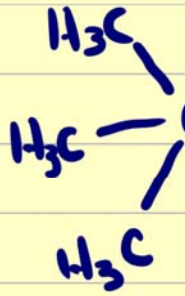
PROBLEM - GIVE PRODUCTS AND RANK, S_N1 VS S_N2

$CH_3CH_2CH_2-Br + H_2O \longrightarrow$?

$CH_3CH_2CH_2-Br + H_3N \longrightarrow$?



+ $H_2O \longrightarrow$?

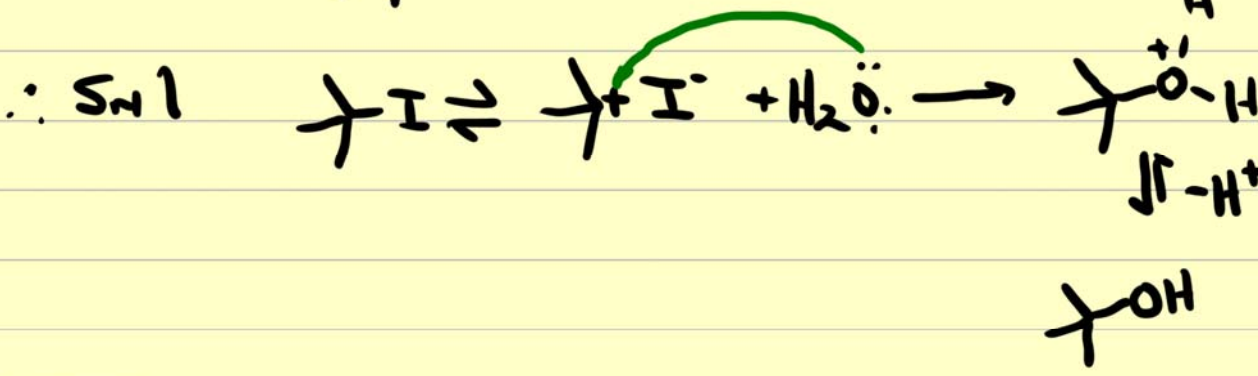
$CH_3CH_2CH_2-I + H_2O \longrightarrow$?

3° HALIDE - S_N1

I^- - EXCELLENT L.G. - S_N1 OR S_N2

H_2O: , POOR Nü ∴ MORE S_N1

∴ S_N1



+ $H_2O \longrightarrow$

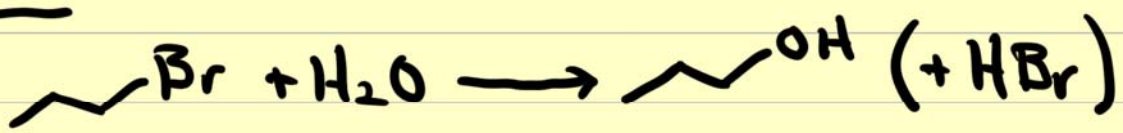
(HI)

1° ALKYL HALIDE - S_N2

HALIDE I^- (L.G.) - EXCELLENT - S_N1 OR S_N2

Nü - H_2O - Poor ∴ S_N1 Tendency.

∴ 50/50 S_N1 / S_N2

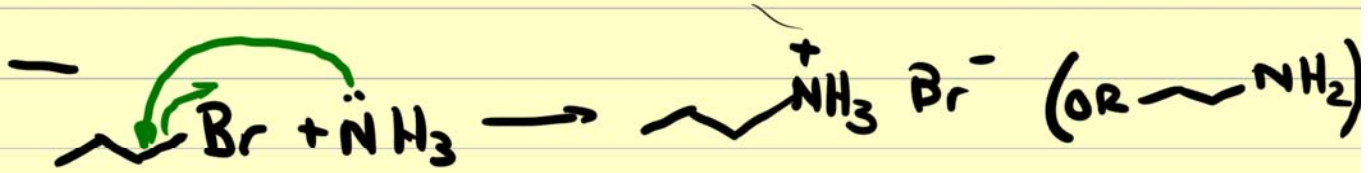


1° Alkyl Halide - S_N2

L.G. is Br^- - Not Quite as Good as I^-
A Bit More S_N2 than I^-

Nü - H_2O: - Poor ∴ S_N1 Tendency.

∴ A Bit More S_N2 Character



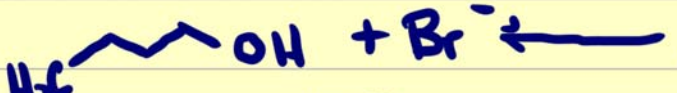
1° Halide - S_N2

L.G. - Br^- - A Bit More S_N2 than I^-

NH_3 - Good Nü - Tends towards S_N2
(more than H_2O)

∴ Almost 100% S_N2 Character.

Alcohols as Substrates for S_N1 or 2



FAILS

Problems - $^{\ominus}OH$ is a Poor Leaving Group.
- K_{eqm} is Horrible

But, if you add H^+, this becomes feasible

EXCELLENT L.G.

Often use excess HBr, so that

90% of time, this is S_N1.

CH 7. - Alcohols, Ethers, Halides, Amines.

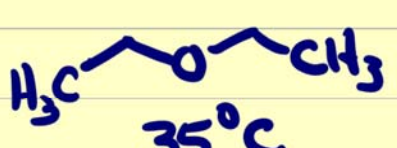
Alcohols- R-OH - Ruled by OH

They're a Bit Like H_2O

- Particpate in Hydrogen Bonding.
- Bpt - unusually High
- Tend to be Water Soluble up to C_5

Bpt.

Diethyl Ether



Butanol

Ethers R-O-R

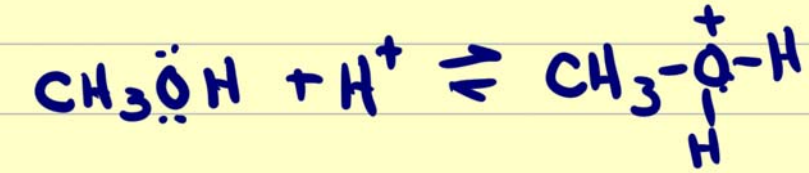
- Not H_2O Soluble
- Not Especially Boiling.

Alcohols. Chemistry Like H_2O - Acidic

$$H_2O + Base \rightleftharpoons HO^- + Base\text{-}H^+$$

$$H_3C\text{-}OH + Base \rightleftharpoons H_3C\text{-}O^- + Base\text{-}H^+$$

ALSO BASIC.



ETHERS - NOT ACIDIC ~ NO OH

- THEY ARE BASIC, THOUGH