Ex 47 - The Stereochemistry of S_N1

Indicate the stereochemical outcome of the following SN1 reactions. Assume that all chiral centers are optically pure. Do these reactions all give racemic mixtures?

Racemization at the reaction center gives diastereomeric products, each of which is optically pure. This, because there is a chiral center that is unaffected by the reaction.

$$H_3CH_2C$$
 CH_3
 CH_2CH_3
 CH_2CH_3
 CH_2CH_3
 CH_2CH_3
 CH_2CH_3
 CH_2CH_3
 CH_2CH_3
 CH_2CH_3
 CH_2CH_3
 CH_3
 CH_2CH_3
 CH_3
 CH_3