**HOMEWORK ASSIGNMENT #9 ORGANIC CHEMISTRY I**

(due Wednesday 16 Nov 2016)

 Your name:\_\_\_\_\_\_\_\_\_\_\_answers\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_/25 pts

**9.1. Pathways to specific alkenes (2 pts each/ 8 pts total)**

1. Suggest a simple, 1-step route to Z-4-methyl-2-pentene



1. Suggest a simple, 1-step route to E-4-methyl-2-pentene





1. What is the major product-if any- obtained by attempting to dehydrate 2,2,4,4-tetramethyl-3-pentanol ?





minor

major

1. Is it possible to synthesize an alkene via dehydrohalogenation of 3-bromo-2,2,4,4-tetramethylpentane ? If yes, what are the likely product(s) ?

**9.3. Parsing E1 vs E2 characteristics (11 pts)**

Assuming that by E1 we refer to the mechanism of alcohol dehydration to alkenes and by E2 we refer to the mechanism of dehydrohalogenation of alkyl halides to alkenes, circle which of these two mechanisms the various reaction properties below are connected to (can be both) 1 pt each

1) Primary H effect E1 **E2**

2) H+ catalyzed **E1** E2

3) Rearrangements occur **E1** E2

4) Base driven E1 **E2**

5) β-H always necessary E1 **E2**

6) Products obey Saitsev rule **E1 E2**

7) Reaction rate order: 3o>2o>1o  **E1 E2**

8) Involves a carbocation **E1** E2

9) Involves a 4-atom electron flow E1 **E2**

10) More than one product alkene possible **E1 E2**

11) Competes with substitution reaction **E1** E2