HOMEWORK ASSIGNMENT #5 ORGANIC CHEMISTRY II

**alkadiene and allylic electronic follies**

 (due Friday 3 March )

**Your name :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (25 points total)**

**5.1. alkadiene resonance behaviors**

a) Draw the possible carbocations formed when 2-methyl-1,3 butadiene is reacted with HBr in acetic acid assuming initial H+ attack produces a Markovnikoff addition (4 pts)

b) draw all the possible monobromination products from the above (2 pts)

1. based on thermodynamic stability , which product above is most likely ? (1 pt)

d) based on the text’s comments about kinetic control (the pi electrons don’t move that

 fast) which is the most likely product ? (2 pts)

5.2a. Predict all the likely products of radical allylic substitution of Br\* on:



2 pts

2 pts

 5.2b Circle product(s) above arising from symmetric radical intermediates.

\_\_\_/13

5.3a What are the possible products of the base-driven alkenyl hydrolysis



2 pts

 1 pt

5.3b Which of the products is most thermodynamically stable ?

5.4 what does each of these proposed cyclo-additions make ?



2 pts

2 pts



6.4. Predict all the likely possible products of the addition of HBr below



5 pts

\_\_/12