CH-314 Structural Analysis
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Jigsaw 2A

Hore Section 2.2. Nuclear shielding

1. The following compounds all exhibit a single line in their ^{1}H NMR spectra. Deduce their structures.

   a. $C_6H_4I_2$ b. C_3H_9N c. $C_5H_8Br_4$

   d. CH_2F_2 e. $C_9H_{14}O$

2. How many different signals will you see in a ^{1}H spectrum in the following molecules?

   a. $CH_3CBrHCH_3$

   b. $CH_3C(O)NH_2$

   c. 1,2-dichlorobenzene

   d. $CH_2FCH_2CHCHCH_2CH_3$

3. ^{1}H and ^{13}C NMR spectra were recorded for two isomers of $C_3H_2Br_6$. The ^{13}C spectra contain peaks at three distinct chemical shifts. Isomer 1 has one distinct ^{1}H chemical shift and isomer 2 has two.

   a. Deduce the structures of the two compounds.

   b. Predict the number of chemical shifts in the ^{1}H and ^{13}C spectra of the other two isomers of $C_3H_2Br_6$.