Name _____ **Bonding Review**

____ 1) Given the balanced equation:

$I + I \rightarrow I_2$ Which statement describes the process represented by this equation?

A) A bond is formed as energy is absorbed.
B) A bond is formed and energy is released.
C) A bond is broken as energy is absorbed.
D) A bond is broken and energy is released.

____ 2) When a chemical bond is broken, energy is

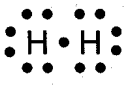
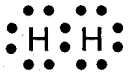
A) absorbed, only
B) released, only
C) both absorbed and released
D) neither absorbed nor released

____ 3) The correct name of the compound with the formula PbO_2 is

A) lead (I) oxide B) lead (II) oxide
C) lead (III) oxide D) lead (IV) oxide

____ 4) Which electron-dot diagram represents H_2?

A) H • H B) H : H

C)  D) 

____ 5) Which type of bonding is usually exhibited when the electronegativity difference between two atoms is 1.1?

A) ionic B) covalent
C) metallic D) network

____ 6) Which compound contains a bond with the least ionic character?

A) CO B) CaO C) K_2O D) Li_2O

____ 7) Which formula represents the compound aluminum iodide?

A) AlI B) AlI_3
C) Al_3I D) Al_3I_3

____ 8) Which substance contains metallic bonds?

A) $Hg(\ell)$ B) $H_2O(\ell)$
C) NaCl(s) D) $C_6H_{12}O_6$(s)

____ 9) The high electrical conductivity of metals is primarily due to

A) high ionization energies
B) filled energy levels
C) mobile electrons
D) high electronegativities

____ 10) A correct name for N_2O_3 is

A) nitrogen (I) oxide
B) nitrogen (II) oxide
C) nitrogen (III) oxide
D) nitrogen (IV) oxide

____ 11) Which formulas represent one ionic compound and one molecular compound?

A) N_2 and SO_2
B) Cl_2 and H_2S
C) $BaCl_2$ and N_2O_4
D) NaOH and $BaSO_4$

____ 12) Which type of bond results when one or more valence electrons are transferred from one atom to another?

A) a hydrogen bond
B) an ionic bond
C) a nonpolar covalent bond
D) a polar covalent bond

____ 13) Which type of bond is found in sodium bromide?

A) covalent B) hydrogen
C) ionic D) metallic

____ 14) Which formula correctly represents antimony (V) oxide?

A) SbO_5 B) Sb_5O
C) Sb_2O_5 D) Sb_5O_2

____ 15) Which type of substance can conduct electricity in the liquid phase but *not* in the solid phase?

A) ionic compound
B) molecular compound
C) metallic element
D) nonmetallic element

____ 16) Based on bond type, which compound has the highest melting point?

A) CH_3OH B) C_6H_{14}
C) $CaCl_2$ D) CCl_4

17) As a bond between a hydrogen atom and a sulfur atom is formed, electrons are

A) shared to form an ionic bond
B) shared to form a covalent bond
C) transferred to form an ionic bond
D) transferred to form a covalent bond

18) The name of the compound $KClO_2$ is potassium

A) hypochlorite B) chlorite
C) chlorate D) perchlorate

19) Which compound contains only covalent bonds?

A) NaOH B) $Ba(OH)_2$
C) $Ca(OH)_2$ D) CH_3OH

20) Which molecule will have a double covalent bond?

A) F_2 B) O_2 C) Cl_2 D) N_2

21) Which terms describe a substance that has a low melting point and poor electrical conductivity?

A) covalent and metallic
B) covalent and molecular
C) ionic and molecular
D) ionic and metallic

22) Which formula represents a molecular compound?

A) Kr B) LiOH
C) N_2O_4 D) NaI

23) Which molecule contains a nonpolar covalent bond?

A) I_2 B) NH_3 C) H_2O D) CO

24) Which formula represents sodium sulfate?

A) $NaSO_4$ B) $NaSO_3$
C) Na_2SO_4 D) Na_2SO_3

25) Which molecule is nonpolar and contains a nonpolar covalent bond?

A) CCl_4 B) F_2 C) HF D) HCl

26) The chemical bond between which two atoms is most polar?

A) C–N B) H–H
C) S–Cl D) Si–O

27) Which formula represents a nonpolar molecule?

A) CH_4 B) HCl C) H_2O D) NH_3

28) Given the formula representing a molecule:

$$H - C \equiv C - H$$

The molecule is

A) symmetrical and polar
B) symmetrical and nonpolar
C) asymmetrical and polar
D) asymmetrical and nonpolar

29) At standard pressure, CH_4 boils at 112 K and H_2O boils at 373 K. What accounts for the higher boiling point of H_2O at standard pressure?

A) covalent bonding
B) ionic bonding
C) hydrogen bonding
D) metallic bonding

30) Which formula represents a polar molecule?

A) H_2 B) H_2O C) CO_2 D) CCl_4

31) In which liquid is hydrogen bonding strongest?

A) $HF(\ell)$ B) $H_2(\ell)$
C) $CH_4(\ell)$ D) $NH_3(\ell)$

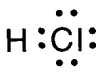
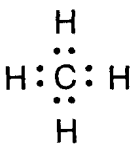
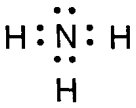
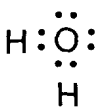
32) Which substance is correctly paired with its type of bonding?

A) NaBr–nonpolar covalent
B) HCl–nonpolar covalent
C) NH_3–polar covalent
D) Br_2–polar covalent

33) The attraction that nonpolar molecules have for each other is primarily caused by the presence of

A) hydrogen bonding
B) high ionization energy
C) electronegativity differences
D) van der Waals forces

34) Which electron-dot structure represents a non-polar molecule?

A) 
B) 
C) 
D) 

___ 35) For the following compounds, draw the electron-dot diagrams and provide the necessary information.

Compound	Bonding Type	Dot Diagram	Shape
Na_2S			
NH_2F			
CCl_2Br_2			
ZnO			

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