Questions for Exam Practice

NY

Surviving Chemistry Regents Exam

One Day at a Time

30 Days of Practice Question Sets

for The New York State Chemistry Regents Exam

The Physical Setting

With Answers and Explanations

Regents 2012 **Ready**

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Format of this book

This book contains sets of Chemistry Regents exam practice questions organized into days. There are a total of 30 days of question sets. Question sets are grouped into two major categories that are listed below.

Multiple Choices: Questions for Part A and B-1 practice.
There are 13 days of question sets in this category. Practice questions in this category test your ability to answer all types of multiple choice questions.

Constructed Response: Questions for Part B-2 and C practice.
There are 13 days of question sets in this category. Practice questions in this category vary from setting up problems, reading paragraphs , drawing and graphing.

Along two Regents practice exams, there are more than six Regents exams worth of multiple choice questions available for practice in this book. And there are almost five exams worth of Free Response questions available for practice in this book.

The small number of questions in each set allows for the benefits to you:

1. To quickly do a few questions, correct them, and see the result and your performance right away. You do not have to wait to complete one whole exam as with other books.

2. To make you feel less overwhelm in preparing for your Regents exam so you can study and practice more often.

Answers and Explanations

Answers are given to all questions in this book. Answer explanations are given to all questions (except for the practice exams) . Unlike many other books, this book ***does not just explain why*** the answer given to a question is the correct one. Instead, with the cleanest, clearest, most simplified, and easiest-to-follow steps ever seen, this book ***shows you how to pick out key information*** from a question and ***how to think through the question*** to arrive at the correct answer given. This method of explanations offers you a more quality review and understanding of the chemistry concept tested, and a better opportunity to answer similar questions correctly. It is highly recommended that you read up and study the steps given in the explanations to questions that you did not get correct.

Keeping Track of Points and Progress

At the end of each question set you are provided with a space to note the number of correct points after grading. This is a very important, often overlooked, element in preparing for a test like this. By making a note of your points after each set:

. You'll be able to easily see and keep track of your progress and improvement from one multiple choice (or Free Response) set to the next.

. You'll be able to easily see and track which category of questions you are doing great on, and which category you are struggling with

. You'll be to see if what you are doing is getting you better prepared for the exam as the exam date draws near

It is almost pointless to study day-after-day without knowing whether your studying and effort are getting you better prepared for the test. This book allows you to quickly and easily keep track of your points, which allows you to see progress, improvement, and readiness for your Chemistry Regents Exam.

Preparing for your Chemistry Regents Exam

Months, weeks, and days before the Exam

Pay attention and listen to your teacher.
Your teacher knows you better than authors of exams prep books.
Pay attention in class, do what she or he says and recommends.

Attend Review Sessions.
Bring specific questions on concepts that you need the most help with.
You'll get more out of a review session if your questions to specific problems are answered.

Practice Exam Quality Questions: Use This Book.
Start early (a month or so) and practice a set of questions a day at a time.
Correct your answers and read up on explanations.
Keep note of points of each set to track your progress and improvement.

Study notes and review packages
Focus your studying on concepts you have problems with because you may not have enough time to study everything.
Make notes of concepts that are not clear, and bring them to your teacher.

Alternate between studying and practicing questions. It is highly recommended that you spend a little more time time practicing questions and a little less time reading books and studying review packages.

Familiarize yourself with the current exam and scoring formats
The two full Practice Exams on Day 27 – 30 in this book are based on the most current Chemistry Regents exam format. The grading formats for all multiple choice questions and short answer questions are all based on the most current formats. Being aware of these formats is a very important element in preparing for Chemistry Regents Exam.

Night before the exam

Get a good night sleep, Relax!

Day of the exam

Eat a good meal. Relax!
Bring pencils, pens, and a calculator.

During the exam

Relax! Read and think through each question and choice thoroughly, and take your time. You know the answer to that question because you've worked hard and you've been taught well. And most of all,

You got Chem ☺

Good Luck !

Table of Contents

Multiple Choice Questions: Part A and B-1 practice.

Day 1 ..... Pg 1 – 4
Day 3 ..... Pg 9 – 12
Day 5 ..... Pg 19 – 22
Day 7 ..... Pg 27 – 30
Day 9 ..... Pg 35 – 40
Day 11 ..... Pg 45 – 50
Day 13 ..... Pg 57 – 62
Day 15 ..... Pg 69 – 75
Day 17 ..... Pg 81 – 86
Day 19 ..... Pg 92 – 96
Day 21 ..... Pg 103 – 110
Day 23 ..... Pg 117 – 124
Day 25 ..... Pg 131 – 140

Constructed Response Questions: Part B-2 and C practice

Day 2 ..... Pg 5 – 8
Day 4 ..... Pg 13 – 18
Day 6 ..... Pg 23 – 26
Day 8 ..... Pg 31 – 34
Day 10 ..... Pg 41 – 44
Day 12 ..... Pg 51 – 56
Day 14 ..... Pg 63 – 68
Day 16 ..... Pg 87 – 91
Day 18 ..... Pg 76 – 80
Day 20 ..... Pg 97 – 102
Day 22 ..... Pg 111 – 116
Day 24 ..... Pg 125 – 130
Day 26 ..... Pg 141 – 146

Practice Exam 1

Day 27 Multiple Choices ..... Pg 147 – 156
Day 28 Constructed Responses ..... Pg 157 – 180

Practice Exam 2

Day 29 Multiple Choices ..... Pg 181– 190
Day 30 Constructed Responses ..... Pg 191 – 210

Track your Progress ..... Pg 211 – 212

Reference Tables ..... Pg 213 - 224

Glossary ..... Pg 225 – 241

Easy does it

. Practice a set of questions one day at a time. You'll feel less overwhelmed.

Quality over Quantity

. Complete a set, correct a set, read up on explanations, and compare your performance to previous set of the same category. You'll see your progress.

Day 1: 10 Multiple choice questions

10 points ***Part A and B-1 Practice***

Start: Answer all questions on this day before stopping.

1. Which subatomic particle is negatively charged?

(1) electron
(2) neutron
(3) positron
(4) proton

2. An element that is malleable and is a good conductor of heat and electricity could have an atomic number of

(1) 16
(2) 18
(3) 29
(4) 35

3. The chemical bonding in sodium phosphate, Na_3PO_4, is classified as

(1) ionic, only
(2) metallic, only
(3) both covalent and ionic
(4) both covalent and metallic

4. At 65°C, which compound has a vapor pressure of 58 kilopascals?

(1) ethanoic acid
(2) ethanol
(3) propane
(4) water

5. Which compound is a saturated hydrocarbon?

(1) propanal
(2) propane
(3) propene
(4) propyne

6. A beta particle may be spontaneously emitted from

(1) a ground-state atom
(2) a stable nucleus
(3) an excited electron
(4) an unstable nucleus

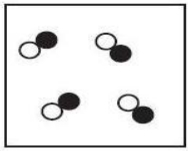
7. The compound C_2H_4 and C_4H_8 have the same

(1) freezing point at standard temperature
(2) boiling point at standard temperature
(3) molecular formula
(4) empirical formula

Day 1: continue

8. Which particle diagram represents a mixture of elements and a compound?

Key
○ = an atom of an element
● = an atom of a different element



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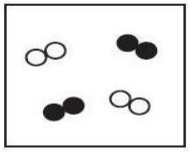

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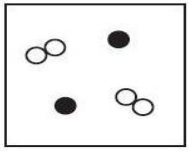

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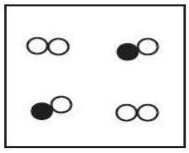


(4)

9. What is the total amount of heat absorbed by 100.0 grams of water when the temperature of the water is increased from 30.0°C to 45°C

(1) 418 J
(2) 6270 J
(3) 12 500 J
(4) 18 000 J

10. Which compound is an alkyne?

(1) C_2H_2
(2) C_2H_4
(3) C_4H_8
(4) C_4H_{10}

Day 1

Stop. Correct your answers and note how many correct **Points**

Day 1: Answers and Explanations

1. **1**
   Note: *Key phrase* in this question is "*negatively charged*"
   Recall: Electrons are negatively charged particles

2. **3**
   Recall: *Malleability* and *good conductor* are physical properties of *metals*.
   Relate: Element 29, Copper, is a metal

3. **3**
   Note: Sodium phosphate (Na_3PO_4) is an ionic compound with three different elements.
   Recall: Ionic compounds with 3 or more elements always contain both ionic and covalent bonds

4. **2**
   Recall: Vapor pressure-temperature relationship is on Table H
   Use: Reference Table H to determine answer.

5. **2**
   Recall: *Saturated hydrocarbon*s are the *alkanes.*
   Relate: Prop*ane* (with –*ane* name ending) is an alk*ane*.

6. **4**
   Recall: In nuclear radioactivity, ONLY *unstable nuclei spontaneously decay* by emitting a beta, an alpha or a positron particle.

7. **4**
   Note: Both C_2H_4 and C_4H_8 can be reduced (by Greatest Factor of 2) to *empirical formula* of CH_2

Day 1: Answers and Explanations

8. **4** *Recall:* An element is composed of one or more of the same atom. A compound is composed of two or more different atoms.
Note: Diagram 4 is showing a mixture of the two.

9. **2** *Recall*: heat (q) equations are given Table T
Note: This heat question involves *temperature change.*

Choose correct heat equation, q = mCΔT to set up and solve
Set up: q = m x C x ΔT
Solve: q = (100) (4.18) (15) = **6270 J**

10. **1** *Recall*: Table Q gives the general formula for alkynes, C_nH_{2n-2}
Determine which of the choices fits this general formula
Note: C_2H_2 is correct formula of alkyne b/c there are 2 C atoms, and the 2 H atoms is twice the # of C atoms minus 2. (2(2) – 2)

Day 2: Constructed Response Questions
10 points ***Part B-2 and C Practice***

Start: Answer all questions on this day before stopping.

Base your answers to questions 1 through 3 on the information below.

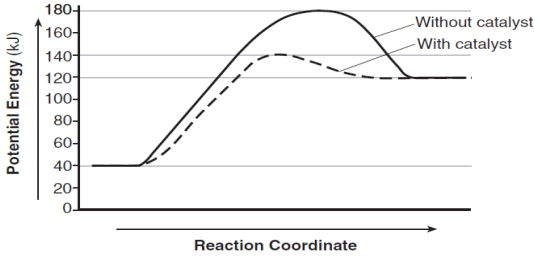
Two isotopes of potassium are K-37 and K-42.

1. What is the total number of neutrons in the nucleus of a K-37 atom? [1]

2. How many valance electrons are in an atom of K-42 in the ground state? [1]

3. Explain, in terms of subatomic particles, why K-37 and K-42 are isotopes of potassium? [1]

Base your answers to questions 4 through 6 on the potential energy diagram below.



4. What is the heat of reaction for the forward reaction? [1] ____ KJ

5. What is the activation energy for the forward reaction with the catalyst? [1] _____KJ

6. Explain, in terms of the function of a catalyst, why the curves on the potential energy diagram for the catalyzed and the uncatalyzed reactions are different? [1]

Day 2: continue

Base your answers to questions 7 through 10 on the information below.

Aluminum is one of the most abundant metals in Earth's crust. The aluminum compound found in bauxite ore is Al_2O_3. Over one hundred years ago, it was difficult and expensive to isolate aluminum from bauxite ore. In 1886, a brother and sister team, Charles and Julia Hall, found that molten (melted) cryolite, Na_3AlF_6, would dissolve bauxite ore. Electrolysis of the resulting mixture caused the aluminum ions in the Al_2O_3 to be reduced to molten aluminum metal. This less expensive process is known as the Hall process.

7. Write the oxidation state for each of the elements in cryolite. [1]

8. Write a balance half-reaction equation for the reduction of Al^{3+} to Al . [1]

9. Explain, in terms of ions, why molten cryolite conducts electricity. [1]

10. Explain, in terms of electrical energy, how the operation of a voltaic cell differs from the operation of an electrolytic cell used in the Hall process. Include both voltaic cell and electrolytic cell in your answer. [1]

Day 2

Stop. Correct your answers and note how many correct **Points**

Day 2: Answers and Explanations

1. 1 point **18 neutrons**
   Recall: Neutrons = Mass number - Atomic #
   Calculate: Neutrons = 37 - 19 = **18**

2. 1 point **1 valance e-**
   Recall: Last number in the an electron configuration is the number of valance electrons for the elements

3. 1 point Acceptable responses include, but are not limited to:
   They (K-42 and K-43) have the
   same number of protons but different number of neutrons.

4. 1 point **80 KJ**
   Recall: Heat of reaction , ΔH = Hproduct – Hreactant
   Determine values from graph ΔH = 120 KJ – 40 KJ
   Calculate ΔH = **80 KJ**

5. 1 point **100 KJ**
   Recall: Activation energy = Hactivated complex – Hreactant
   Note values from graph = 140 KJ – 40 KJ
   Calculate Activation energy = **100 KJ**

6. 1 point Acceptable responses include, but are not limited to:
   Catalyst lowers the activation energy
   Catalysts create a different or alternate pathway

Day 2: Answers and Explanations

7. 1 point **Na = + 1 Al = + 3 F = -1**

Note: You can find oxidation # of elements on the Periodic Table

Recall: The Sum of oxidation #s in a compound must equal 0

8. 1 point **Al^{3+} + 3e- -----> Al ^{0}**

Recall: In Reduction, electrons lost appear Left of arrow.

Number of electrons is the difference between the two charges (+3 - 0 = 3e-)

9. 1 point Acceptable responses include, but are not limited to:

Molten (liquefied) cryolite(ionic compound) conducts electricity because it contains mobile ions.

10. 1 point Acceptable responses include, but are not limited to:

A V*oltaic cell <u>produces</u> electricity while the electrolytic cell electricity.*

Day 3: 10 Multiple choice questions

10 points ***Part A and B1 Practice***

Start: Answer all questions on this day before stopping.

1. Which element has the greatest density at STP?

(1) barium
(2) beryllium
(3) magnesium
(4) radium

2. A 1.0-mole sample of krypton gas has a mass of

(1) 19 g
(2) 36 g
(3) 39 g
(4) 84 g

3. Standard pressure is equal to

(1) 1 atm
(2) 1 kPa
(3) 273 atm
(4) 273 kPa

4. According to the kinetic molecular theory, the molecules of an ideal gas

(1) have a strong attraction for each other
(2) have a significant volume
(3) move in random, constant, straight-line motion
(4) are closely packed in a regular repeating pattern

5. The isomers butane and methyl propane differ in their

(1) molecular formulas
(2) structural formula
(3) total number of atoms per molecule
(4) total number of bonds per molecule

6. In the formula X_2O , the symbol X could represent an element in Group

(1) 1
(2) 2
(3) 15
(4) 18

7. Molarity is defined as

(1) moles of solutes per kilogram of solvent
(2) moles of solute per liter of solution
(3) mass of a solution
(4) volume of solvent

Day 19: 15 Multiple Choice Questions

15 points ***Part A and B-1 Practice***

Start: Answer all questions on this day before stopping.

1. An atom in the ground state has seven valance electrons. The atom could be an atom of which element?

(1) calcium
(2) fluorine
(3) oxygen
(4) sodium

2. Which statement identifies the element arsenic?

(1) Arsenic has atomic number of 33.
(2) Arsenic has a melting point of 84 K.
(3) An atom of arsenic in the ground state has eight valance electrons.
(4) An atom of arsenic in the ground state has a radius of 146 pm..

3. What is the number of electrons in an atom of potassium?

(1) 18
(2) 19
(3) 20
(4) 39

4. Which statement describes a chemical property of hydrogen gas?

(1) Hydrogen gas burns in air
(2) Hydrogen gas is colorless
(3) Hydrogen gas has a density of 0.000 9 g/cm^3 at STP
(4) Hydrogen gas has a boiling point of 20. K at standard pressure.

5. Which unit can be used to express solution concentration?

(1) J/mol
(2) L/mol
(3) mol/L
(4) mol/s

6. Given the equation representing a system at equilibrium:

$H_2O(s)$ < ===== > $H_2O(l)$

At which temperature does this equilibrium exist at 101.3 kilopascals?

(1) 0 K
(2) 0°C
(3) 32 K
(4) 273°C

7. Which metal is more active than Ni and less active then Zn?

(1) Cu
(2) Cr
(3) Mg
(4) Pb

Day 19: continue.

8. Which list of nuclear emissions is arranged in order from the least penetrating power to the greatest penetrating power?

(1) alpha particle, beta particle, gamma ray
(2) alpha particle, gamma ray, beta particle
(3) gamma ray, beta particle, alpha particle
(4) beta particle, alpha particle, gamma ray

9. Which compound releases hydroxide ions in an aqueous solution?

(1) CH_3COOH
(2) CH_3OH
(3) HCl
(4) KOH

10. At 20.°C, a 1.2 gram sample of Mg ribbon reacts rapidly with 10.0 millimeters of 1.0 M HCl(aq). Which change in conditions would have caused the reaction to proceed more slowly?

(1) increasing the initial temperature to 25°C
(2) decreasing the concentration of HCl(aq) to 0.1 M
(3) using 1.2 g of powdered Mg
(4) using 2.4 g of Mg ribbon

11. Which compound is least soluble in water at 6.0°C?

(1) $KClO_3$
(2) KNO_3
(3) NaCl
(4) NH_4Cl

12. Which electron configuration represents an atom in an excited state?

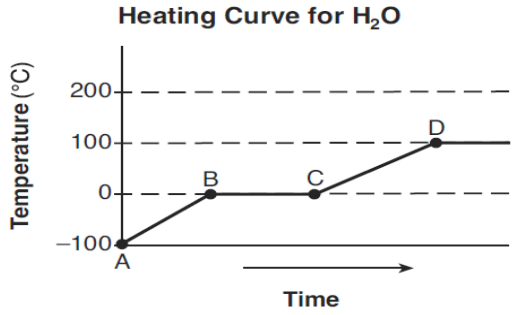
(1) 2 – 7
(2) 2 – 6 – 2
(3) 2 – 8 – 1
(4) 2 – 8 – 8 – 1

13. Which two radioisotopes have the same decay mode?

(1) ^{37}Ca and ^{53}Fe
(2) ^{220}Fr and ^{60}Co
(3) ^{37}K and ^{42}K
(4) ^{99}Tc and ^{19}Ne

Day 19: continue.

14. The graph below represents the relationship between temperature and time as heat is added to a sample of H_2O.



Which statement correctly describes the energy of the particles of the sample during interval BC ?

(1) Potential energy decreases and average kinetic energy increases
(2) Potential energy increases and average kinetic energy decreases
(3) Potential energy increases and average kinetic energy remains the same.
(4) Potential energy remains the same and average kinetic energy increases.

15. Given the balanced equation representing a reaction:

$C_3H_8(g) + 5O_2(g) \text{ ----> } 3CO_2(g) + 4H_2O(l)$

What is the total number of moles of $O_2(g)$ required for the complete combustion of 1.5 moles of $C_3H_8(g)$?

(1) 0.30 mol
(2) 1.5 mol
(3) 4.5 mol
(4) 7.5 mol

Day 19

Stop. Correct your answers and note how many correct **Points**

Day 19: Answers and Explanations

1. 2 *Look* on the Periodic Table for configuration of each atom.
Note: Last number in configuration is the number of valance e-

2. 1 *Note:* This is the only choice that gives a correct information for As.

Note: Use the Periodic Table and Table S to check each info.

3. 2 *Recall:* Number of electrons (19) = atomic number of K (19)

4. 1 *Recall:* A chemical property depends on interaction with another substance.

Relate: Burning is chemical property because it requires interaction with (oxygen)

5. 3 *Note:* Molarity equation is on Table T

$$\text{molarity} = \frac{\text{moles (**mol**) of solute}}{\text{Liter (**L**) of solution}} = \frac{\text{mol}}{\text{L}}$$

6. 2 *Note:* The equation represents the melting of ice.

Recall: Ice melts at $0^{o}C$ (273 K)

7. 2 *Note:* Relative reactivity of metals is shown on Table J:

Note: According to Table J:

Cr is more active (higher up) than Ni

Cr is less active (lower down) than Zn

8. **1** *Note:* The correct choice is a fact about penetrating power of nuclear particles

9. **4** *Recall*: Hydroxide (OH-) are produced by bases.
Note: Bases(such as KOH) are listed on Table L

Day 19: Answers and Explanations

10. **2** *Note*: Of all the changes to the reaction given as choices, a decrease in temp is the change that will produce slower rate (proceed slower).
All other changes will produce faster rates of reaction

11. **1** *Note*: Table G shows solubility of substances
Note: At any given temperature, the substance closest to bottom is the least soluble at that temperature.
Note: At 6.0°C, $KClO_3$ curve is the closest to the bottom

12. **2** *Recall*: an excited state configuration is not the same as what's on the Periodic Table for a given element.
Note: The correct choice has 10 e- = # of e- in a neon atom. But the configuration is differently arranged from one given on Periodic Table for a ground state Ne.

13. **1** *Recall*: Decay mode are given on Table N
Note: According to Table N, both Ca-37 and Fe-53 decay by emitting a positron (β+)

14. **3** *Note:* During BC, temperature is constant (therefore, no change in average kinetic energy)
Recall: When kinetic energy is constant, potential energy changes.

15. **4** *Note:* This is a mole proportion problem

Setup mole proportion to solve:

$$1\ C_3H_8(g) + 5O_2(g) \text{ ----} > 3CO_2(g) + 4H_2O(l)$$

1.5 ***x***

$$\frac{1}{\mathbf{1.5}} = \frac{5}{\boldsymbol{x}} \qquad \boldsymbol{x} = \textit{(1.5)}\,(5) = \textbf{7.5 mol}$$

Tracking your progress
If you have completed Day 11, 13, 15, 17 and 19 multiple choice question sets, you can easily check your progress and improvements in this question category.
. Go to page 211
. Plot and graph the number of points you got correct on each of the days using the second graph on the page (the 15-point graph)

Day 20: Constructed Response Questions

10 points ***Part B-2 and C Practice***

Start: Answer all questions on this day before stopping.

Base your answers to questions 1 and 2 on the information below.

In 1987, J.J. Thompson demonstrated in an experiment that cathode rays were deflected by an electric field. This suggested that cathode rays were composed of negatively charged particles found in all atoms. Thomson concluded that the atom was a positively charged sphere of almost uniform density in which negatively charged particles were embedded. The total negative charge in an atom was balanced by the positive charge, making the atom electrically neutral.

In the early 1900's, Ernest Rutherford bombarded a very thin sheet of gold foil with alpha particles. After interpreting the results of the gold foil experiment, Rutherford proposed a more sophisticated model of the atom.

1. State one conclusion from Rutherford's experiment that contradicts one conclusion made by Thomson. [1]

2. State one aspect of the modern model of the atom that agrees with a conclusion made by Thomson. [1]

Day 20: continue.

Base your answers to questions 3 through 5 on the information below.

Some dry chemicals can be used to put out forest fires. One of these chemicals is $NaHCO_3$. When $NaHCO_3(s)$ is heated, one of the products is $CO_2(g)$, as shown in the balanced equation below.

$$2NaHCO_3(s) + \text{heat} \text{ --- > } Na_2CO_3(s) + H_2O(g) + CO_2(g)$$

3. In the space in your answer booklet, show a correct numerical setup for calculating the percent composition by mass of carbon in the product, Na_2CO_3. [1]

4. Identify the type of chemical reaction represented by this equation. [1]

5. Determine, the total number of moles of $CO_2(g)$ produced when 7.0 moles of $NaHCO_3(s)$ is completely reacted. [1]

Day 20: continue.

Base your answer to questions 6 through 8 on the information below.

During a bread-making process, glucose is converted to ethanol and carbon dioxide, causing the bread dough to rise. Zymase, an enzyme produced by yeast, is a catalyst needed for this reaction.

6. Balance the equation below for the reaction that causes bread dough to rise, using the smallest whole-number coefficients. [1]

$$\_\_\_\ C_6H_{12}O_6 \xrightarrow{\text{zymase}} \_\_\_\ C_2H_5OH + \_\_\_\ CO_2$$

7. In the space in your answer booklet, draw a structural formulas for the alcohol formed in this reaction. [1]

8. State the effect of zymase on the activation energy for this reaction. [1]

---

9. Explain, in terms of collision theory, why the rate of a chemical reaction increases with an increase in temperature. [1]

10. Base on the Periodic Table, explain why chlorine and bromine have similar chemical properties [1]

Day 20

Stop. Correct your answers and note how many correct **Points**

Day 20: Answers and Explanations

1. 1 point

Acceptable responses include, but are not limited to:

The nucleus is small and positively charged *(*not the whole atom)

The atom is mostly empty space (Not a uniform density with negative charges embedded throughout)

Note: These conclusions from Rutherford's Gold foil experiment contradicts conclusions made by JJ Thompson.

2. 1 point

Acceptable responses include, but are not limited to:

The total number of electrons is equal to the total positive to make atom neutral.

Number of negative equals number of positive

3. 1 point

Acceptable setups includes, but are not limited to:

$$\%\,C = \frac{12}{106} \times 100 \quad \textit{or} \quad \frac{1200}{106}$$

Note: Percent composition equation is on Table T

$$\%\ C = \frac{\text{Total mass of C}}{\text{Formula mass of } Na_2CO_3} \times 100$$

4. 1 point

Acceptable responses include, but are not limited to:

Endothermic

Note: heat is on left (reactant side) of the equation

Decomposition:

Note: Equation shows the breaking up of$NaHCO_3$ into smaller substances

Day 20: Answers and Explanations

5. 1 point **3.5 moles**

Note: this is a mole proportion problem:

2 $NaHCO_3(s)$ --- > $1CO_2(g)$

7 ***x***

$$\frac{2}{7} = \frac{1}{x} \qquad x = 3.5 \text{ moles}$$

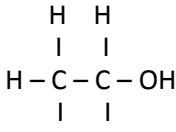
6. 1 point $\_C_6H_{12}O_6$ -------> **2** C_2H_5OH + **2**CO_2

Recall: a balanced equation must show conservation of atoms.

Number of each atom on both sides must be the same.

Note: The correct coefficients allow there to be 6 C, 12 H, and 6 O atoms on each side of the equation .

7. 1 point



Note: The position of the OH may vary

8. 1 point Acceptable responses include, but are not limited to:

Zymase (a catalyst) lowers activation energy for the reaction.
Zymase provides alternate pathways for the reaction.

9. 1 point Acceptable responses include, but are not limited to:

There is an increase in the kinetic energy of the particles.

There is increase in the frequency of collisions or particles.

10. 1 point Acceptable responses include, but are not limited to:

Cl and Br are in the same Group (17).
Cl and Br are halogens
Cl and Br have the same number of valance electrons
Cl and Br have similar oxidation state.

Day 27: Practice Regents Exam 1
Part A and B-1

Start: Answer all questions in Part A and B-1 before stopping

Part A: Answer all questions in this part

Directions (1 – 30): For each statement or question, write on the separate answer sheet the number of the word or expression that, of those given, best completes the statement or answer the question. Some questions may require the use of the Reference Tables for Physical Setting/Chemistry.

1 What is the total number of valence electrons in a calcium atom in the ground state?
(1) 8
(2) 2
(3) 18
(4) 20

2 Which subatomic particles are located in the nucleus of an He-4 atom?
(1) electrons and neutrons
(2) electrons and protons
(3) neutrons and protons
(4) neutrons, protons, and electrons

3 In the late 1800s, experiments using cathode ray tubes led to the discovery of the
(1) electron
(2) neutron
(3) positron
(4) proton

4 The atomic mass of titanium is 47.88 atomic mass units. This atomic mass represents the
(1) total mass of all the protons and neutrons in an atom of Ti
(2) total mass of all the protons, neutrons, and electrons in an atom of Ti
(3) weighted average mass of the most abundant isotope of Ti
(4) weighted average mass of all the naturally occurring isotopes of Ti

5 An atom of which element has the largest atomic radius?
(1) Fe
(2) Mg
(3) Si
(4) Zn

6 Which element requires the *least* amount of energy to remove the most loosely held electron from a gaseous atom in the ground state?
(1) bromine
(2) calcium
(3) sodium
(4) silver

Day 28: Practice Regents Exam 1
Part B-2 and C

Start: Answer all questions in Part B-2 and C before stopping.

Part B-2: Answer all questions in this part

Directions (51-63): Record your answers in the spaces provided in your Answer Booklet . Some questions may require the use of the Reference Tables for Physical Setting/Chemistry.

51 *In your answer booklet*, write an electron configuration for a silicon atom in an excited state. [1]

Base your answers to questions 52 and 53 on the information below.

Densities of Group 14 Elements

Element	Density at STP (g/cm^3)
C	3.51
Si	2.33
Ge	5.32
Sn	7.31
Pb	11.35

52 Identify *one* element from this table for *each* type of element: metal, metalloid, and nonmetal. [1]

53 Calculate the volume of a tin block that has a mass of 95.04 grams at STP. Your response must include *both* a numerical setup and the calculated result. [2]

Day 29: Practice Regents Exam 2
Part A and B-1

Start: Answer all questions in Part A and B-1 before stopping.

Part A: **Answer all questions in this part**

Directions (1 – 30): For each statement or question, write on the separate answer sheet the number of the word or expression that, of those given, best completes the statement or answer the question. Some questions may require the use of the Reference tables for Physical setting/Chemistry.

1 A neutron has a charge of
(1) +1
(2) +2
(3) 0
(4) −1

2 Which particle has the *least* mass?
(1) alpha particle
(2) beta particle
(3) neutron
(4) proton

3 A sample of matter must be copper if
(1) each atom in the sample has 29 protons
(2) atoms in the sample react with oxygen
(3) the sample melts at 1768 K
(4) the sample can conduct electricity

4 In the electron cloud model of the atom, an orbital is defined as the most probable
(1) charge of an electron
(2) conductivity of an electron
(3) location of an electron
(4) mass of an electron

5 The elements on the Periodic Table are arranged in order of increasing
(1) atomic number
(2) mass number
(3) number of isotopes
(4) number of moles

6 Which element has the highest melting point?
(1) tantalum
(2) rhenium
(3) osmium
(4) hafnium

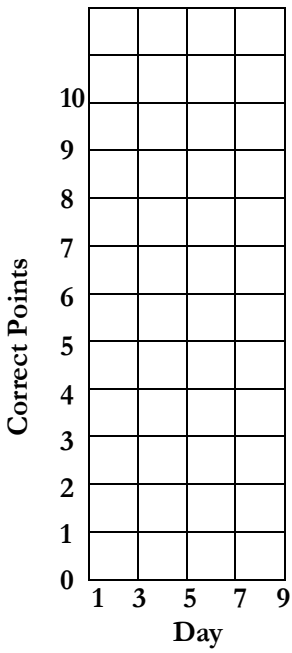
7 In a chemical reaction, there is conservation of
(1) energy, volume, and mass
(2) energy, volume, and charge
(3) mass, charge, and energy
(4) mass, charge, and volume

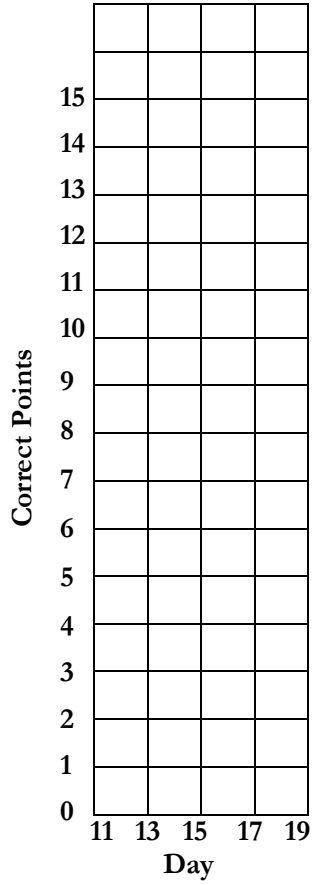
Track Your Progress: Multiple Choice Questions

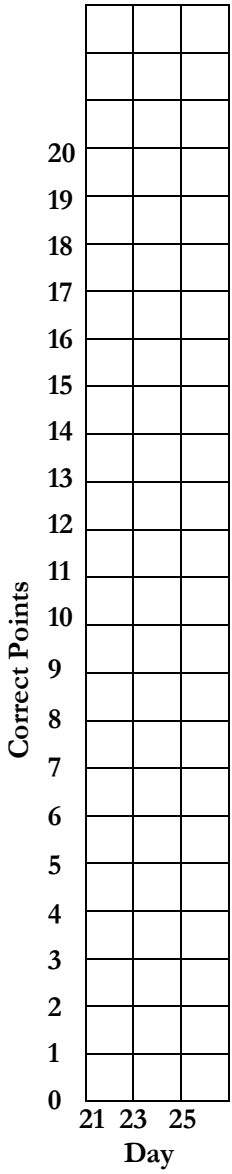
How well have you been improving on the multiple choice questions? It's easy to find out.

Get the correct points that you noted at the end of each multiple choice questions set (Odd Days).

Plot the points on the graph below. You hope to see an upward trend on each graph.





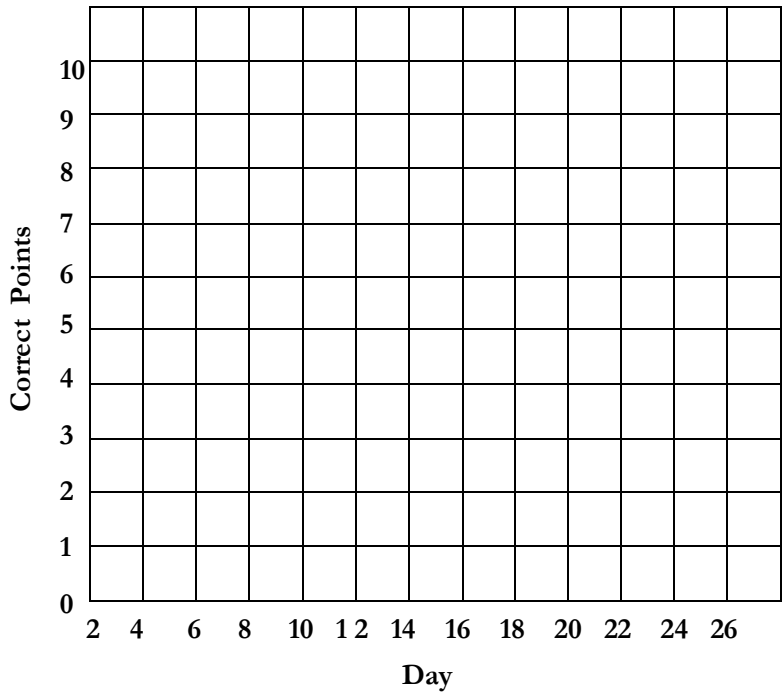


Track Your Progress: Constructed Response Questions

How well have you been improving on the constructed response questions? It's easy to find out.

Get the correct points that you noted at the end of each constructed response questions set (Even Days).

Plot the points on the graph below.
You hope to see an upward trend on the graph.



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