Mag Biochem Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ # \_\_\_\_\_\_\_\_

**Alkanes, Alkenes and Alkynes Reactions: Practice Problems**

**You may do these on another sheet of paper, if you prefer.**

1. A- Write the molecular and structural (or line angle) equations for the reaction between bromine and propene. Name product(s).
2. Write both the structural (or line angle) and molecular equations for the addition reaction involving 2-butyne and 1 mole of hydrogen and name all products.
3. What would the product be if the above reaction occurred with 2 moles of hydrogen? Show the reaction and name product(s).
4. Write both the structural and molecular equations for a reaction involving butane and hydrogen fluoride (catalyst present) and name all possible products.
5. Show the reaction for the addition of hydrogen chloride to 2-methyl-1-propene. Name products(s). If there is more than one, indicate which is major and which is minor. (\*No mechanism, just the overall reaction)
6. Show the reaction for the addition of water to 2-methyl-2-pentene. Name products(s). If there is more than one, indicate which is major and which is minor. (\*No mechanism, just the overall reaction)
7. Show the reaction for the hydration of 1-methylcyclopentene (in the presence of sulfuric acid). Name products(s). If there is more than one, indicate which is major and which is minor. (\*No mechanism, just the overall reaction)
8. Show the reaction for the bromination of benzene.
9. Go to p. 480 in your text. Look at the 4 structural (line-angle) fatty acids diagrams. A. If Oleic acid was hydrogenated, which of the other 3 fatty acids would it become?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ B. How would it be classified?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ C. Which of the other 3 fatty acids would require 3 moles of hydrogen to achieve the same result? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ D. Which of the 4 shown has the highest melting point? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**For #10 & 11**: Draw a 2- step mechanism for each the following: \* be sure and draw curved arrows correctly, identify the carbocation and name final product(s):

1. 2-methyl-2-pentene reacts with HBr.
2. methylcyclohexene reacts with HI.

**12:** Draw the 3- step mechanism for the acid catalyzed hydration of 2-methyl-2-pentene (be sure to indicate the oxonium intermediate):

*\*\*FYI- There will only be one of these on the test (and it may only be Extra Credit*)

 13- If you were successful with #12, show the acid catalyzed hydration of methylcyclopentene.