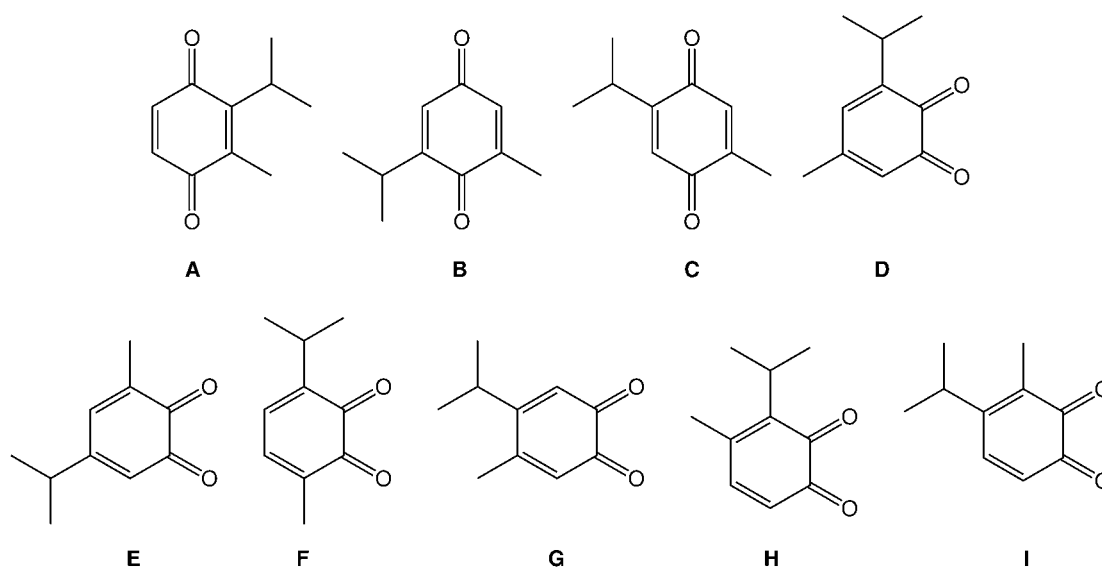


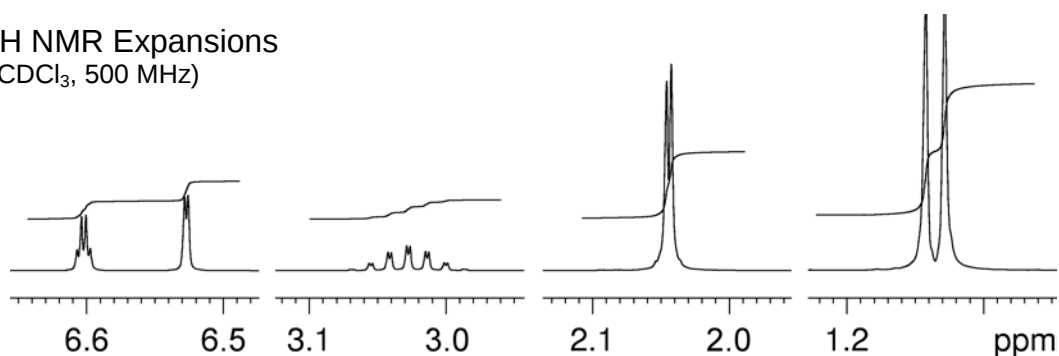
Problem 50

Given below are nine benzoquinones which are isomers of $C_{10}H_{12}O_2$. The 1H and $^{13}C\{^1H\}$ NMR spectra of one of the isomers are given below. The 1H - ^{13}C me-HSQC and 1H - ^{13}C HMBC spectra are given on the following page. To which of these compounds do the spectra belong?

HINT: In benzoquinones, three-bond C-H correlations ($^3J_{CH}$) in the HMBC spectrum are significantly larger than two-bond C-H correlations ($^2J_{CH}$) (which are negligible).



1H NMR Expansions
($CDCl_3$, 500 MHz)



$^{13}C\{^1H\}$ NMR Spectrum
($CDCl_3$, 150 MHz)

