STUDY TECHNIQUES FOR CHEMISTRY

Before taking any chemistry course, make sure that you have the required math skills. Since chemistry involves many calculations, you must have the math prerequisites specified in your university catalogue. Moreover, read the course description very carefully, and if you have any further questions, contact the chemistry department.

COMMON PROBLEMS FACED BY ALL STUDENTS:

- Often students sitting in a chemistry lecture fail to stop the professor when they do not understand a problem or a concept. Ironically, many other students have the same question. Don't push it aside and hope that you will understand it later on; you are paying for the course, and you need to ask questions.

- Perhaps the most annoying situation a student gets into is working a problem out and failing to get the correct answer. This is not rare. Almost everyone works a problem wrong the first time. In addition, these mistakes teach us what we did wrong. Chemistry requires discipline in order to understand it and solve problems.

- "Which professor should I take?" The professor can make a big difference in your grade. Therefore, you should ask other students who have taken chemistry courses at this university whom they recommend.

- "How can I improve my problem solving skills?" There are many things that one could do; however, the best thing to do is work as many problems as you can. Every chemistry book should also have a study guide with many problems worked out and explained. These study guides are very useful, and they assist you in understanding the material.

- "My professor talks too fast, and I can't keep up with him while taking notes." The best thing to do in this situation is to bring a tape recorder into the lecture room and tape the lecture. (Make sure you have the professor's permission to tape the class lectures.) Meanwhile, you can listen to the lecture and concentrate on any problems he or she may work on the board.

- "Sometimes I can't work a problem, and I need help." Before hiring a tutor, check your professor's office hours; moreover, have the questions fully prepared so that he or she can help you. In addition, make sure that your professor knows you by name, so that he or she will know that you take the course seriously. If the professor knows that you are a serious student, he will help you as much as possible. Also, your university should have a learning center with many students who can assist you. Your student fees fund these centers, and you will save money if you seek help there.

STUDY TIPS

- Try to keep up with your daily reading assignments. Many students wait until the day before the exam to study and realize that they have a lot of material to "cram." Your professor will warn you of future test dates. Take the time to study well in advance of the exam so that you have time to reflect on the material.

- Always concentrate on the material that your professor discusses during class. Moreover, after your first exam, you should have an idea as to what you can expect on future tests.

- Before every lecture, take some time to review the last lecture. This should help you make the transition to the new material you will cover in class.

- Get to your lecture on time, and stay there until it is over. You never know when your professor will assign homework or announce a test date. Besides, this is a rude practice.

- Read the course syllabus regarding material that will be covered on your next exam.

- If you encounter any bold faced words in your chapter, look up their meanings. This may help you in solving problems.

- Most sections in your book should include sample problems with complete step-by-step instructions on solving them. Work these problems if you do not feel ready to work the ones at the end of the section.
- Memorize all the formulas and common ions well in advance before your exam. There may be more than you anticipated.
- If you do not understand a problem, see your professor. Don't hope that it won't be on your exam; most of the time those problems you didn't expect are on your exam. Murphy's Law is always at wor

SAMPLE PROBLEM

.15 moles of a gas A is placed into a previously empty container. The following reaction takes place:

A(g) ------> 2B(g)

Assume that this reaction reaches equilibrium. If .150 moles of A remains in the 10.0L container, what is the numerical value for the equilibrium constant?

Step 1. Read the problem, and look up any terms that you don't understand.

Step 2: Write the equation that describes the problem. This is the most important step; if you are not sure, work problems that have a detailed solution.

$$Keq = \frac{[B]^2}{[A]}$$

The equation is the products over the reactants; they are raised to the stoichiometric coefficient.

Any quantity in the form [X] means concentration in molarity or moles per liter.

From the stoichiometry we can see that the ratio of A to B is 1 to 2.

Therefore, the equation for Keq is...

$$[A] = \frac{(0.150)\ mol}{10L} \qquad [B] = \frac{(2)(0.150) mol}{10L}$$

$$Keq = \frac{\left[\frac{(2)(0.150)}{10}\right]^2}{\left[\frac{(.0150)}{10}\right]} = 0.06$$

Since equilibrium constants do not have units, 0.06 is the desired answer.

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