

Name KEY

Date _____

Period _____

Molecular Structure and Bond Test

A 1. In order to be stable, the outer electron shell hydrogen should contain how many electrons?

a. 2

b. 4

c. 8

d. 10

C 2. In order to be stable, the outer electron shells of the elements in the main period table should contain how many electrons?

a. 2

b. 4

c. 8

d. 10

D 3. Ionic bonds are bonds between

a. one atom that donates electrons and one that accepts them

b. 2 atoms that share electrons

c. at least one metal

d. a and c

e. b and c

B 4. Covalent bonds are bonds between

a. one atom that donates electrons and one that accepts them

b. 2 atoms that share electrons

c. at least one metal

d. a and c

e. b and c

C 5. Polar bonds are formed

a. when one atom donates electrons and the other accepts them

b. when two atoms pull equally on shared electrons

c. when two atoms pull unequally on shared electrons

d. between two metals

C 6. Which of the following molecules is NOT organic?

a. $C_6H_{12}O_6$ b. CH_3CH_2OH c. $NaCl$ d. CH_4

B 7. How many valence electrons does Carbon have in its outer electron shell?

a. 1

b. 4

c. 6

d. 7

A 8. How many valence electrons does Hydrogen have in its outer electron shell?

a. 1

b. 2

c. 4

d. 7

D 9. Which would show more London Dispersion Forces?

a. CH_4 b. C_8H_{18} c. C_4H d. $C_{25}H_{52}$

A 10. Which would most likely be a gas at room temperature?

a. CH_4 b. C_8H_{18} c. C_4H d. $C_{25}H_{52}$

#) Formula	Lewis Structure	Total # of e- domains	E.D.G. (no pic necessary)	# of bonding domains	# of non- bonding domains	3-D Structure	Molecular Geometry	Approx Bond Angle	Hybridiz- @ central atom	Polar Bonds? Dipole Moment? Yes or No?
1) TeO_4^{2-} 32e ⁻	$\left[\begin{array}{c} \text{O} \\ \\ \text{O} = \text{Te} - \text{O} \\ \\ \text{O} \end{array} \right]^{2-}$	4	TETRAHEDRAL	4	0		TETRAHEDRAL	109.5°	LD JONIC	Yes No
2) TeO_3 24e ⁻	$\begin{array}{c} \text{O} \\ \\ \text{O} = \text{Te} - \text{O} \end{array}$	3	TETRAHEDRAL PLANAR	3	0		TETRAHEDRAL PLANAR	120°	LD	Yes No
3) TeO_2 18e ⁻	$\text{O} = \text{Te} = \text{O}$	3	TETRAHEDRAL PLANAR	2	1		BENT	~120°	Dipole- Dipole	Yes Yes
4) TeO_3^{2-} 26e ⁻	$\left[\begin{array}{c} \text{O} \\ \\ \text{O} = \text{Te} - \text{O} \\ \\ \text{O} \end{array} \right]^{2-}$	4	TETRAHEDRAL	3	1		TETRAHEDRAL PYRAMIDAL	~107.5°	JONIC	Yes Yes
5) N_3^{-1} 16e ⁻	$[\text{N} = \text{N} = \text{N}]^{-1}$	2	LINEAR	2	0		LINEAR	180°	JONIC	No No