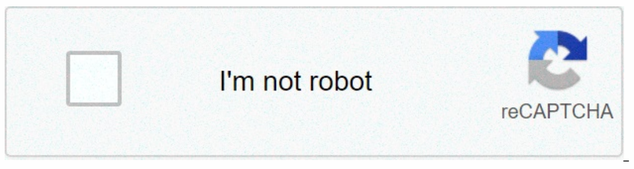

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Chemistry semester 2 exam study guide

AP Chemistry is a challenging topic, and many students are nervous about graduating at the end of the school year. But if you have a sense of what to expect at the AP Chemistry test well in advance, you will be able to prepare appropriately for it. In this guide I will lay out the structure and content of the AP Chemistry exam, give you examples of different types of questions you will look at it, and tell you how to study effectively for it! How is the AP Chemistry Exam structured? Like other AP tests, the AP Chemistry exam has two sections: a multiple-choice section and a free response section. In both sections, you have access to a periodic system of items, as well as a chart with any formulas and constants you may need for your calculations. Multiple-Choice section Here's a brief summary of the multiple-choice section on AP Chemistry: Number of questions: 60 questions with four answers each time: An hour and 30 minutes Scoring: Worth 50% of your total AP Chemistry score Calculator Use: Prohibited Be aware that some of these questions will exist as part of question groups (which consist of a few questions asking for a set of data), while others will be on their own. The free answer section Next up, here's an overview of the free answer section on AP Chemistry: Number of Questions: Four Short Answer Questions and Three Long Answer Questions Time: An Hour and 45 Minutes Scoring: Worth 50% of Your Total AP Chemistry Score Calculator Use: Allowed Questions Topics Finally, here are the main topics you will be tested on with the AP Chemistry exam: Experimental design Analyze data and identify patterns or explain phenomena Creating or analyzing atomic and molecular views to explain observations Articulate and then translate between representations of data After logical/analytical pathways to solve a problem The entire AP Chemistry exam is three hours and 15 minutes long. The test will next be administered on Friday, May 7, 2021, at 8pm You will probably have to wake up at least as early in the day for the AP Chem test. Also, this cord behemoth is what people used to set alarms before smartphones. Horrifying, I know that. How is the AP Chemistry Exam scored? As mentioned above, multiple-choice and free-answer sections are each worth 50% of your total score. No points are taken out for incorrect answers on either paragraph (i.e. there is no guessing penalty). To calculate your raw multiple choice score, add all your correct answers. This means that you can earn a maximum of 60 points in the multiple choice section. While the free answer section is a little more complicated, you should be able to find out how many points you've earned if you have points guidelines. Short-response questions are worth 4 points, and long-answer questions are worth 10 points, which means you can maximum of 46 points in this section. Next, convert these raw scores into numbers out of 50 so that they each make up half of your final raw score. Let's say you've got 40 out of 60 multiple choice questions correctly. You would convert this score to the corresponding fraction of 33 out of 50. So if you got 30 out of 46 points on the free-answer section, you would convert that score to the corresponding fraction of 32 out of 50 points. Finally, add the two scores out of 50 together to get your final raw score out of 100. You can use the conversion chart below to estimate how your raw score translates to an AP score (on a scale of 1-5). In this case, your raw score of 65 would be right in the middle of the 4 area. We can't be quite sure that these rough score intervals will correlate exactly with these AP scores because the curve is slightly different each year. If you find that you are close to the bottom of your goal score range in practice testing, don't get complacent! You should probably put in a little more study so you can feel more confident. Raw Score AP Score Percentage of students earning each score (2020) 72-100 5 10.4% 58-71 4 18.2% 42-57 1 27-41 2 23.8% 0-26 1 21.1% Source: College Board What do you need to know for AP Chemistry Test? AP Chemistry test centers around nine major devices (this is a new update for 2019) that includes all the topics covered by the AP Chemistry course. I list them here to give you an overview of what types of ideas you should be familiar with before taking the test. Unit 1: Atomic Structure and Properties Exam Weighting: 7-9% Topics Covered: Moles and Molar Mass Mass Spectroscopy of Elements Elementary Composition of Clean Substances Composition of mixtures Atomic structure and electron configuration Photoelectroscope Periodic trends Valence electrons and ionic compounds Dude, I tell you, that's what everything looks like if you zoom far enough. Unit 2: Molecular and Ionic Compound Structure and Properties Exam Weighting: 7-9% Topics Covered: Types of chemical bindings Intramolecular force and potential energy structure ionic solids Structure of metals and alloys Lewis charts Resonance and formal charge VSEPR and bond hybridization Salt: what a square. Unit 3: Intermolecular Powers and Properties Exam Weighting: 18-22% Subjects, covered: Intermolecular forces Properties of solids Solids, liquids, and gases Ideal gas law Kinetic molecular theory Deviation from ideal gas law Solutions and blends Representations of solutions Separation of solutions and mixtures chromatography Solubility Spectroscopy and the Electromagnetic Spectrum Photoelectric effect Beer-Lambert Law is always making changes to be its best self. Good for that. Unit 4: Chemical Reactions Exam Weighting: 7-9% Topics Covered: Introduction to Net ionic equations Representations of reactions Physical and and changes Støkiometry Introduction to titration Types of chemical reactions Introduction to acid-base reactions Oxidation-reduction (redox) reactions Unit 5: Kinetics Exam Weighting: 7-9% Topics Covered: Reaction rates Introduction to rate law Concentration changes over time Elementary Collision Model Reaction Energy Profile Introduction to Reaction Mechanisms Reaction Mechanism and Rate Law Steady-State Approximation Multistep Reaction Energy Catalysis collisions are very much like car collisions except minors! Aren't you glad I'm here to enlighten you? Unit 6: Thermodynamics Exam Weighting: 7-9% Topics covered: Endothermic and exothermic processes Energy charts Heat transfer and thermal equilibrium Heat capacity and caloriums Energy of phase changes Introduction of enthalpy of reaction Bond enthalpies Enthalpy of formation Hess's Law This is a star, or more scientifically, a crazy-hot ball o ' energy. Unit 7: Equilibrium examination Weighting: 7-9% Topics Covered: Introduction to equilibrium Direction of reversible reactions Reaction quotient and equilibrium constant Calculation of equilibrium constant Calculation of equilibrium concentrationsE Representations of equilibrium Introduction to Le Chateliers principle reaction quotient and Le Chateliers principle Introduction to Solubility equitable balancing times Common-ion effect pH and solubilbility Free energy solution Unit 8: Acids and bases Exam Weighting: 11-15% Topics Covered: Introduction to acids and bases pH and pOH of strong acids and bases Weak acids and base Equilibrium Acid-base reactions and buffers Acid-base titrating Molecular structures of acids and bases pH and pKa Properties of buffers Henderson-Hasselbalch equation Buffer capacity Unit 9: Applications afodynamik : 7-9% Topics Covered: Introduction to entropy Absolute entropy and entropy change Gibbs Free Energy and Thermodynamic Favorability Thermodynamic and Kinetic Control Free Energy and Equilibrium Coupled Reactions Galvanic (Voltaic) and Electrolytic Cells Cell Potential and Free Energy Cell Potential Under Nonstandard Conditions Electrolysis and Faraday's Law Join These Crazy Signs in the New Hit Dramedy Bonds : They are stuck together. You've never seen chemistry like this before. Will they? Don't they? Who cares? One of the most important parts of your college application is what classes you choose to take in high school (related to how well you do in these classes). Our team of PrepScholar admissions experts have gathered their knowledge in this single guide to planning your high school course schedule. We will advise you on how to balance your schedule between regular and honors/AP/IB courses, how to choose your extracurricular activities and which classes you can't afford not to take. AP Chemistry Questions + Explanations Here are examples of each type of question you'll see on the AP Chemistry test. I'll also walk you through the answers to give you an idea of how to grab and fix them. Sample Multiple-Choice Questions Many questions about the AP Chemistry exam ask you to make predictions about chemical properties or reactions based on data like this. In this case, the answer is A. The coulombic attractions are weaker in NaCl than they are in NaF because the ionic radius of the F-is smaller than cl-. The attraction between molecules will be greater in NaF, and the bonds will be harder to break. Sample Short Free Answer Question In this question, part a requires an understanding of why or why no reactions may occur between molecules. First, explain how collision energy affects whether two molecules will react with each other. Only collisions with enough energy to overcome the activation energy barrier (typically represented by the variable Ea) will reach transition mode and break the F-F binding. Next, identify another factor in addition to collision energy that affects the probability of a reaction between two colliding molecules. You could say that for a collision to be successful, the molecules must have the correct orientation. You must mention the specific bonds that are formed and broken. Only molecules with the correct orientation can begin to form the N-F bond and break the F-F bond. The molecules have to contact each other at very specific locations for the transition to take place. Part b is all about rate laws, and the first part is pretty straightforward. You have a 50/50 chance of circling the right one, even if you have no idea what the answer is. For the record, it is the second option, rate = k[NO2][F2]. You must then explain why you made your choice to get the last point on this question. The second rate law is the right answer because Step I is the slower, rate-determining step in the reaction mechanism. Step I is an elementary reaction, so its rate law comes from the stoichiometry of the reaction molecules, NO2 and F2. Try Long Free-Response Questions In part of this question, you are asked to write two net-ionic equations. Writing balanced equations based on experimental scenarios is an important skill for the test. Part of the neutralization reaction is H+ + OH- = H2O (liquid). For Part II, the precipitation reaction is Ba2+ + SO42- = BaSO4 (fixed). In part b, you need an understanding of what causes electrical conductivity in chemical substances and why conductivity decreases in the first place in the described situation. For part in, the solution is implement electricity as the first 30 ml of H2SO4 is added due to the presence of Ba2+ and/or OH ions that have not yet been shoveled up for the reactions (you can name either one and still get a point). Part II, one can say that conductivity decreases because these two types of ions are steadily removed by precipitation and neutralization reactions (Ba2 + ions are taken to form BaSO4, and OH ions are taken to form water). Side Note: Conductivity goes up again after the equivalence point due to the additional H and SO42 ions now present in the solution after all Ba2+ and OH ions have been used up by the reactions. Part c requires some attention to detail in device conversion as well as a logical assessment of the information you get. Molarity is moles per liter, so the question is how many moles of Ba (OH) 2 were there per liter in the original solution without the extra H2SO4. Since conductivity begins to go up again after 30 ml of H2SO4 is added, it means that at this point the number of moles of H2SO4 is equal to the number of moles of BaOH2 in the original resolution. We can calculate that 30 ml 0.10 M H2SO4 corresponds to 0.0030 moles (0.10 moles / liters multiplied by 0.030 liters). There should be the same number of moles of BaOH2 in the original solution, so we can divide 0.0030 moles by the original 0.025 L (25 ml) to arrive at our response of 0.12 moles/liters or a molar toothiness of 0.12 M. Part d requires you to use Ksp (solubility product constant) to determine the amount of Ba2+ ions that remain in resolution at the equivalency point. The question tells us that for BaSO4, Ksp = 1.0 x 10-10. The solubility product is constantly equal to the product of the number of ions of each component in the precipitate. Each of these is raised to the force of its coefficient in the original net ionic equation, which in this case is 1 for both: Ksp = [Ba2 +] x [SO42-] At equivalency point, the amount of each of these ions is equal. This means that [Ba2+] x [SO42-] = [Ba2+]2 and [Ba2+]2 = 1.0 x 10-10. The number of Ba2+ ions would be the square root of Ksp, which is 1.0 x 10-5 M. Part e asks you to explain why there is a lower concentration of Ba2+ ions in resolution as the amount of H2SO4 added increases past the equivalence point. In this case, mention the common ion effect and the fact that if you add sulfations to an equilibrium reaction involving other sulphites, the reaction will consume the added ions to achieve a new equilibrium. This means that more of the precipitate (BaSO4) is formed and more Ba2+ ions are taken out of solution to contribute to it. Equilibrium must be reached. Transition from doing ... to be (I've been getting into yoga lately, even though I can't touch my toes without feeling like my whole body is being torn apart). As you can see, the questions about AP Chemistry tests range from short and sweet to long and moderately evil. An important thread that runs through all of them is that you need to know basic background information about why certain substances act the way they why do some drugs have higher boiling points than others? What does collision energy have to do with molecular reactions? Why do some chemicals conduct electricity? Being able to justify your answers is very important. Make sure you never forget the basics as you get into more complex calculations and concepts. How to study ap chemistry: 6 Important tips Here are some additional tips that will help you prepare for the AP Chemistry exam correctly and improve the effectiveness of your education! #1: Always ask why you didn't obscure questions you got right through lucky guesses. If you don't understand exactly why the correct answer is correct, review the concept until you do so. Chemistry builds on itself, so if you don't get the basic reason your answer was correct or wrong, you may be in for a whole mess of problems in the future. For example, you may have remembered that a certain molecular connection has a higher boiling point than another, but that doesn't mean you necessarily know why this is the case. Make sure you always know why certain properties occur based on molecular and atomic structure, so you can justify your answers and adapt your knowledge to a variety of scenarios. #2: Remembering formulas You should remember all the formulas you need to know about the test. Even if you get a formula sheet, it will be much easier to get through the questions if you don't have to keep consulting it. For each formula, be sure to know what types of questions it will help you answer and how else it could come into play on the test. #3: Reviewing your Labs Labs is critical in AP Chemistry because they show you the real life consequences of the facts you've studied. You will see many questions about exam dealing with lab scenarios, and it is much easier to understand these types of questions if you are somewhat familiar with the setup. It is crucial to understand why you got the results you did for each lab and to be able to connect them to facts about chemical reactions and properties of different substances. #4: Learn how to evaluate the Multiple-choice section of the AP chemistry exam so you can't use a calculator. It's a little scary for some people, but it shouldn't be a big obstacle if you're well prepared. You save yourself a lot of time if you practice asking multiple choice questions and estimating logical answers without going through long calculations. The more familiar you are with the mechanics of chemical reactions, the easier it will be to assess the responses to these problems. #5: Practice of Official Materials College Board offers free downloadable AP Chemistry materials you can use to get used to the content of the exam and to practice real multiple-choice and free answer questions. All questions about responses include test responses as well as comments, where what is particularly good (and not so good) about the answer. #6: Get a review book This is one of the AP classes as it is extremely helpful to have a review book to guide your study. Since the material is complicated and there are a lot of different things you need to know how to do, a review book can help ground you and give you a better handle on how to structure your review in general. You also get a lot of extra practice problems and answer explanations. While you still need to use your labs and notes from class, a review book will help you better organize your thoughts. Here are a few books I recommend: For practice issues, you can also get the book Sterling AP Chemistry Practice Questions (about $20 on Amazon). It is not technically a full review book, but it will give you more practice resources to use when studying the material on the test. Sometimes that's how your mind works when you're trying to study something complicated. Let a review book guide your way so the journey towards enlightenment is less anxiety-ridden! Conclusion: How to Study for AP Chemistry Exam In Summary, here are the basic logistical facts to keep in mind about the AP Chemistry exam: Test Date and Time Friday, May 7, 2021, at 8 in total Time 3 hours and 15 minutes # of questions 60 multiple-choice questions 7 free answer questions (4 short, 3 long) Long Scoring Long free answers: 10 points Short free answer: 4 points Calculator? Multiple choice: Not allowed free answer: Allowed point penalty for wrong answers? No penalty %age of points is needed to score a 5 About 70%As I'm sure you noticed, there is a lot of material to learn for AP Chemistry test. This is why starting your study early and keeping up with the development of your class during the year is so strongly associated with your level of success at the test. Here's a quick rundown of my top six tips for preparing for the AP Chemistry exam: Always ask yourself, why the answer is correct to practice questions Remember all formulas Review your labs, not just your notes Learn to evaluate on multiple-choice questions Practice with official AP Chem materials Use review books to organize your study If you are focused and diligent, nothing on this test will be a chemystery to you because you will be a regular Sherlock Coulombes (cause you will know all about London forces spreading. Okay, I'm done now). What's next? Chances are, if you take AP Chemistry, you are also planning to take a few SAT Topic Tests. Check out our guide to learn about the differences between AP tests and the subject test! If you get a 5 at AP Chemistry, what does that mean for you? Find out how AP credit works at colleges. If you are reading this article, you are probably taking AP Chemistry. But your last high school schedule may not be set yet. Read this article for comprehensive advice on many total AP classes you should take in high school to achieve your goals. How can you use your knowledge of chemistry to help clean your stuff? Read up on muriatic acid (and what not to combine it with) here. Want to improve your SAT score by 160 points or your ACT score by 4 points? We've written a guide to each test about the 5 best strategies you need to get a shot at improving your score. Download it for free now: These recommendations are based solely on our knowledge and experience. If you purchase an item through one of our links, PrepScholar may receive a commission. Do friends who also need help with test prep? Share this article! Student and Parent Forum Our new student and parent forum, on ExpertHub.PrepScholar.com, allows you to interact with your peers and PrepScholar staff. See how other students and parents navigate the high school, college, and college admissions process. Ask questions; get answers. Do you have questions about this article or other topics? Ask below and we will answer! Response!

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