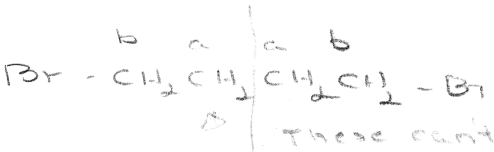
Chapter 17 (17.10 – 17.14): Nuclear Magnetic Resonance Worksheet

For each of the following compounds draw the structure and label each group of equivalent hydrogens with a, b, c, etc. showing the number of nmr signals and their relative positions (a = most upfield). Make table showing the integration and splitting pattern for each signal.

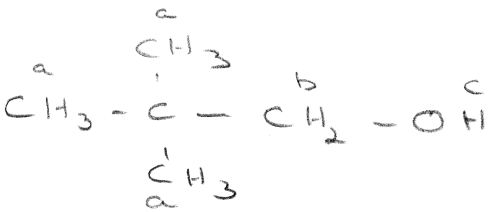
1. 1,4-dibromobutane



a. 4 H triplet
b. 4 H triplet

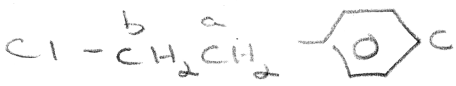
These can't see these.... because they are the same

2. neopentyl alcohol



a. 9 H singlet
b. 2 H singlet
c. 1 H singlet

3. 1-chloro-2-phenylethane



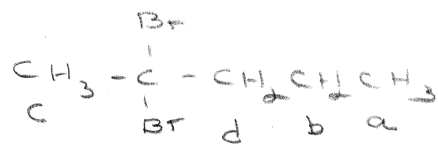
a. 2 H triplet
b. 2 H triplet
c. 5 H singlet

4. n-propyl methyl ether

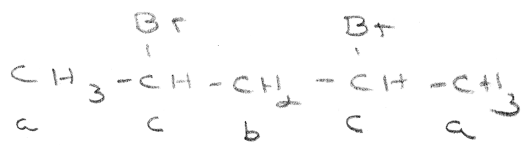
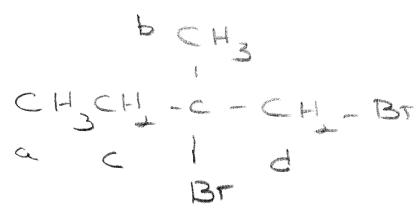
a. 3 H triplet
b. 2 H multiplet
(c.) d. 2 H triplet
(d.) c. 3 H singlet

Below are the summarized nmr spectra of three compounds with the formula $C_5H_{10}Br_2$. Identify each compound by drawing its structure next to its nmr. $[(5\times2)+2+12]/2 = 0$

Compound 1	a 1.0 ppm	3H	triplet
	b 1.4 ppm	2H	complex multiplet
	c 1.7 ppm	3H	singlet
	d 1.9 ppm	2H	triplet



Compound 2	a 1.2 ppm	6H	doublet
	b 1.5 ppm	2H	triplet
	c 3.1 ppm	2H	complex multiplet



Compoundd 2	a 1.0 ppm	3H	triplet
	b 1.2 ppm	3H	singlet
	c 1.5 ppm	2H	quartet
	d 3.3 ppm	2H	singlet