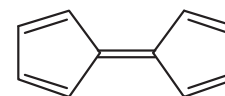
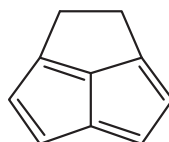
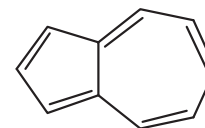
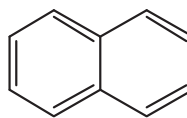
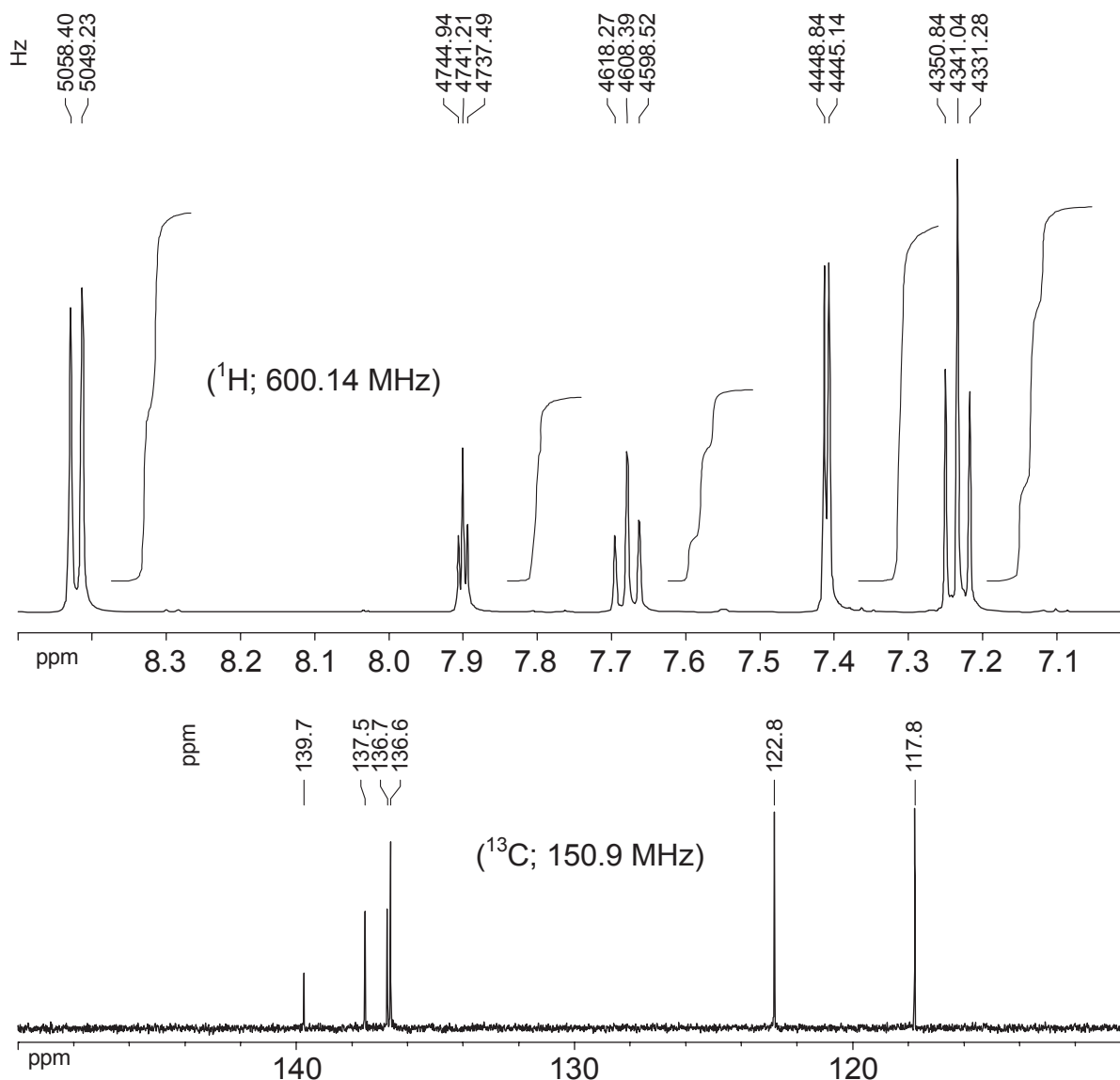


**In-Class Exercise:
Multiple-Bond Correlations in HMBC**

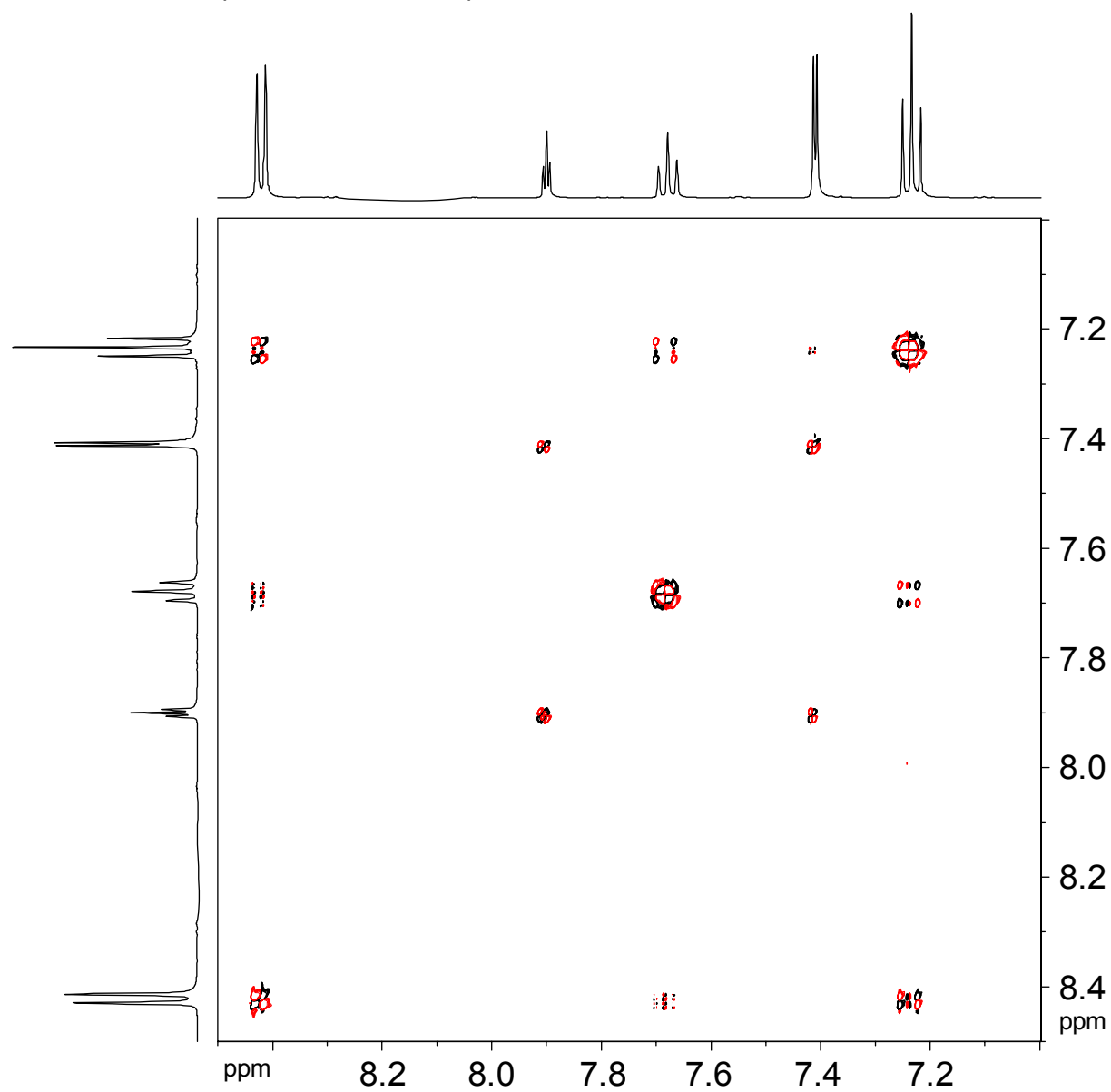
The ^1H , ^{13}C , ^1H - ^1H COSY, ^1H - ^{13}C HMQC and HMBC spectra shown on the following pages are of one of the four C_{10}H_8 isomers on the right.



- Which one? Assign chemical shifts to each of the protons and carbons in your proposed structure.
- The HMBC spectrum shows multiple crosspeaks for each horizontal-axis carbon. What correlations do each of these peaks represent?



DQF-COSY
(^1H ; 600.14 MHz)



HMQC

($^1\text{H}/^{13}\text{C}$; 600.14/150.9 MHz)

