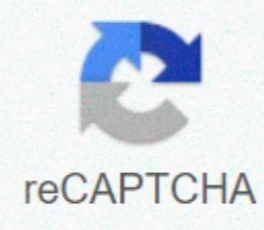




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Organic chemistry for dummies 2

John T. Moore, Richard H. Langley Organic Chemistry II is one of the hardest courses you can do. Survival is not easy – you probably know that your Organic Chemistry Class. Preparation is important: If you study the basics of organic chemistry the right way, prepare for your experiments, and know your aromatic systems, you're off to a great start! Organic Chemistry II doesn't have to be as heavy as you think. Follow these study tips to improve your understanding of organic chemistry, from carbon atom bonds to unnamed reactions, and everything in between: Don't just point out concepts, learn concepts for work exercises. Keep up with the material by studying organic chemistry II at least six days a week. Buy and use model kit. For every reaction you learn, know where and why the electrons move. Learn these named (and unnamed) reactions. Use resources other than the textbook (such as excellent organic chemistry II mannequins, written by John T. Moore and Richard H. Langley and published by Wiley). Read more in your textbook before class. Make very good class notes and copy them as soon as possible. If you need help, ask questions. Having an Organic Chemistry II test has completely earned a reputation for being tough. Make life easier by following these tips before you take your next organic chemistry exam: Remember that a carbon atom makes up four bonds. Do not ram the night (or even a week) before the test. Go to class religiously. Correct errors in previous exams and do not make the same mistakes again. Set official fees and use them to help decide the most likely structure, sites for a nucleophilic/electrophilic attack, and so on. When writing an organic reaction, make sure you don't lose carbon atoms. Relax and sleep enough the night before the exam. When naming organic structures, add E/Z, R/S and cis/trans prefixes. Think of spectroscopic data, especially NMR, as puzzle pieces and try to match them together. Work problem kits and internship exams twice. If you find that you have drawn a compound that does not have four connections, return to the top of that list. In class II of organic chemistry, you often add groups to aromatic systems. If you don't know where the replacement is happening, see this table for some instructions. If you use this table, keep in mind two things: O-p-directors always beat m-directors. Strong activators always beat weak activators. Classification of very strong activators of ortho-para-directors of various aromatic substituents -NH₂, -NHR, -NR₂, -OH, -O– Moderate activators -OR, -NH-CO-R, -O-CO-R weak activators -R, -C₆H₅ Light deactivations -F, -Cl, -Br, -I Meta-directors very strong deactivations -N+R₃, -NO₂, -CN, -CCl₃, -CF₃ Moderate to light activators -CN, -SO₃H, -CO-R, -COOH, -COOR, -CONH₂, -N+H₃ Published: Tuesday, Tuesday, Tuesday 24, 2019 Views: Author: Arthur Winter Published: John Wiley & Sons Release Year: 2016 ISBN: 978-1119-2-9337-8 Pages: 384 Edition: 2nd Edition File Size: 7MB/9 MB File Type: pdf/epub Language: English Description Organic Chemistry I Dummies 2nd Edition Organic Chemistry I for Dummies 2nd Edition Written by Arthur Winter is an excellent book of Organic Chemistry Studies available (PDF) download. This organic chemistry I mannequins, I've written a book I would have liked when I took the first semester of organic chemistry. This means that this organic chemistry I Dummies book is very practical. It doesn't try to emulate or replace a textbook. Instead, it is designed to complement the text by highlighting the most important concepts in your chemical textbook. While the Organic Chemistry I Mannequins textbook gives you mostly just-the-facts-ma'am style coverage of the material – and gives you a lot of problems at the end of the chapters to see if you can apply these facts – this Organic Chemistry I Dummies, the book serves as an interpreter, guide and translator for the basic concepts of the topic. Organic Chemistry I For Dummies book also gets nuts and bolts on how to actually go about solving certain problems with organic chemistry. Problem solving is the most important problem in the student majority, partly because so many aspects of the problem have to be considered. Where's the best place to start a problem? What interesting features do professors like to get into trouble and what is the best strategy to deal with a particular type of problem? I'll answer some of these questions in this Organic Chemistry I Mannequins book. While the Organic Chemistry book can't possibly show you how to solve any kind of problem that you encounter in organic chemistry, it doesn't provide guidance in areas that in my experience, students usually have problems. Introduction Part 1: Getting Started Organic Chemistry Chapter 1: Organic Chemistry Wonderful World Chapter 2: Dissecting Atoms: Atomic Bonding and Structure Chapter 3: Talking Pictures: Drawing Structures Chapter 4: Cover acids bases Chapter 5: Reactivity Centers: Functional Groups Chapter 6: Vision 3-D: Stereochemistry Part 2: Hydrocarbons Chapter 7: What's the name? Alcanic Nomenclature Group 8: Drawing Alkanes Group 9: Vision Double: Alkenes Chapter 10: Reactions Alkenes Chapter 11: It Takes Alkynes: Triple Carbon Bond Part 3: Functional Chapter 12: Removal and Replacement: Elimination and Replacement Reactions Chapter 3 13: Organic Molecules: Alcohols Chapter 14: Side-by-Side: Diels and Conjugated Alkenes-Alder Reaction Chapter 15: Rings Lord: Aromatic Compounds Chapter 16: Bringing Howitzers: Aromatic Compounds Reactions Part 4: Spectroscopy Structure Determination Chapter 17: Smashing Time: Mass spectrometry Chapter 18: Seeing good vibrations: IR spectroscopy Chapter 19: NMR Spectroscopy Chapter 20: After Clues: Solving problems NMR Part 5: Part Dozens Chapter 21: Ten (Or So) Great Organic Chemists Chapter 22: Ten Cool Organic Discoveries Chapter 23: Ten Cool Organic Molecules E 6. Addies A: Working with multistep synthesis problems Appendix B: Working response mechanisms Appendix C: Dictionary Engineering Books Pdf & Chemical Techniques & Organic Chemistry & Organic Chemistry 2 Dummies Start your review of organic chemistry dummies, 2 book Bundle: Organic Chemistry I Dummies & Organic Chemistry II dummies These books are good at using additional resources for organic chemistry courses. I used it with my workbook and my textbook. They may not replace what you learn in class or laboratory, but they are good at brushing up on the subject/concept or quick review. These books are good at using additional resources for organic chemistry courses. I used it with my workbook and my textbook. They may not replace what you learn in class or laboratory, but they are good at brushing up on the subject/concept or quick review. ... more Read this, still have no idea how Chem. Plain-English guide one of the hardest courses around So, you lived the first semester of organic chemistry (maybe even skin teeth) and now it's time to get back in the classroom and lab! Organic Chemistry II Dummies are an easy-to-understand reference to this often complex topic. Thanks to this book, you will get friendly and comprehensible instructions on everything you can expect from your organic chemistry in course II. Extending successful Organic Chemistry I For DummiesInclurs themes in a simple and effective wayExplains concepts and concepts in a quick and easy-to-understand way Are you confused by composites, baffled biomolecules, or anything in between, Organic Chemistry II Dummies will give you the help you need – in plain English! Chemistry. Part I Brushing Up Important Organic Chemistry I Definitions in this regard... Part I is an overview of some of the general chemistry and organic chemistry I subjects you need for sure grounding before moving to Organic Chemistry II. Different books and different instructors break organic I and Organic II material in different

locations. We're taking the most common break, but some part I material might be new to you. Even if you looked at these concepts last semester, some of them have high steam pressure and they could have escaped between semesters. Let's start by bringing you up with speed mechanisms and reminding you how to push electrons around with these curved arrows. We jog your memory discussion of replacement and elimination reactions and their mechanisms, reactions of free radicals. Next you look at the structure, nomenclature, synthesis and reactions of alcohols and ethers, and then you can fight conjugated unsaturated systems. Finally, we remind you of spectroscopic techniques, from INFRARED fingerprints to NMR shifts. The overview in this regard moves at a fairly fast pace, but we are confident that you can keep up. Chapter 1 Organic Chemistry II: Here We Go Again! In this chapter, looking at the material learned from Organic I Preview, what you know about Organic II When you look at this chapter, it's probably because you're preparing to take on the other side of organic chemistry, are in the middle of Organic II, or you're trying to figure out what Organic II involves in time to make your major from pre-med art history. In any sense, you probably successfully graduated from Organic Chemistry I. Many of the learning techniques (and coping mechanisms) you learned that helped you do well in Organic I am a useful Organic II. The two main things to keep in mind are never to be left behind. Carbon has four bonds. In this book we use larger, more complex molecules than you may have encountered in Organic I. We chose to do this because, first of all, it is the nature of Organic II – larger and more complex molecules. Secondly, many of you will take biochemistry at some point, and succeed in that topic you need to get satisfied with the large, involved molecules. (If you take biochemistry, be sure to check out the Biochemistry Dummies by John T. Moore and Richard H. Langley [Wiley]. We understand the authors are really great guys.) To get you started, this chapter does a quick overview of the topics commonly found in Organic I, and then gives an overview of what we cover organic II. Assembling Organic Chemistry I Organic You Know That Organic Chemistry Is A Study of Carbon Compounds. Until the mid-1800s, humans believed that all carbon compounds were the result of biological processes that require a living organism. It was called a vital theory of power. The synthesis (or formation) of urea from inorganic materials showed that other methods can be used in the production of carbon compounds. Many millions of organic compounds exist because carbon atoms form stable bonds with other carbon atoms. The process of one type of atom bonding with identical atoms is catheterization. Many elements may be categorize, but carbon is the most efficient, probably no limit on how much carbon atoms can connect to each other. These relationships can be in chains, branched chains, or rings that offer a large combination of compounds. Carbon is also capable of forming stable bonds with a number of other elements, including hydrogen, nitrogen, oxygen and sulphur with biochemically significant elements. The last three elements form the basis for many functional groups that you studied at Organic I. Intermolecular forces You Studied the intermolecular forces of organic I. Intermolecular forces (forces between chemical species) are extremely important to explain the intermolecular effects of molecules. The intermolecular forces that you saw in Organic I and look again at Organic II include dipole-dipole interactions, London, hydrogen bonding, and sometimes ionic interactions. Dipole-dipole forces exist in the polar regions of different molecules. The presence of dipole means that the molecule has a partially positive ($\delta+$) end and a partially negative ($\delta-$) end. Reverse partial fees attract each other, while partial fees repel. Bonding hydrogen, as the name suggests, involves hydrogen. This hydrogen atom must be bound to either an oxygen atom or a nitrogen atom. (In non-biological situations, anti-hydrogen communication occurs even when the formation of hydrogen atoms binds to fluorine atom.) Hydrogen bonding is significantly stronger than normal dipool-dipool forces, and is stronger than london dispersion forces, the forces of non-polar molecules due to fluctuations in electron clouds of atoms or molecules. Hydrogen, which is connected to either a nitrogen or oxygen atom, is strongly associated with a different nitrogen or oxygen atom. Hydrogen binding can be either intramolecular or intermolecular. In organic reactions, ionic interactions may be intermolecular or intramolecular forces. In some cases, these may include metal thiones, such as Na+, or anions such as Cl-. Cations may contain ammonium ions from the amino group, such as RNH3+. Anion can be carboxylic acid, such as RCOO-. The opposite ions attract each other very strongly. Functional groups of Carbon are a very versatile element because it can form many different compounds. Most compounds have one or more functional groups containing atoms other than carbon and hydrogen and/or double or triple bonds, and define the reactivity of the organic molecule. In organic i you probably started with hydrocarbons, compounds of carbon and hydrogen, including alkene and alkene, which contained double and single bonds, respectively. Then you probably touched some of the more common functional groups, such as alcohols and maybe even some aromatic compounds. The reactions you had in organic I. Every time you met a different functional group, you needed to learn reactions. Reactions that talked about how a functional group could form, the common reactions that the functional group went through - reactions, reactions, and more reactions. The two most important things you learned were substitution and elimination reactions: SN1, SN2, E1 and E2. Let's hope you learned them well, because you see them again quite often. Spectroscopy Organic I probably learned a lot about different types of spectroscopy and how they are used the setting of the device. You discovered how a mass of spectroscopy can give you the idea of molar mass and what fragments may occur in a molecule. You found out that infrared spectroscopy can be used to identify functional groups, and you learned to look at the fingerprint area. Then finally you progressed to nuclear magnetic resonance (NMR) spectroscopy, one of the main tools of organic chemists that can be used to interpret chemical shifts and dividing patterns to give you more clues about the structure. Isomerism and optical activity during organic i were exposed to concepts related to isomerism and optical activity. You have to be familiar with these concepts of Organic II, so we'll take a few minutes here for a brief review. Isomers are compounds with the same molecular formula but different structural formulas. Some organic and biochemical compounds may be present in different forms of isomers and have different isomers with different properties. The two most common isomer types in organic systems are cis-trans isomers and isomerism, which is due to the presence of chiropractors. Cis-trans isomers The existence of carbon-carbon dual bonds leads to the possibility of isomers. Double ties are quite restrictive and limit molecular motion. The same side of a double bond is usually held in that position (cis), while the groups on the opposite side are more than each other (trans). Figure 1-1 shows an example. However, if the two groups associated with a single double bond carbon atom are the same, cis-trans isomers are not possible. Cis isomers are a common form of fatty acids, but processing tends to convert some cis isomers into trans isomers. Figure 1-1: Cis and trans isomers. Cis-trans isomers are also possible in cyclical systems. The Cis form has similar groups on the same side of the circle, the trans form has similar groups from circle to up and down. Chiral compounds With four different groups of carbon atoms are chiral. Chiral carbon rotates flat polarized light, light, whose waves are all on the same plane, and is enantiomer (non-super-imputable mirror image). Rotation, which can be either on the right (dextrotory) or on the left (levorotatory), leads to one optical isomer and the other is l. Special rotation (represented by α = observed rotation, T = temperature and D = sodium D-line) is an indicator of the ability of the compound to rotate the light. The special rotation is due to the observed rotation (α) divided by the concentration of the solution and the length of the container. Other than optical activity, the physical properties of enantiomers are the same. The racemic mixture is a 50:50 mixture of enantiomers. The Meso compound is a mixture of chiral centers and symmetry. Symmetry again leads to optical rotation of one bright carbon, which cancels the second optical rotation. Diastereomers are stereoisomers that are not enantiomers. The R-S mark is a means of determining geometry around the chiral center. According to this method, the groups associated with the chiropractor must be prioritised in order of reduction in atomic mass. To specify a center, place the lowest priority group (the lowest atomic weight group) and count the remaining groups 1, 2, and 3. On the right is R and on the left is S. Any similarity between d and l and R and S is random. Some important organic compounds have more than one chiral center. Several chiropractors show the existence of multiple stereoisomers. The maximum number of stereoisomers is 2n, where n is the number of non-identical chilli centres. Figure 1-2 shows four stereoisomers present in a molecule with two chiropractor centres. Non-ultra-impuable mirror images are enantiomers, while other species in the figure are diastiers. Unlike enantiomers, diastereomers have different physical characteristics. Figure 1-2: Molecule representations with two chiropractors. Emil Fischer developed a method to draw a compound to illustrate which stereoisomer exists. These types of drawings, called Fischer's projection formulas, are very useful in biochemistry. In the projection formula, the coal carbon + is placed in the centre of the pattern. Vertical lines (bonds) point away from the viewer and the horizontal lines point to the viewer. Fischer used the D-sign when the most important group was to the right of carbon, and the L-name when the most important group was to the left of the carbon. (See Figure 1-3.) Figure 1-3: Fischer projection formulas. The use of D and L shall be gradually replaced by the R and S systems for the determination of isomers, which is particularly useful if more than one chemic carbon atom is present. Looking ahead to organic chemistry II One of the keys to Organic II is the mechanisms, the specific way in which the reaction continues. Recall from Organic I that it involves pushing around electrons, showing where they go with curved arrows. We'll give you a good overview of these concepts in Chapter 2, along with some basic reaction moves. In Chapter 3 we go to some depth about alcohols and ethers. Like Organic I, when we meet a new functional group we examine the structure, nomenclature, properties, synthesis and reactions. In some courses and textbooks, alcohols are covered in the first semester, but for those readers who haven't received them yet, we'll add them to this book. If you're already happy with that material, please skip that chapter and go for another. Conjugated unsaturated systems are an important part of organic chemistry, so the 4th and 4th of December 2001 1999 and the 19th-20th these systems, setting the stage for our discussion of aromatic compounds that you will find in chapter t. To keep you informed about spectroscopy, we'll cover the 5th and 5th. We'll give you an executive summary of infrared (IR), uv-vis, mass spec and nuclear magnetic resonance (NMR). In addition, there are many of the chapters in this book at the end of the spectroscopy section where we simply cover the essentials associated with the specific compounds that you will learn in this chapter. Aromatic compounds and their reactions are a big part of any Organic II course. Let's introduce you to the 6th Of Us. (You may want to find a resonant concept in advance.) Then in Chapters 7 and 8, you'll learn more than you ever wanted to know about aromatic replacement reactions, starring electrophiles and nucleophiles. Another important part of Organic II is carbonyl chemistry. We're looking at the 9th century. It's like a family reunion where I (John, one of your authors) grew up in North Carolina - everything is related. You meet aldehydes, ketones, carboxylic acids, acyl chlorides, esters, amides, and on and on. It's a quick peek, because later we'll go back and examine many of them in detail. For example, on 10 December 2004, the Commission Carboxylic acids and their derivatives are also an essential part of organic II. We spend quite a few pages looking at the structure, nomenclature, synthesis, reactions and spectroscopy of carboxylic acids. Although in chapter 12 of this topic, we use a lot of acid-based chemistry, most of which you were exposed to in your introductory chemistry course. (For a quick review, check out a copy of the chemistry of dummies or chemistry essentials for dummies, both written by John T. Moore and published by Wiley.) Carbon compounds that also contain nitrogen, such as amines, play an important role in any organic Course II. You total more acid-based chemistry amines, along with some more reactions. We hit this topic in chapter 13 and will give you some tips on multi-step synthesis. You probably haven't thought that some organic compounds might contain metal, so we'll give you the opportunity to get acquainted with organometallic group 14. In this chapter, you will meet Grignard's reaction. This is a very important organic reaction that you may have the opportunity to run into an organic lab. You just can't get away with these carbonyls, so you get another taste of these reactions, many of them called reactions, in Chapter 15. You may be able to avoid biomolecules if your course does not cover them, but if that happens, Chapter 16 For you. Finally, what is a good organic course without multi-stage and modernization with action plans? We hope that our advice can alleviate your pain at this point. The action plans are a bane for most organic chemistry students, but just hang in there. There is life after organic chemistry, and you may just find in the end that you actually enjoyed organic. And for those who missed chemical calculations, there's always quantitative analysis and physical chemistry. Chapter 2 Recalling how we do this: The mechanisms in this chapter of arrows arrows break basic moves considering combining the basic moves of mastering free radical mechanisms mechanisms are key to organic chemistry. Understanding the mechanism allows organic chemists to control the reaction and avoid unwanted side reactions. The understanding mechanism several times allows chemists to increase product yields. In this chapter you look at the basics of mechanisms and their conventions and look at some of the most common ways that electrons shift during a reaction. You can also see how these individual steps fit together in the overall response mechanism and apply some of these methods to free radical mechanisms. Duck – Here Come arrows Many types of arrows are used for organic chemistry, and each of them transmits information about a specific reaction. These arrows include the resonance arrow, the balance arrow, the reaction arrow, the two-headed arrow and the one-headed arrow. The resonance arrow, one line with arrowheads at both ends (see Figure 2-1), separates different resonance structures. The actual structure is the weighted average of all resonant forms. More resonant forms usually indicate a more stable structure. One or more resonance structures may be useful during the reaction (a)

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