  $\text{O}^{2-}$  ion is smaller than the  $\text{F}^-$  ion

- (A) II only
- (B) I and II only
- (C) I and III only
- (D) II and III only
- (E) I, II, and III

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