

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

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

- 1 A molecule is formed when two or more atoms form a covalent bond. According to this definition, which of these is NOT a molecule?
- A NaCl  
 B H<sub>2</sub>  
 C HCl  
 D NH<sub>3</sub>

Use the table below to answer question 2.

Number of Atoms	Prefix	Number of Atoms	Prefix
1	mono-	6	hexa-
2	di-	7	hepta-
3	tri-	8	octa-
4	tetra-	9	nona-
5	penta-	10	deca-

- 2 The table shows some of the prefixes used to name binary covalent compounds. What name would be given to the compound PBr<sub>5</sub>?
- A Phosphorus tetrabromide  
 B Monophosphorus pentabromide  
 C Phosphorus pentabromide  
 D Phosphorus hexabromide

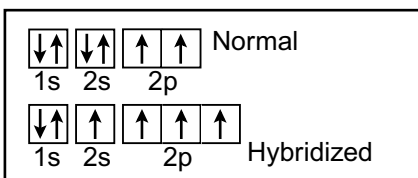
- 3 In the polyatomic ion NH<sub>4</sub><sup>+</sup>, the formation of a coordinate covalent bond between nitrogen and hydrogen involves —
- A hydrogen transferring a pair of electrons to nitrogen  
 B nitrogen transferring a pair of electrons to hydrogen  
 C hydrogen donating a pair of electrons to be shared with nitrogen  
 D nitrogen donating a pair of electrons to be shared with hydrogen

- 4 When hydrogen and fluorine combine, a polar covalent bond is formed. Which of these formulas is the *best* way to express this relationship?
- A H—F  
 B  $\delta^+ \text{H} - \text{F}\delta^-$   
 C H:F  
 D  $\text{H}:\ddot{\text{F}}:$

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- 5 At room temperature, iodine ( $I_2$ ) is a solid and bromine ( $Br_2$ ) is a liquid. These molecules have different melting points because of stronger —
- A covalent bonds in iodine
  - B covalent bonds in bromine
  - C intermolecular forces in iodine
  - D intermolecular forces in bromine

Use the diagram below to answer question 6.



- 6 The diagram shows the electron configuration of a normal carbon atom and the rearrangement of electrons to form four new identical orbits in a hybridized carbon atom. This type of hybrid orbital is called an —
- A  $s^2$  orbital
  - B sp orbital
  - C  $sp^2$  orbital
  - D  $sp^3$  orbital

- 7 Which of these is the chemical formula for sulfurous acid?
- A  $H_2S$
  - B  $H_2SO_3$
  - C  $H_2SO_4$
  - D  $H_2S$
- 8 The bond that holds two fluorine atoms together in an  $F_2$  molecule would be classified as nonpolar covalent because —
- A both atoms are different and the difference in electronegativity is large
  - B both atoms are different and the difference in electronegativity is zero
  - C both atoms are the same and the difference in electronegativity is large
  - D both atoms are the same and the difference in electronegativity is zero

