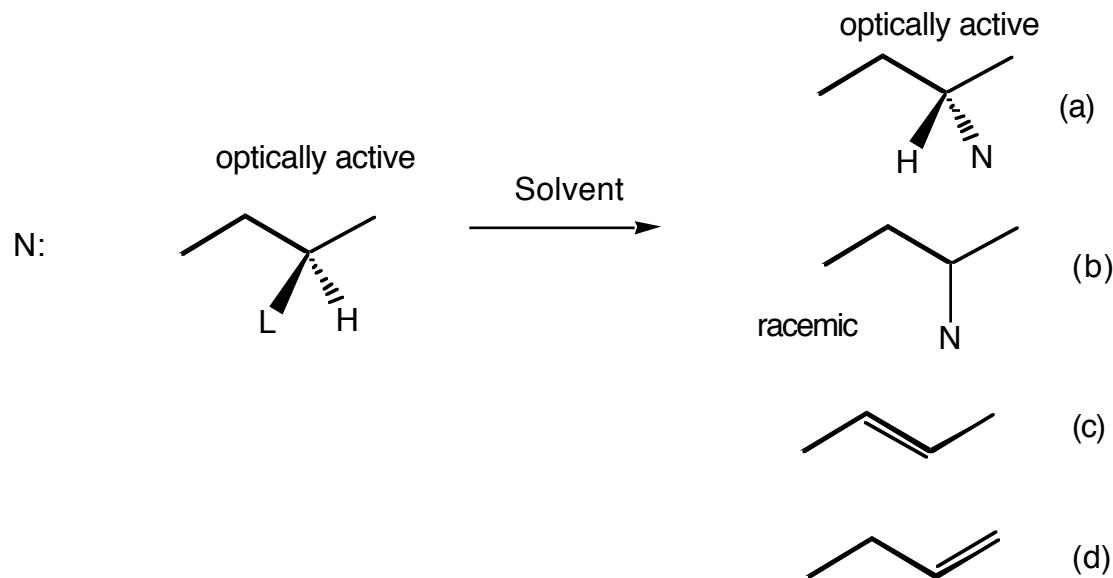


Problem 64, Chemistry 301X- 2006

Here is a general reaction that can give multiple products. In each case, pick from the appended lists one L, one N, and a Solvent that would maximize the desired product. Very briefly explain your strategy.

L = potential leaving groups	N = potential Nucleophiles	Potential Solvents
OTs	H: \ominus	H ₂ O
CH ₃	HO \ominus	“polar”
F	(CH ₃) ₃ CO \ominus	“nonpolar”
I	NH ₃	hot
D	H ₂ O	green
	HS \ominus	



(e) Even though H^- is a very poor choice for any of the reactions shown above, when $\text{L} = \text{OH}$, there is a rapid and irreversible reaction with hydride (H^-). Explain.

(f) Here are two S_N2 reactions: How would a change to a more polar solvent change the rate of the reaction?

