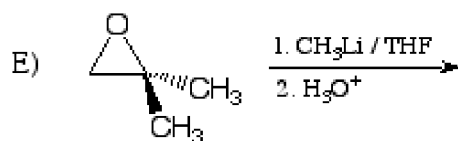
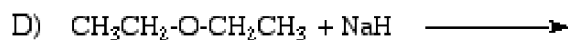
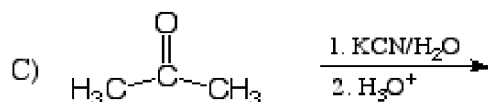
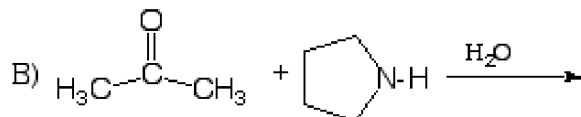
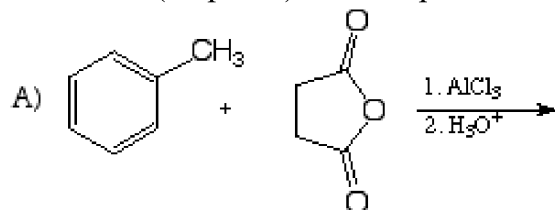


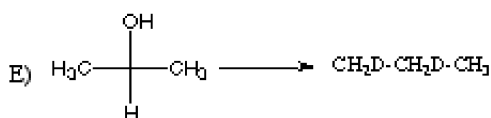
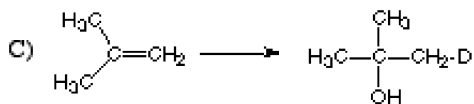
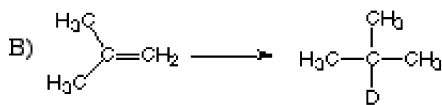
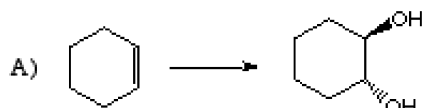
FIRST HOUR EXAM - CHEMISTRY 3331

February 19, 1998

Problem 1.(15 points) Give the products for the following reactions. If no reactions occur, state so.

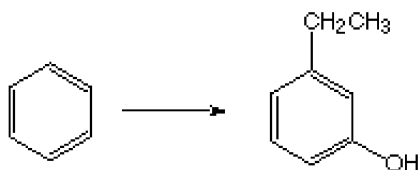


Problem 2. (20 points) What reagents would you use to carry out the following reactions. More than one step may be required. If more than one step is required, number each step. Circle the reagents. Do not give intermediate products.

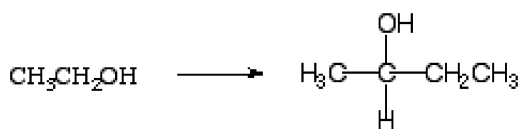


Problem 3. (5 points) A compound whose molecular formula is C_6H_{12} has the following NMR spectrum. $\delta = 0.9$ ppm (triplet, 3H), $\delta = 1.6$ ppm (singlet, 3H), $\delta = 1.7$ ppm (singlet, 3H), $\delta = 2.0$ ppm (multiplet, 2H) and $\delta = 5.1$ ppm (triplet, 1H). Determine the structure of the compound. Chemical shifts for vinyl hydrogens (C=C-H) range from 4.5 to 6.5.

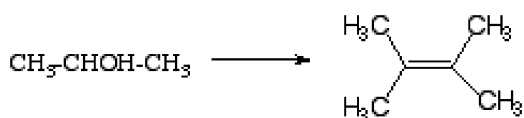
Problem 3. (15 points) How would you carry out the following transformation?



Problem 4. (15 points) Employing the Grignard reagent, how would you carry out the following transformation using ethanol as your only carbon source?



Problem 5. (15 points) Using the Wittig reagent, how would you carry out the following transformation using isopropanol as your only carbon source.



Problem 6 (15 points) Using organocuprates, how would you carry out the following transformation using cyclohexanone as your only carbon source?

