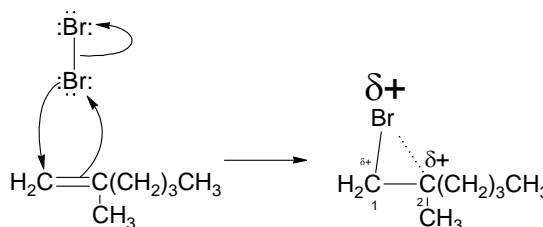


STUDY GUIDE ERRORS, POSTED AT CHEM. 350 AND 360 WEB SITES
LOUDON AND STOWELL, STUDY GUIDE AND SOLUTIONS MANUAL, 4th EDITION

NOTE: IF YOU ARE A STUDENT IN A CLASS NOT TAUGHT BY RON MAGID, IT'S QUITE POSSIBLE THAT YOUR PROFESSOR WILL NOT CONSIDER SOME OF THE FOLLOWING AS "ERRORS" - IF IN DOUBT, CHECK WITH YOUR INSTRUCTOR.

- p. 131, answer to Problem 5.1 (from p. 164 of the textbook). A correct way to depict the formation of a bromonium ion in one step from an alkene plus Br₂ is with the three curved arrows used in lecture and in Eqn 5.4a (p. 161 of the text). You'll recall that in lecture, I objected to Loudon's statement that "it is easier to follow this notation if we 'dissect' it into two fictional steps" (emphasis added by me). Showing the "two-step" process in Eqn 5.4b not only does not make it "easier," it also has the potential of encouraging students to learn something wrong. So, in the answers to all three parts of Problem 5.1, bromonium ion formation is shown with just two curved arrows, one short of the number needed to make both Br to C bonds. It is also misleading (but not very much so) to show just two resonance structures for the bromonium ions on p. 131; as we discussed in class, there is a third (very minor) structure to consider. I would have written the answer as shown to the right: one-step formation (three curved arrows) of a very unsymmetrical bromonium ion (with stronger C₁-Br bonding than C₂-Br) and with the Br closer to C₁ than to C₂. Nucleophilic attack by Br⁻, H₂O or N₃⁻ occurs at the weaker bond, C₂-Br.



There is an additional error here. The answer to 5.1(a) should not show H₂O above the reaction arrow. This reaction is being performed in an inert solvent, like CH₂Cl₂. If water were the solvent, the product would be a bromohydrin and not a vicinal dibromide.

[Thanks to Kathryn Sumner and Daniel Thompson for spotting these errors.]

- p. 164, answer to Problem 6.9(a) (from p. 215 of the textbook). There is an error in the units shown in the calculated answer. It should be +13.3 deg•mL•g⁻¹•dm⁻¹ (i.e., there should be no exponent -1 for mL). The same error is in 6.9(e).

[Thanks to Daniel Thompson for spotting these errors.]

- p. 204, answer to Problem 7.25 (from p. 290 of the textbook). Because the bromonium ion can be attacked equally at two carbons, the product is a 50/50 mixture of the structure shown and its enantiomer (i.e., an optically inactive *racemic* mixture). [Thanks to Daniel Thompson for reporting this.]

[Some students have challenged the answers to Problems 7.22 and 7.24 (p. 283 in the text) because they show *syn* addition (as well as *anti*) for bromination of an alkene. The answers are actually "correct" because these two questions were posed **before** Loudon introduced the stereochemistry of bromination on p. 286; in fact, when Problem 7.24 is revisited in Problem 7.26, the correct answer is now given.]

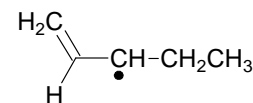
- p. 201, answer to Problem 7.12c (p. 265 in the text) With the longer equilibrium arrow to the right, the implication is that the diaxial conformation is more stable. [Credit to Katie Fagan for pointing this out.]
- p. 311, answer to Problem 10.1 (from p. 411 of the textbook). If *E/Z* stereoisomers are expected in

the answer to 10.1(b), then it would be reasonable to expect some of the *Z* isomer in the answer to 10.1(a). I can't find any statement in the dehydration discussion (Section 10.1) nor in the discussions of E2 and E1 reactions in Chapter 9 that would say that only *E* Ph-CH=CH-Ph is produced. (It turns out that *E* does dominate *Z* here by a huge amount - ca. 100/1 - because the isomers differ by much more than do stereoisomers like *E* and *Z* 1-butene: the numbers are 5.7 kcal mol⁻¹ and 1.0 kcal mol⁻¹, respectively. This will be reflected in the transition states leading to the two isomers.

[Credit to Erin Hall for pointing this out.]

p. 555, answer to Problem 17.6(a) (from p. 753 of the textbook). Although the lack of substituents on the ring may make the point moot, it would have been far better to have shown the second resonance structure for the free radical intermediate as I've done to the right.

p. 556, answer to Problem 17.6(c) (from p. 753 of the textbook). In the allylic radical from abstraction of H^a, the second resonance structure has the odd electron on the wrong carbon. The correct structure is shown here.



p. 643, paragraph 2(b) for the benzyl radical: the second resonance structure is missing a double bond from the ring to the CH₂ group.

THE ERRORS ABOVE WERE POSTED TO THE CHEM. 350 AND 360 COURSE WEB SITES ON DECEMBER 23, 2005
