

Chem 130
Problem Set Ch.9

[Key begins on page 3.](#)

1. Indicate whether the following compounds are likely to be ionic or covalent.

a) CaO _____

d) CBr₄ _____

b) NH₃ _____

e) KNO₃ _____

c) CO _____

2. Draw the Lewis Dot Formula for each of the following **ionic** compounds.

a) CaCl₂

b) Na₂S

c) Al₂O₃

d) K₃N

3. Draw the Lewis Structure for each of the following **covalent** compounds. If there is resonance, draw at least two resonance structures. (the central atom(s) are underlined).

a) CH₃NO₂

b) ClO₄⁻

c) ClF₃

d) NO₂⁺

4. If the formula of an oxide is X_2O_3 , what is the formula of the chloride of X ? Explain your reasoning.

5. Give the electron configuration for each of the following ions.

a) Fe^{+2} _____

b) F^{-1} _____

c) Cu^{+1} _____

d) Zn^{+2} _____

6. The ionic radii of the ions Cu^{+1} and Cu^{+2} , are different. Which of the two has the larger radius? Explain why.

7. In each of the following hypothetical bonds, indicate the direction the shared electrons would shift in this polar arrangement.

F----H

Al----Br

O----N

N----P

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1. Indicate whether the following compounds are likely to be ionic or covalent.

a) CaO IONIC

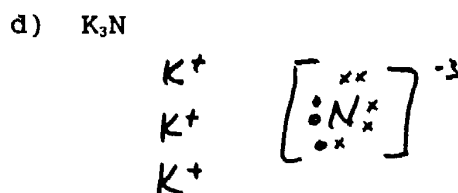
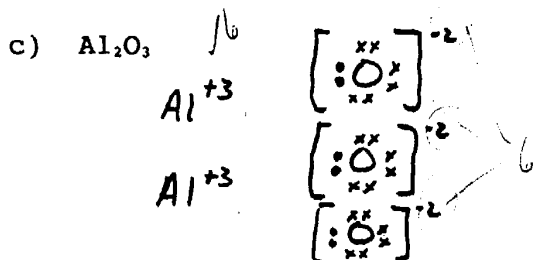
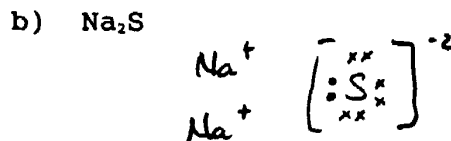
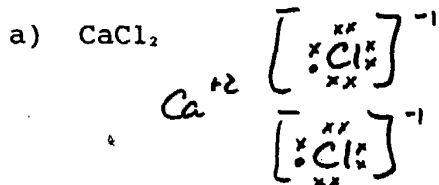
d) CBr₄ COV.

b) NH₃ COV.

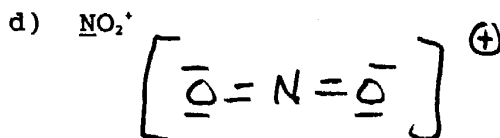
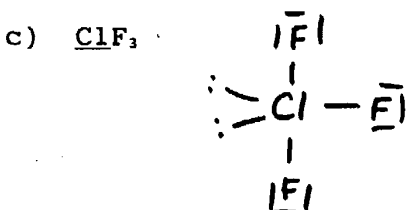
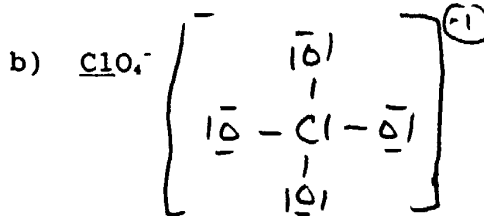
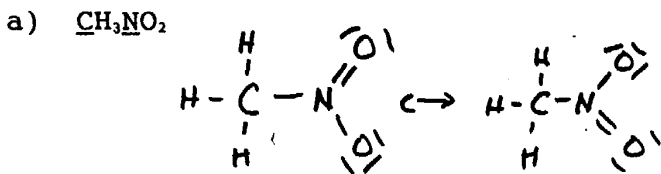
e) KNO₃ IONIC

c) CO COV.

2. Draw the Lewis Dot Formula for each of the following ionic compounds.



3. Draw the Lewis Structure for each of the following covalent compounds. If there is resonance, draw at least two resonance structures. (the central atom(s) are underlined).



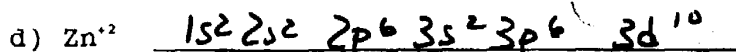
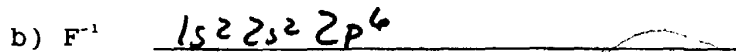
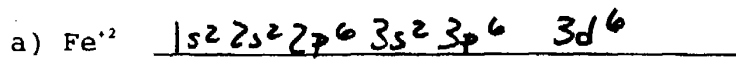
4. If the formula of an oxide is X₂O₃, what is the formula of the chloride of X? Explain your reasoning.

X₂O₃ IMPLIES THAT X HAS A +3 CHG. ... SINCE O HAS A -2 CHG.

SO

$\begin{array}{c} +3 \quad -1 \\ \text{XCl} \end{array}$ WOULD REQUIRE XCl_3

5. Give the electron configuration for each of the following ions.



6. The ionic radii of the ions Cu^{+1} and Cu^{+2} , are different. Which of the two has the larger radius? Explain why.

Cu^{+1} LARGER

Cu^{+2} LESS e^- FOR NUCLEUS TO ATTRACT.

7. In each of the following hypothetical bonds, indicate the direction the shared electrons would shift in this polar arrangement.

