

Name:

Key

Chem 343 Reich Review Quiz 0A  
September 5, 2007

1. How many valence electrons do the following atoms or ions have?

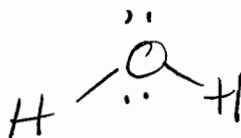
a) Carbon atom 4

d) Calcium ion ( $\text{Ca}^{2+}$ ) 0

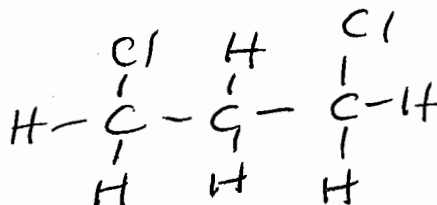
b) Phosphorus atom 5

e) Fluoride ion ( $\text{F}^{-1}$ ) 8

2. Draw the Lewis structure of water.



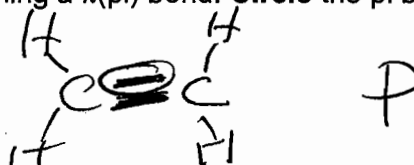
3. Draw the Lewis structure of 1,3-dichloropropane.



4. The pKa of HCN is 10 and the pKa of acetic acid is 5. Which is a stronger base cyanide anion or acetate anion?

$\text{CH}_3\text{COOH}$  stronger than HCN }  $\ominus \text{CN}$  stronger

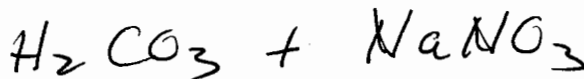
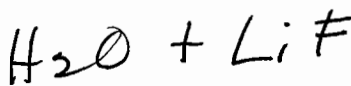
5. Give an example of a carbon compound containing a  $\pi$  (pi) bond. Circle the pi bond. What kind of atomic orbitals are used in  $\pi$  bonding?



6. What is the oxidation number of Mn in  $\text{KMnO}_4$ ?

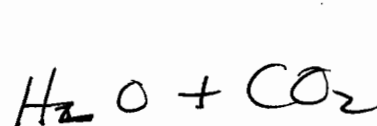
+7

7. Complete the following acid-base equations.



8. What is the pH of 0.1 M HCl solution in water?

$-\log 10^{-1} = 1$



9. The equilibrium constant for the following reaction is 99. What is the percentage of A present at equilibrium?



$K_{eq} = \frac{99}{1} = \frac{B}{A}$

$\% \text{ A} = \frac{1}{99+1} (100) =$

10%