AP Chemistry Exam Study Guide

Mastering Multiple-Choice Questions

Example: *At what conditions does a real gas behave ideally?*

A) High temperature and high pressure

B) High temperature and low pressure ✔

C) Low temperature and low pressure

D) Low temperature and high pressure

1. **Answer before looking at the choices.** Cover the answers with scratch paper and try to answer the question. Many multiple-choice options are designed to be misleading, so determining your answer beforehand reduces second-guessing. If you already know that real gases behave ideally at high temperature and low pressure, seeing misleading options won't shake your confidence.

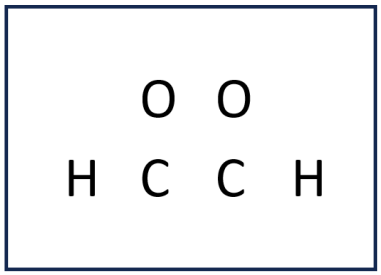
2. **Use elimination when unsure.** If you don't know the answer immediately, remove obviously wrong options. Even if you're unsure when a real gas behaves ideally, you might remember it doesn't happen at **high pressure**, eliminating A and D. Now, you have a **50/50 shot** at guessing correctly.

3. **Select an answer to every question.** It seems obvious, but some students forget to record an answer, especially if it is a guess. Even if you have no idea what the correct answer should be, make sure you select one of the options. You still have a 25% chance of guessing correctly.

Tackling Free Response Questions (FRQs)

Example:

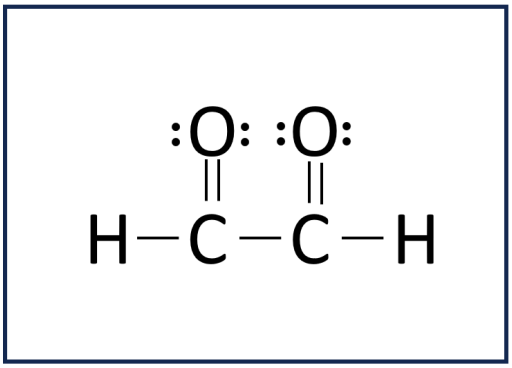
1. Oxaldehyde is a white, crystalline solid. It is a precursor to many synthetic products.
    (a) The box below shows an incomplete Lewis structure for oxaldehyde. Draw in all bonds and lone pairs. Note: The oxygen atoms are not bonded to each other.



    (b) What is the dominant intermolecular force in oxaldehyde?
    (c) Would oxaldehyde be miscible in aqueous solution? Justify your answer.

Answer:

(a)



(b) This molecule's dominant intermolecular force is dipole-dipole. The hydrogen atoms are NOT bonded to the oxygen atoms, ruling out hydrogen bonding.

(c) Compounds are miscible when they have similar intermolecular forces. Water is a polar compound with hydrogen bonding. Oxaldehyde does not have hydrogen bonding, but is a polar compound. Since both compounds are polar and "like dissolves like", oxaldehyde should be miscible in water.

1. **Read the entire question first.** Understanding all parts before answering helps you plan your approach and recognize how sections connect.
2. **Use question order.** Most FRQs are designed to guide you—answers to early parts often help with later ones.
3. **Step-by-step thinking:**
    a. Part (a) (Lewis structure) leads to part (b) (intermolecular forces), which then informs part (c) (solubility in water).
    b. Given that the question specifies oxygen atoms are not bonded together, you already have a **critical clue** for drawing the structure.
4. **Show your thought process clearly.** Explain your reasoning in a way the grader can follow. Instead of just stating, *"Like dissolves like,"* a stronger answer would be:
   "Water is a polar compound with hydrogen bonding. Oxaldehyde, though polar, lacks hydrogen bonding. Since both substances are polar, oxaldehyde is miscible in water."
5. **Neat, organized calculations are key.** If graders can't follow your work, they **can't award you points.** Even if you make a minor arithmetic mistake, clearly showing your method increases your chance of partial credit.
6. **Use correct significant figures!** AP graders **will** take off points for sig fig errors. These are **easy points**—don't give them away!

Final Thoughts about both MCQs and FRQs

1. There's often more helpful information on a test than students realize. If you're stuck on a question—say, you need to know the charge of the sulfate anion—scan the test! Another question may include sulfate and give you the charge. **Use the test to your advantage.**
2. Time management is key. Many students lose time agonizing over a few tough questions, especially in the multiple-choice section. If you're unsure, **make an educated guess and move on**—you can always revisit tricky questions if time allows. Set a strict time limit per question and **stick to it.** It's better to answer every question (even with guesses) than to leave blanks.

3. Finally, **breathe.** Test anxiety can be your biggest obstacle. Taking five seconds to pause and reset your mind is far more valuable than letting panic take over. **You know more than you think!** Stay calm, trust your preparation, and give it your best shot. **You got this!**

How the AP Exam weighs each Unit

Unit	Exam Weighting
Unit 1: Atomic Structure and Properties	7-9%
Unit 2: Compound Structure and Properties	7-9%
Unit 3: Properties of Substances and Mixtures	18-22%
Unit 4: Chemical Reaction	7-9%
Unit 5: Kinetics	7-9%
Unit 6: Thermodynamics	7-9%
Unit 7: Equilibrium	7-9%
Unit 8: Acids and Bases	11-15%
Unit 9: Thermodynamics and Electrochemistry	7-9%

How to Study Effectively

- **Identify your weak spots.** Take a practice test, review mistakes, and identify topics you struggle with most, start with those topics.
- **Recognize topic overlap.** Many questions combine multiple units (e.g., equilibrium often appears in acid-base problems, Lewis structures are needed to determine intermolecular forces). Strengthen foundational concepts to tackle these efficiently.
- **Actively solve problems.** Don't just read solutions—work through problems **before** checking answers. Similarly, don’t simply read through notes, rewrite or reorganize notes to engage with the material effectively.

- **Study with peers.** A study group or prep class exposes you to different perspectives and fills in gaps in your understanding. Other students will have strengths that can boost your weaknesses and vice versa.
- **Start early!** Prep **6-8 weeks before the exam**—cramming doesn't work for AP Chemistry. Your brain needs to build more neural connections. Those neurons take time to grow.

Want a **structured study plan** with live instruction, practice problems, and direct support from a **former college chemistry professor**? Join my **AP Chemistry Exam Prep Course!**

➔ **Live sessions focused on reviewing units and clarifying tough concepts**

➔ **Extra practice problems, unit assessments, summaries and guides for difficult problems, and video content accessible at all times.**

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➔ **Full summaries after each class—never miss a thing!**

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