Answer on Question #67368 - Chemistry – Organic Chemistry

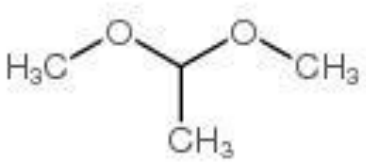
Task:

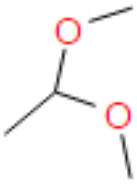
Give the structure that corresponds to the following molecular formula and 1H NMR spectrum: $C_4H_{10}O_2$: δ 1.36 (3H, d, J = 5.5 Hz); δ 3.32 (6H, s); δ 4.63 (1H, q, J = 5.5 Hz)

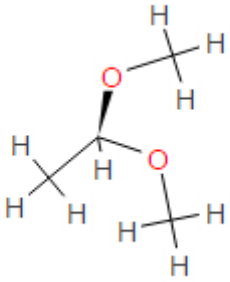
Solution:

Based on the positions of the proton signals, it is possible to propose a structure for the compound C4H10O2. This is 1,1-dimethoxyethane.

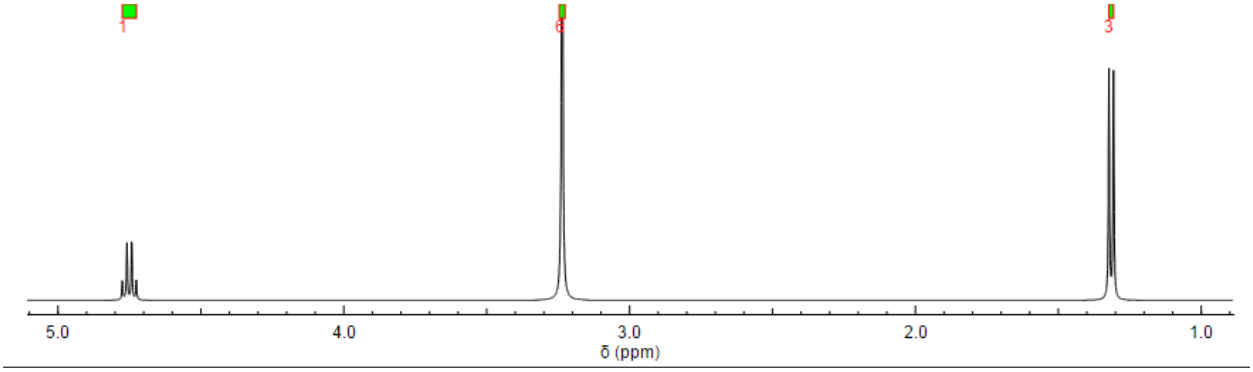
$$CH_3\text{-}CH(OCH_3)_2$$







Schematic 1H NMR spectrum:



δ 1.36 is a doublet (3H, methyl group, -CH_3);

δ 3.32 is a singlet (6H, two methoxy groups, 2 –O-CH3);

δ 4.63 is a quartet (1H, methine group, -CH).