GROUP HOMEWORK #2

CHEM 121, section 1, winter 2015. **Printed Name:**_____

Background and Chp. 12

Homework Due DEC. 15, 2014, 12:15 PM! **Group Name:**_____

1. (2 pts. total) Give the number of constitutional isomers possible in following alkanes.

a)	CH_4 _____	d)	C_4H_{10} _____	g)	C_7H_{16} _____
b)	C_2H_6 _____	e)	C_5H_{12} _____	h)	C_8H_{18} _____
c)	C_3H_8 _____	f)	C_6H_{14} _____	i)	C_9H_{20} _____

2. (1 pts. total) Give the IUPAC name of the following branched alkane: **$CH_3C(CH_3)_2CH_2CH(CH_2CH_3)CH_2CH_3$**

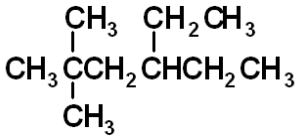
a) Expanded condensed formula:

b) Line-angle formula:

c) Branched Alkyl groups and their names:

d) IUPAC name of the compound:

3. (3 pts) Identify the type of carbon atoms in the following structure



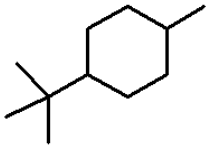
4. (3 pts) Complete combustion reaction of following alkanes.

a) CH_4

b) C_4H_{10}

c) C_5H_{12}

5. (3 pts) IUPAC name of the following substituted cycloakane



6. (3 pts) Give the common/IUPAC names of following substituted alkanes: Common IUPAC

a) CH_2Cl_2 _____ _____
b) $CHCl_3$ _____ _____
d) CCl_3F _____ _____
e) CCl_2F_2 _____ _____

7. (3 pts) Define following types of terms used in describing isomerism:
   a) Isomers:
   An example:

   b) Constitutional isomers:
   An example:

   c) Conformational stereoisomers:
   An example:

   d) Geometric stereoisomers:
   An example:

   e) Optical stereoisomers (d and l Enantiomers):
   An example:

8. Describe the conformational isomerism in following alknes:
   a) Butane, C_4H_{10}:

   b) Cyclopenatane, C_5H_{10}:

   c) Cyclohexane C_6H_{12}:

8) Calculate the units of unsaturation in following hydrocarbons
   a) Butane, C_4H_{10}:

   b) Cyclopenatane, C_5H_{10}:

   c) Ethene (ethylene), C_2H_4:

   d) Cyclohexa-1,3,5-triene (Benzene), C_6H_6: