
Lecture 6
Chemical Bonding I
Worksheet

- 1) Do metals gain or lose electrons in order to acquire a full octet?
- 2) What charge do group 2A elements acquire as ions?
- 3) What charge do group 7A elements acquire as ions?
- 4) What possible charge(s) can lead acquire as an ion?
- 5) What possible charge(s) can iron acquire as an ion?
- 6) Is energy released or absorbed when individual gaseous ions bond together to form an ionic solid?
- 7) Which compound in each set will have the higher melting temperature? Justify your answer.
 - a. NaCl or KBr
 - b. NaCl or MgS
 - c. BeF₂ or LiF
 - d. CaO or CaCl₂
 - e. MgO or Al₂O₃
 - f. MgCl₂ or MgI₂
- 8) Which compound from each set is covalent?
 - a. CO or LiF
 - b. ZnS or SO₂
 - c. BF₃ or Fe₂O₃
- 9) Which bond from each set is most covalent? Explain.
 - a. Cl – Cl or Al – F
 - b. N – O or C – O
 - c. Ca – O or N – O
- 10) Which bond from each set is most ionic? Explain.
 - a. Al – O or Na – O
 - b. K – Cl or Zn – Cl
 - c. Fr – F or B – F

11) Which compound from each set is most ionic?

- a. Al_2O_3 or NaCl
- b. KCl or FeO

12) Which is the most polar bond in each set? Explain.

- a. $\text{C}-\text{F}$ or $\text{C}-\text{O}$
- b. $\text{P}-\text{O}$ or $\text{P}-\text{F}$
- c. $\text{As}-\text{S}$ or $\text{As}-\text{F}$

13) Draw Lewis Structures for the following compounds:

- a. CO_2
- b. NF_3
- c. O_3
- d. NH_4^+
- e. NO_3^-
- f. SO_3
- g. POCl_3
- h. CH_4
- i. PCl_4^+
- j. H_2O
- k. HCN
- l. Cl_2 (no central atom, make sure octets for both atoms are full)
- m. O_2 (no central atom, make sure octets for both atoms are full)
- n. N_2 (no central atom, make sure octets for both atoms are full)