

Problem R-100. (C ₈ H ₈ Se) Determine the structure from the 270 MHz ¹ H NMR spectrum. (a) DBE
(b) Determine the structure of R-10O . Mark the chemical shifts on a drawing of the molecule below.
(c) Obtain all of the coupling constants from the expansions of the multiplets C and D. Report them in the standard format ($^{n}J_{X-Y} = 0.00$ Hz). Clearly mark them on a drawing of the molecule, and on the spectra.

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Problem R-100. (C₈H₈Se) Determine the structure from the 270 MHz ¹H NMR spectrum.

- (a) DBE<u>5</u>
- (b) Draw the structure of **R-100**. Mark the chemical shifts on a drawing of the molecule below.

5.45, d,
$${}^{3}J_{HH}$$
 (trans) = 17.5 Hz

H 5.55, d, ${}^{3}J_{HH}$ (cis) = 10 Hz

6.70, dd, $J = 17.5$, 10 Hz

 ${}^{2}J_{HH} \approx 0$ The termal ${}^{2}J$ is too small to detect - this is also seen for some RS substituents

(c) Obtain all of the coupling constants from the expansions of the multiplets C and D. Report them in the standard format ($^{n}J_{X-Y} = 0.00$ Hz). Clearly mark them on a drawing of the molecule, and on the spectra.

$$^{3}J_{HSe}$$
 (cis) = 11.5 Hz
 $^{2}J \approx 0$
Se H $^{3}J_{HSe}$ (trans) = 25 Hz -4 for half/values
 $^{2}J_{HSe}$ (gem) = 22 Hz

