HOMEWORK ASSIGNMENT #3 ORGANIC CHEMISTRY I (22 pts)

Non-mathematical MO theory; drawing and naming alkanes

**(due Monday 17 September 2012)**

**Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

3.1 a) Draw the MO diagram for NO on a separate piece of paper (3 pts)

b) How many net bonds are predicted ? \_\_\_\_\_ (can be non-integer) (1 pt)

c) Will NO be paramagnetic ? YES NO (1 pt)

3.2 Despite its’ mathematical complexity, general MO theory dominates modern chemical thinking.

What is the main advantage of the approach? (1 pt)

3.3 Draw the abbreviated bondline forms for the alkanes drawn, written or named below

a) b) CH3CH(CH3)(CH2)4CH3



c) 2,3,3-trimethylhexane d)



3.4. Draw out all the possible structural isomers of C5H12 using abbreviated bondline forms and name

them according to IUPAC rules

(6 pts)

3.5. Identify the functional group family drawn or supply an example of the functional group requested:





\_\_\_\_\_\_\_\_\_\_\_\_\_\_ alkene \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



carboxylic acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ amine