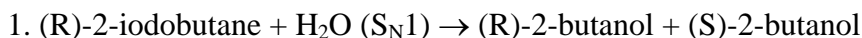


*III-2 ____C ____NC

Chemistry 251
Worksheet 9

Name: _____

*A. (1.0 pts.) For the following reaction explain (using stereochemical drawings) the product indicated.



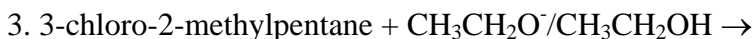
B. (1.0 pts.) Arrange the following compounds in order of their reactivity toward S_N2 reactions:

1-bromobutane, 2-bromo-2-methylbutane, 2-bromobutane

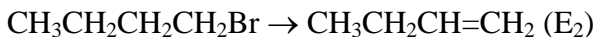
C. (1.0 pts.) Arrange the following compounds in order of their reactivity toward S_N1 reactions:

2-bromo-2-methylbutane, 1-bromobutane, 2-bromobutane

D. (3.0 pts.) for each of the following reactions, predict the predominant mechanism for the reaction and predict the product(s) expected indicating the major product if more than one product is predicted. Be sure to consider rearrangements and stereoisomers where applicable.



E. (1.0 pts.) Give reaction conditions that would favor the following conversion. Be sure to include the nature of the nucleophile and solvent.



F. (2.0 pts.) Outline an efficient synthesis of each of the following compounds from the indicated starting material and any necessary organic or inorganic reagents.

1. cyclohexyl cyanide from cyclohexane

2. isopropyl azide from 1-propanol

3. (S)-sec-butyl azide from (R)-2-butanol

Bonus (1.0 pts.) Solvolysis of 1,2-dimethylpropyltosylate in acetic acid (75°C) yields five different products: three are alkenes and two are substitution products. Suggest reasonable structures for these five products.