Chem 1014
Review In-Class Problem Set
November 11, 1999
Fall 1999

Name_____
TA Name _____
Lab Section #_____

Here are some extra problems to practice.

1a. Define the term *valence electron(s)*.

b) How many valence electrons do each of the following elements have?

Na ____

Sr ____

P ____

I ____

Kr ____

2. Predict the formula of the ionic compound formed between the following pairs of elements.
   a) Na and Br_2
   b) Fe and Cl_2
   c) gallium and oxygen
   d) calcium and phosphate
   e) iron and nitrate

3. Predict the formula of the covalent compound formed between the following pairs of elements.
   a) H_2 and O_2
   b) H_2 and Br_2
   c) C and O_2
   d) N_2 and Cl_2
   e) nitrogen and oxygen

4. Complete the following table;

Name of the compound	Formula of the compound
	$NaOH$
silver chloride	
	Li_3N
barium sulfate	
potassium phosphate	
	CO_2
sulfur trioxide	
	$Pb(NO_3)_2$

5. Predict whether the following compounds are ionic or covalent.

$SiCl_4$, $MgBr_2$, PH_3, NH_4Cl, HCl, Al_2O_3

6. Draw the Lewis (electron) structure for the following ions or molecules.

   a) HBr

   b) PCl_3

6. (CONTINUED)

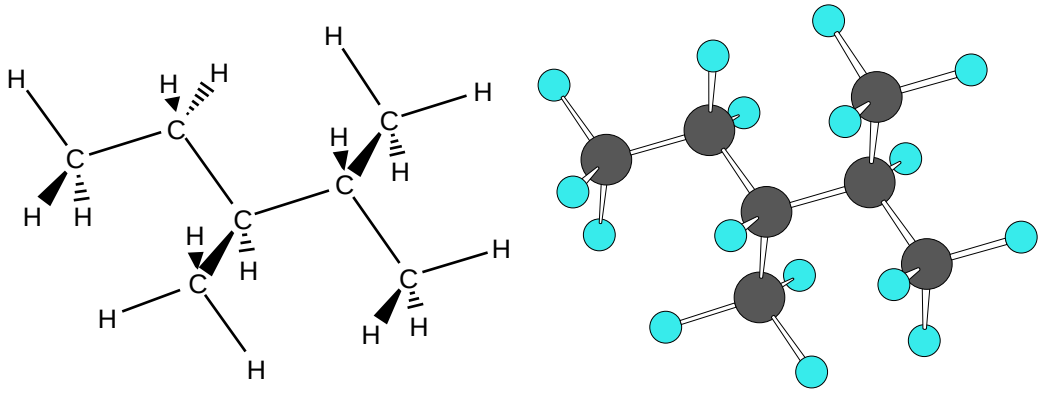
c) CH_2Cl_2

d) Cl_2CO

7. Name the following compounds;

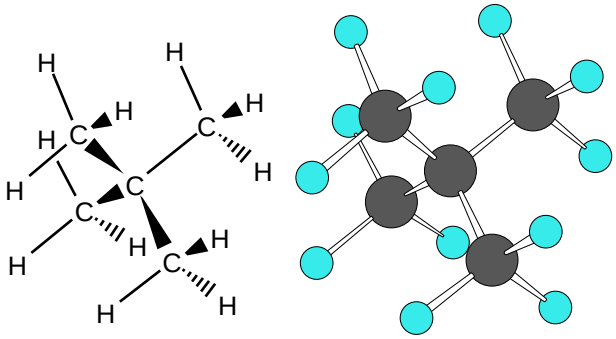
a) $CH_3CH_2CH_2CH_3$

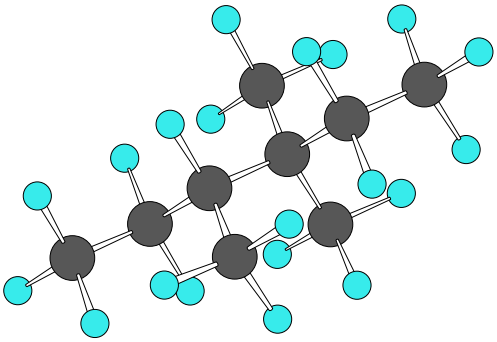
b)



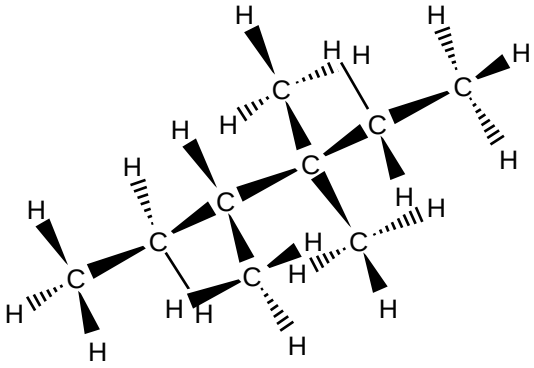
7. (CONTINUED)

c)





d) $CH_3CH(CH_3)C(CH_3)_2CH_2CHCH_2$



8. Draw the structure which corresponds with each of the following names.

a) 3-ethyloctane

b) 2,2,4,4-tetramethylhexane

c) 2,3-dimethyl-4-ethyllnonane

9. What are structural isomers? Draw and name all of the structural isomers for each of the following compounds;

a) C_6H_{14}

b) 5 isomers of C_9H_{20}