

## Practice Problems – CH 4

- 1.) The relative reactivity of **primary : secondary : tertiary** sites in free radical chlorination is **1 : 4.5 : 5.5**. The free radical chlorination of 2,5-dimethylhexane gives three monochlorinated products (all  $C_8H_{17}Cl$ ). **Draw the three products** and predict the percent composition of the product mixture. Show your work.
- 2.) Consider the free radical monochlorination of **1,1-dimethylcyclopentane**. The reaction affords *three* different products. In a free radical chlorination reaction, the rates of hydrogen abstraction of **primary : secondary** is **1 : 4.5**.
- a) Draw and predict the theoretical ratio of products **A, B, and C (all  $C_7H_{13}Cl$ )** that would result from this reaction.
- b) Although the theoretical prediction is sometimes helpful, one of the products is formed in a lower percentage than the theoretical prediction. Identify which one is probably formed in a lower percentage than theoretically predicted and briefly explain.

