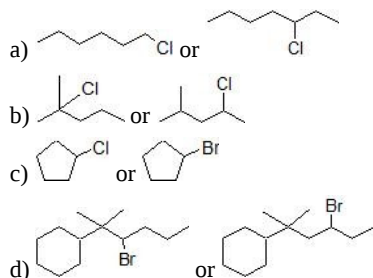


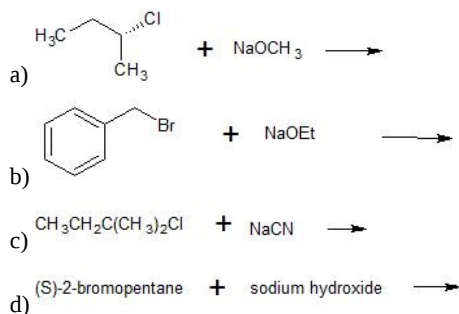
7.22: ADDITIONAL EXERCISES

SN2

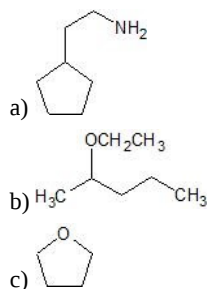
7-1 Predict which compound in each pair would undergo the SN2 reaction faster.



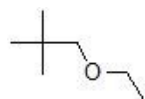
7-2 Predict the products of these nucleophilic substitution reactions, including stereochemistry when appropriate.



7-3 Show how each compound might be synthesized using S_N2 reaction.

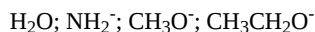


7-4 Show 2 ways to synthesize the ether below using S_N2 reaction



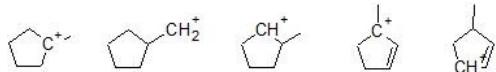
7-5 Of the two ways of synthesizing the compound in previous question (7-4), which one would be the most efficient? Why? Show the mechanism of the reaction as part of your explanation.

7-6 Arrange the compounds below in increasing order of nucleophilicity.

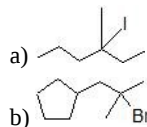


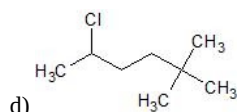
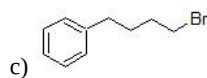
SN1

7-7 List the following carbocations in order of increasing stability.

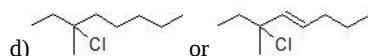
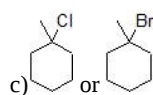
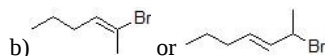
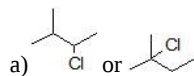


7-8 Give the solvolysis product expected when the compound is heated in methanol.

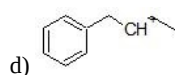
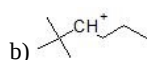
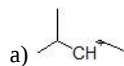




7-9 Predict with compound in each pair will undergo an S_N1 reaction more quickly.

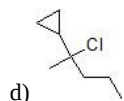
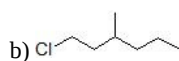
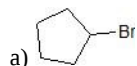


7-10 Show how the following carbocations would rearrange to become more stable. Draw the mechanism of the rearrangement.

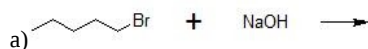


SN2 VS SN1

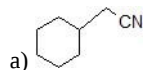
7-11 Predict whether each compound below would be more likely to undergo a S_N2 or S_N1 reaction.



7-12 Predict the product of the following reactions.



7-13 Show how each compound may be synthesized using nucleophilic substitution reactions.



- b)
- c)
- d)
- e)
- f)
- g)

E2 VS E1

7-14 Predict the major products of the following reactions.

- a)
CC1(Br)CCCCC1.CCO>>
- b)
CCCC(C)(Br)C.O[Na]>>
- c)
CC1(C)CCCC1Cl.CC(C)(C)O[Na]>>

7-15 Draw the expected major product when each of the following compounds is treated with hydroxide to give an E2 reaction.

- a)
- b)
- c)

7-16 Predict all the elimination products of the following reactions and label the major product.

- a)
CC(C)C(C)(Br)C.O>>
- b)
CCCC(C)(Cl)C.CO>>
- c)
CCCC(C)(Br)C(C)(O)C.O>>
- d)
CC1CCCCC1O.OS(=O)(=O)O>>

SUBSTITUTION VS ELIMINATION

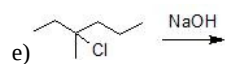
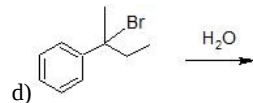
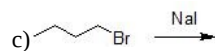
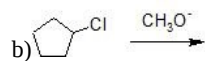
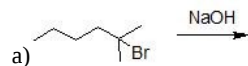
7-17 Identify the function of the following reagents. The reagents will be a strong/weak nucleophile and/or a strong/weak base.

- a) Cl^-
- b) NaH
- c) t-BuO^-
- d) OH^-
- e) H_2O

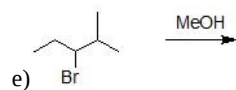
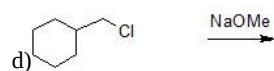
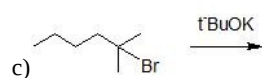
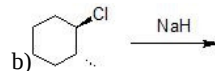
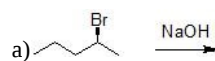
f) HS^-

g) MeOH

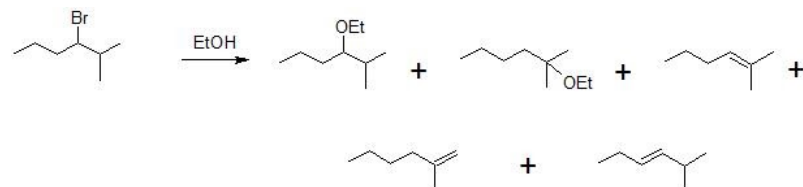
7-18 Identify which mechanism the following reactions would undergo.



7-19 Identify all the products of the following reactions and specify the major product.



7-20 The following reaction yields five different products. Give the mechanisms for how each is formed.



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