

August 2015 Chemistry Regents Answers

Part B-1

Answer all questions in this part.

Directions (31-50): For each statement or question, record on your separate answer sheet the number of the word or expression that, of those given, best completes the statement or answers the question. Some questions may require the use of the 2011 Edition Reference Tables for Physical Setting/Chemistry.

31 What is the number of electrons in an Al^{3+} ion? Lose 3
Al +13p
 (1) 10 (3) 3
 (2) 13 (4) 16

32 The valence electron of which atom in the ground state has the greatest amount of energy?
 P2.6 (1) cesium P2.5 (3) rubidium
 P2.4 (2) lithium P2.3 (4) sodium

33 The numbers of protons and neutrons in each of four different atoms are shown in the table below.

Way #23

Atom	Number of Protons	Number of Neutrons
A	8	8
D	9	9
E	9	10
G	10	10

Which two atoms represent isotopes of the same element?
 (1) A and D (3) E and D
 (2) A and G (4) E and G

34 Which elements have the most similar chemical properties?
 Way #38
 (1) boron and carbon
 (2) oxygen and sulfur
 (3) aluminum and bromine
 (4) argon and silicon

35 Which element reacts with oxygen to form ionic bonds?
 Way #44
 (1) calcium (3) chlorine
 (2) hydrogen (4) nitrogen

36 The table below gives the atomic mass and the abundance of the two naturally occurring isotopes of chlorine.

Naturally Occurring Isotopes of Chlorine

Isotopes	Atomic Mass of the Isotope (u)	Natural Abundance (%)
^{35}Cl	34.97	75.76
^{37}Cl	36.97	24.24

Way #24 Which numerical setup can be used to calculate the atomic mass of the element chlorine?
 (1) $(34.97 \text{ u})(75.76) + (36.97 \text{ u})(24.24)$
 (2) $(34.97 \text{ u})(0.2424) + (36.97 \text{ u})(0.7576)$
 (3) $(34.97 \text{ u})(0.7576) + (36.97 \text{ u})(0.2424)$
 (4) $(34.97 \text{ u})(24.24) + (36.97 \text{ u})(75.76)$

37 Which general trends in first ionization energy and electronegativity values are demonstrated by Group 15 elements as they are considered in order from top to bottom?
 Way #42
 (1) The first ionization energy decreases and the electronegativity decreases.
 (2) The first ionization energy increases and the electronegativity increases.
 (3) The first ionization energy decreases and the electronegativity increases.
 (4) The first ionization energy increases and the electronegativity decreases.

38 An aluminum sample has a mass of 80.01 g and a density of 2.70 g/cm³. According to the data, to what number of significant figures should the calculated volume of the aluminum sample be expressed?
 (1) 1 (3) 3
 (2) 2 (4) 4

$D = \frac{M}{V}$; $V = \frac{M}{D}$

$\frac{80.01}{2.70}$

(4)
(3)

[OVER]

August 2015 Chemistry Regents Answers are a vital resource for students who took the New York State Chemistry Regents examination during that period. The Regents exam is a standardized test that measures students' understanding of high school chemistry concepts and applications. While the exam itself is an important milestone for students, the answers to the August 2015 Chemistry Regents provide invaluable insights into the questions posed and the skills assessed. This article will explore the structure of the exam, common topics covered, and provide a comprehensive analysis of the answers from that session.

Overview of the Chemistry Regents Exam

The Chemistry Regents exam is designed to assess students' knowledge and understanding of various

chemistry principles, including:

- Matter and its Properties: Understanding the classification of matter, physical and chemical changes.
- Atomic Structure: Knowledge of atomic theory, electron configurations, and isotopes.
- Periodic Table: Utilizing periodic trends to predict chemical behavior.
- Chemical Bonding: Understanding ionic and covalent bonding, molecular geometry, and polarity.
- Stoichiometry: Mastery of mole concepts, balancing chemical equations, and calculating reactant and product quantities.
- Thermochemistry: Understanding energy changes in chemical reactions, calorimetry, and enthalpy.
- Kinetics and Equilibrium: Knowledge of reaction rates, dynamic equilibrium, and Le Chatelier's principle.
- Acids and Bases: Understanding pH, acid-base neutralization, and titration concepts.

The exam format generally includes multiple-choice questions, short answer questions, and laboratory practicals, ensuring a comprehensive evaluation of students' chemistry skills.

Structure of the August 2015 Chemistry Regents Exam

The August 2015 Chemistry Regents exam consisted of various sections, each designed to test different areas of chemistry knowledge. The exam typically includes:

- Part A: Multiple-choice questions that assess a broad range of chemistry concepts.
- Part B: Short answer questions requiring detailed explanations and calculations.
- Part C: Laboratory-based questions that evaluate students' practical skills and understanding of experimental design.

Each part contributes to the overall score, with specific weight given to different question types. Scoring is crucial as it determines students' proficiency and eligibility for graduation.

Key Topics in the August 2015 Exam

Several key topics were emphasized in the August 2015 Chemistry Regents exam. Understanding these areas can help students prepare for future examinations and deepen their grasp of chemistry concepts.

1. Chemical Reactions: Students were expected to identify types of chemical reactions, balance equations, and predict products of reactions.
2. Periodic Trends: Questions focused on understanding trends such as electronegativity, atomic radius, and ionization energy.
3. Stoichiometry: Students demonstrated their ability to use molar ratios from balanced equations to perform calculations involving mass, moles, and volume.
4. Thermodynamics: Questions assessed students' knowledge of endothermic and exothermic reactions and calculating energy changes.
5. Acids and Bases: Understanding pH calculations, properties of acids and bases, and neutralization reactions were crucial in this exam.

Each of these topics is fundamental to high school chemistry and often reappears in various forms in

subsequent exams.

Analysis of the Answers

The answers to the August 2015 Chemistry Regents exam reveal patterns in student performance and highlight specific areas where students excelled or struggled. Here's a breakdown of the answer key for each section:

Part A: Multiple Choice Answers

The multiple-choice section typically includes 30 questions, with each question presenting four answer options. The following list includes example questions and their correct answers from the August 2015 exam:

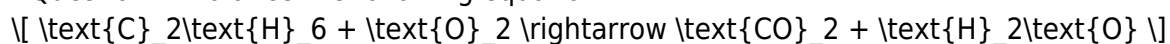
1. Question 1: What is the atomic number of carbon?
 - A) 6 (Correct)
 - B) 12
 - C) 14
 - D) 8
2. Question 2: Which type of bond is formed when electrons are shared?
 - A) Ionic
 - B) Covalent (Correct)
 - C) Metallic
 - D) Hydrogen
3. Question 3: What is the pH of a neutral solution at 25°C?
 - A) 0
 - B) 7 (Correct)
 - C) 14
 - D) 10

These questions reflect foundational knowledge crucial for any chemistry student and are representative of the test's overall difficulty and focus.

Part B: Short Answer Questions

The short answer section includes questions that require students to show their work or explain their reasoning. Here are examples of typical answers for this section:

- Question 1: Balance the following equation:



Answer:



- Question 2: Calculate the molar mass of NaCl .

Answer:

Molar mass of Na = 23 g/mol, Molar mass of Cl = 35.5 g/mol

Total = 23 + 35.5 = 58.5 g/mol

These answers illustrate the problem-solving and calculation skills expected from students.

Part C: Laboratory-Based Questions

Laboratory questions often require students to analyze data from experiments or design a simple experiment. An example of a laboratory question could be:

- Question: Describe an experiment to determine the density of an unknown liquid.

Answer:

To determine the density of an unknown liquid, measure the mass of a graduated cylinder when empty. Then, fill the cylinder with the liquid and measure its mass again. Subtract the mass of the empty cylinder from the mass of the filled cylinder to get the mass of the liquid. Finally, divide the mass of the liquid by its volume (measured in the graduated cylinder) to calculate the density.

This section assesses students' ability to apply theoretical knowledge in practical scenarios, which is a crucial component of scientific education.

Conclusion

The August 2015 Chemistry Regents exam was a comprehensive assessment that covered a wide array of topics essential to high school chemistry. The answers provided from this exam not only serve as a study guide for future students but also highlight important concepts that educators should emphasize in their teaching. By analyzing the questions and answers from this exam, students can better understand their strengths and weaknesses in chemistry, allowing them to focus their studies more effectively. The continued use of past Regents exams as a resource is invaluable for both students and teachers in preparing for future assessments.

Frequently Asked Questions

What topics were covered in the August 2015 Chemistry Regents exam?

The August 2015 Chemistry Regents exam covered topics such as atomic structure, the periodic table, chemical bonding, stoichiometry, and reaction types.

Where can I find the official answer key for the August 2015 Chemistry Regents?

The official answer key for the August 2015 Chemistry Regents can typically be found on the New York State Education Department's website or through educational resources that archive past exams.

How can I prepare for the next Chemistry Regents based on the August 2015 exam content?

To prepare for the next Chemistry Regents, review the content areas tested in the August 2015 exam, practice with similar past exams, and focus on understanding core chemistry concepts and problem-solving techniques.

What are some common mistakes students made on the August 2015 Chemistry Regents?

Common mistakes included misinterpreting questions, not balancing chemical equations correctly, and failing to apply the correct units in calculations.

Are there any online forums where I can discuss the August 2015 Chemistry Regents?

Yes, there are several online forums and platforms such as Reddit, Khan Academy, and various educational Facebook groups where students can discuss the August 2015 Chemistry Regents and share study tips.

What resources can help me review for the Chemistry Regents using the August 2015 exam as a guide?

Resources such as review books, online video tutorials, and practice exams specifically designed for the Chemistry Regents can be very helpful. Websites like RegentsPrep and Quizlet can also provide targeted practice.

How did the August 2015 Chemistry Regents compare to previous years' exams?

The August 2015 Chemistry Regents maintained a similar structure to previous years, with a mix of multiple-choice and constructed-response questions, although the specific content and difficulty may vary from year to year.

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