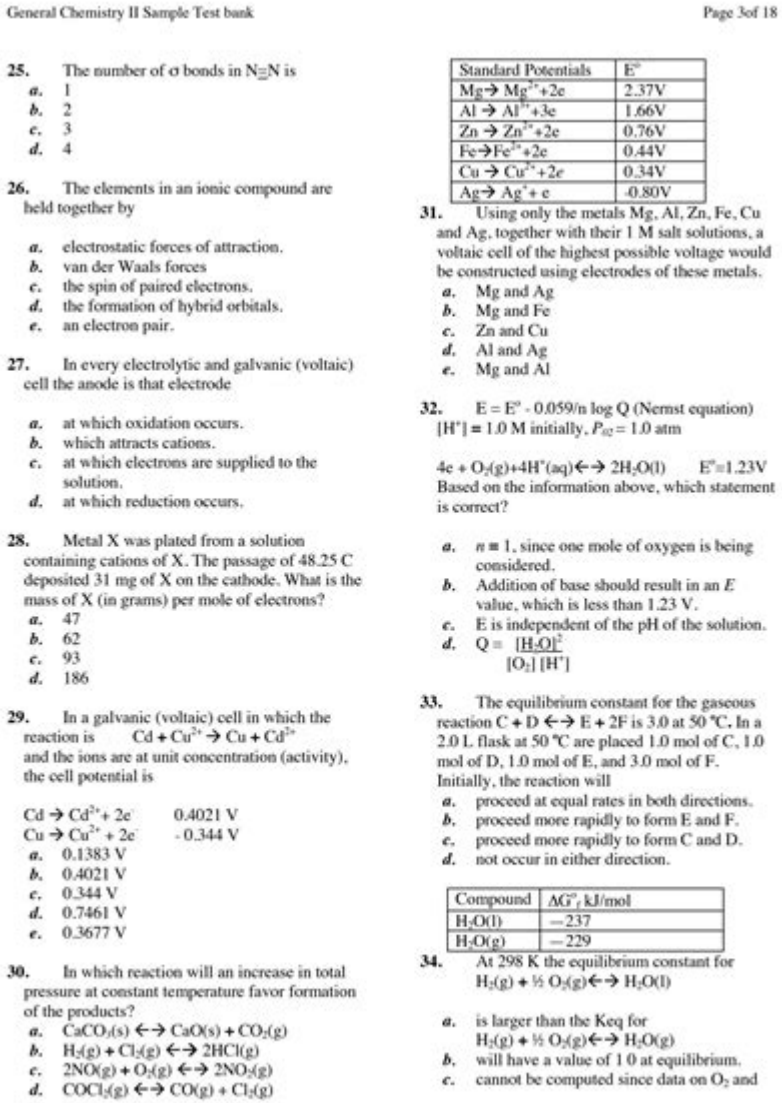
General Chemistry 2 Acs Practice Exam



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25. The number of σ bonds in N≡N is
a. 1
b. 2
c. 3
d. 4

26. The elements in an ionic compound are held together by
a. electrostatic forces of attraction.
b. van der Waals forces
c. the spin of paired electrons.
d. the formation of hybrid orbitals.
e. an electron pair.

27. In every electrolytic and galvanic (voltaic) cell the anode is that electrode
a. at which oxidation occurs.
b. which attracts cations.
c. at which electrons are supplied to the solution.
d. at which reduction occurs.

28. Metal X was plated from a solution containing cations of X. The passage of 48.25 C deposited 31 mg of X on the cathode. What is the mass of X (in grams) per mole of electrons?
a. 47
b. 62
c. 93
d. 186

29. In a galvanic (voltaic) cell in which the reaction is $Cd + Cu^{2+} \rightarrow Cu + Cd^{2+}$ and the ions are at unit concentration (activity), the cell potential is

$Cd \rightarrow Cd^{2+} + 2e^-$ 0.4021 V
$Cu \rightarrow Cu^{2+} + 2e^-$ - 0.344 V
a. 0.1383 V
b. 0.4021 V
c. 0.344 V
d. 0.7461 V
e. 0.3677 V

30. In which reaction will an increase in total pressure at constant temperature favor formation of the products?
a. $CaCO_3(s) \leftrightarrow CaO(s) + CO_2(g)$
b. $H_2(g) + Cl_2(g) \leftrightarrow 2HCl(g)$
c. $2NO(g) + O_2(g) \leftrightarrow 2NO_2(g)$
d. $COCl_2(g) \leftrightarrow CO(g) + Cl_2(g)$

Standard Potentials	E°
$Mg \rightarrow Mg^{2+} + 2e$	2.37V
$Al \rightarrow Al^{3+} + 3e$	1.66V
$Zn \rightarrow Zn^{2+} + 2e$	0.76V
$Fe \rightarrow Fe^{2+} + 2e$	0.44V
$Cu \rightarrow Cu^{2+} + 2e$	0.34V
$Ag \rightarrow Ag^{+} + e$	-0.80V

31. Using only the metals Mg, Al, Zn, Fe, Cu and Ag, together with their 1 M salt solutions, a voltaic cell of the highest possible voltage would be constructed using electrodes of these metals.
a. Mg and Ag
b. Mg and Fe
c. Zn and Cu
d. Al and Ag
e. Mg and Al

32. $E = E^\circ - 0.059/n \log Q$ (Nernst equation)
$[H^+] = 1.0$ M initially, $P_{O2} = 1.0$ atm

$4e + O_2(g) + 4H^+(aq) \leftrightarrow 2H_2O(l)$ $E^\circ = 1.23V$
Based on the information above, which statement is correct?
a. $n = 1$, since one mole of oxygen is being considered.
b. Addition of base should result in an E value, which is less than 1.23 V.
c. E is independent of the pH of the solution.
d. $Q = \frac{[H_2O]^2}{[O_2][H^+]}$

33. The equilibrium constant for the gaseous reaction $C + D \leftrightarrow E + 2F$ is 3.0 at 50 °C. In a 2.0 L flask at 50 °C are placed 1.0 mol of C, 1.0 mol of D, 1.0 mol of E, and 3.0 mol of F. Initially, the reaction will
a. proceed at equal rates in both directions.
b. proceed more rapidly to form E and F.
c. proceed more rapidly to form C and D.
d. not occur in either direction.

Compound	ΔG°_f kJ/mol
$H_2O(l)$	−237
$H_2O(g)$	−229

34. At 298 K the equilibrium constant for $H_2(g) + ½\ O_2(g) \leftrightarrow H_2O(l)$
a. is larger than the Keq for $H_2(g) + ½\ O_2(g) \leftrightarrow H_2O(g)$
b. will have a value of 1 0 at equilibrium.
c. cannot be computed since data on O_2 and

General chemistry 2 ACS practice exam is an essential tool for students preparing for the American Chemical Society (ACS) standardized examination in general chemistry. This exam covers an array of topics that build upon the foundational concepts introduced in General Chemistry I and is typically taken by students who have completed their second semester of college-level chemistry. In this article, we will explore the structure and content of the General Chemistry 2 ACS Practice Exam, its importance, effective study strategies, and resources to enhance your preparation.

Understanding the ACS General Chemistry Exam

The ACS General Chemistry Exam is designed to assess the knowledge and skills

that students have acquired through their chemistry coursework. The exam is a standardized assessment that provides a benchmark for evaluating student performance in general chemistry. It is often used by colleges and universities as a tool for assessing the effectiveness of their chemistry programs.

Exam Format

The General Chemistry 2 ACS exam typically consists of:

1. Number of Questions: Approximately 70 multiple-choice questions.
2. Duration: The exam usually lasts about 110 minutes.
3. Content Areas: The questions are distributed across various topics, including:
- Chemical kinetics
- Chemical equilibrium
- Thermodynamics
- Electrochemistry
- Acids and bases
- Solubility and complex ion equilibria
- Coordination chemistry
- Nuclear chemistry

Scoring and Results

The exam is scored based on the number of correct answers, and students receive a percentile score indicating how well they performed relative to other test-takers. Results can be important for assessing students' readiness for advanced coursework and can provide valuable feedback to instructors about their teaching effectiveness.

The Importance of the ACS Practice Exam

Taking a practice exam is a crucial step in preparing for the ACS General Chemistry Exam. Here are several reasons why the practice exam is valuable:

1. Familiarization with Exam Format: The practice exam helps students get accustomed to the structure and timing of the actual exam, reducing anxiety on test day.
2. Identifying Weak Areas: By taking the practice exam, students can identify topics where they may need additional study or clarification.
3. Building Test-Taking Skills: Practicing with multiple-choice questions helps students develop strategies for approaching different types of questions and managing time effectively during the exam.
4. Reviewing Key Concepts: The practice exam covers essential topics,

allowing students to reinforce their understanding of critical chemistry concepts.

Effective Study Strategies

To maximize preparation for the General Chemistry 2 ACS exam, students can employ a variety of study strategies:

1. Review Course Material

- Textbooks: Revisit the chapters covered in your general chemistry course, focusing on key concepts.
- Lecture Notes: Review notes taken during lectures to reinforce your understanding of complex topics.

2. Utilize Practice Exams

- Find Resources: Look for ACS practice exams available through your institution or online platforms.
- Simulate Exam Conditions: Take practice exams under timed conditions to replicate the experience of the actual exam.

3. Create a Study Schedule

- Set Goals: Break down the topics you need to cover into manageable sections and set specific study goals for each session.
- Allocate Time: Dedicate time each week to review different topics, ensuring you cover all material before the exam date.

4. Join Study Groups

- Collaborative Learning: Study groups allow students to discuss challenging concepts and learn from one another.
- Peer Teaching: Explaining topics to peers can reinforce your understanding and retention of the material.

5. Seek Help When Needed

- Tutoring: Consider seeking help from a tutor for difficult topics.

- Office Hours: Utilize your instructor's office hours to ask questions and clarify doubts.

Key Topics to Focus On

While preparing for the General Chemistry 2 ACS exam, students should pay particular attention to the following key topics:

Chemical Kinetics

- Rate Laws: Understand how to express the rate of a reaction in terms of concentration and reaction order.
- Activation Energy: Know the significance of activation energy and how it affects reaction rates.

Chemical Equilibrium

- Le Chatelier’s Principle: Familiarize yourself with how changes in concentration, temperature, and pressure affect equilibrium.
- Equilibrium Constant: Be comfortable calculating and using equilibrium constants for different reactions.

Thermodynamics

- First Law of Thermodynamics: Understand the concepts of internal energy, work, and heat transfer.
- Gibbs Free Energy: Be able to relate Gibbs free energy to spontaneity and equilibrium.

Acids and Bases

- pH Calculations: Practice calculating pH, pOH, and concentrations of strong and weak acids/bases.
- Buffer Solutions: Understand how buffers work and how to calculate pH in buffer solutions.

Electrochemistry

- Redox Reactions: Be able to identify oxidation and reduction reactions and

balance them accordingly.
- Nernst Equation: Familiarize yourself with the Nernst equation and its applications in calculating cell potential.

Resources for Preparation

To aid in your preparation for the General Chemistry 2 ACS exam, consider utilizing the following resources:

- Textbooks: Use standard general chemistry textbooks such as "Chemistry: The Central Science" by Brown, LeMay, Bursten, and Murphy.
- Online Courses: Platforms like Khan Academy and Coursera offer free or low-cost courses that cover general chemistry concepts.
- YouTube Channels: Educational channels like Crash Course Chemistry and Tyler DeWitt provide engaging videos that explain complex topics.
- ACS Study Guides: The American Chemical Society publishes study guides and practice exams specifically tailored for the general chemistry exam.

Conclusion

In conclusion, the general chemistry 2 ACS practice exam is a vital component of preparing for the ACS General Chemistry Exam. By understanding the exam's structure, focusing on key topics, and employing effective study strategies, students can enhance their chances of success. Utilizing various resources and taking advantage of practice exams will provide a comprehensive review and build the confidence needed to excel on test day. With diligent preparation, students can approach the General Chemistry 2 ACS exam with the knowledge and skills necessary to achieve a strong performance.

Frequently Asked Questions

What topics are typically covered in the General Chemistry 2 ACS practice exam?

The exam usually covers topics such as kinetics, equilibrium, thermodynamics, electrochemistry, and coordination chemistry.

How can students best prepare for the General Chemistry 2 ACS practice exam?

Students can prepare by reviewing lecture notes, practicing problems from textbooks, taking online quizzes, and using ACS study guides.

Are there specific study guides recommended for the General Chemistry 2 ACS exam?

Yes, the ACS provides a study guide specifically for the exam, and other popular resources include textbooks like 'Chemistry: The Central Science' and online platforms like Khan Academy.

What is the format of the General Chemistry 2 ACS practice exam?

The exam typically consists of multiple-choice questions that assess knowledge and problem-solving skills in general chemistry.

How important is time management during the General Chemistry 2 ACS exam?

Time management is crucial as students must complete the exam within a limited time frame while ensuring they answer all questions thoroughly.

What types of questions can be expected on the General Chemistry 2 ACS exam?

Questions can include theoretical concepts, practical problem-solving, laboratory data interpretation, and application of chemical principles to real-world scenarios.

Is it possible to retake the General Chemistry 2 ACS practice exam?

Yes, students can retake the practice exam multiple times to gauge their understanding and improve their scores.

What scoring scale is used for the General Chemistry 2 ACS exam?

The ACS exam is scored based on the number of correct answers, and a scaled score is provided to compare against national averages.

How can students access the General Chemistry 2 ACS practice exam?

Students can access the practice exam through their educational institution, the ACS website, or various online study platforms.

What are common pitfalls to avoid when taking the General Chemistry 2 ACS exam?

Common pitfalls include failing to read questions carefully, mismanaging

time, and not double-checking calculations before submitting answers.

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