

CHEMISTRY QUARTERLY EXAM REVIEW



PHYSICAL vs. CHEMICAL

∞ This section will test your knowledge on Physical vs. Chemical Properties of matter.

QUESTION 1

Below is a list of changes. Select all the changes that have to do with chemical reactions.

Bubbling/ Fizzing

Creation of light

Melting

Dissolving

Changes in temperature on their own

Color with Dyes

Formation of a Precipitate

Breaking

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QUESTION 2

A characteristic of a pure substance is that all pure substances

- ✎ A. Cannot be separated by physical means.
- ✎ B. Can be separated by physical means.
- ✎ C. Can be separated by using filters.
- ✎ D. Cannot be separated chemically.

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QUESTION 3

Evaporation, condensing, vaporizing, solidifying, melting, and freezing are all examples of what?
MORE THAN ONE ANSWER MAY BE CORRECT.

- A. matter being lost
- B. physical changes
- C. chemical properties
- D. changes in state.

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PERIODIC KNOWLEDGE

∞ This section tests you on your knowledge of the organization of the periodic table.

QUESTION 4

Which statement is true about the modern periodic table?

- ✎ A) A period is a complete horizontal row of elements of similar chemical character.
- ✎ B) Elements behave in the same way when the outer shell contains the same number of electrons.
- ✎ C) About 1/4 of the elements are metals.
- ✎ D) A group is a vertical column of very different elements.

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QUESTION 5

Elements in the same group or family have what in common? (MORE THAN 1 ANSWER MAY BE CORRECT)

- ☞ A) Atomic structure
- ☞ B) Valence Electrons
- ☞ C) Similar Chemical properties
- ☞ D) Protons
- ☞ E) Orbitals

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QUESTION 6

- ☞ The following observations were made about 4 mystery elements. Which element is most likely a Halogen?

ELEMENT W	Has 1 valence electron and is a highly reactive metal.
ELEMENT X	Has 3 valence electrons and is a semiconductor.
ELEMENT Y	Has 7 valence electrons and is a highly reactive non-metal.
ELEMENT Z	Has 8 valence electrons and is a nonreactive non-metal.

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QUESTION 7

If I wanted to find an element that is chemically non-reactive, in which group of the periodic table would I look?

- ☞ A. Group 1
- ☞ B. Group 2
- ☞ C. Group 17
- ☞ D. Group 18

☞ BONUS: $\frac{1}{2}$ point per group you can name.

QUESTION 7

If I wanted to find an element that is chemically non-reactive, in which group of the periodic table would I look?

- ☞ A. Group 1 (Alkali Metals)
- ☞ B. Group 2 (Alkaline Earth Metals)
- ☞ C. Group 17 (Halogens)
- ☞ D. Group 18 (Noble Gases)

☞ BONUS: $\frac{1}{2}$ point per group you can name.

QUESTION 8

Which of the following is likely to be an Alkali Metal?

- ☞ A) A metal good at holding its shape under stress.
- ☞ B) An easily-corroded, silvery solid that fizzes in water.
- ☞ C) An unreactive colorless gas.
- ☞ D) A very toxic and reactive green gas.

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QUESTION 9

The Halogen non-metals are all in the same group of the Periodic Table because they all...

- ✎ A) have seven electrons in the outer shell.
- ✎ B) react rapidly with hydrogen by sharing one electron.
- ✎ C) form covalent compounds with any metals.
- ✎ D) have the same number of orbitals.

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BHOR MODEL

∞ This section will test your knowledge of atomic structure.

QUESTION 10

Four electron arrangements are given below.
Which is an Alkali Metal?

- a) 2,8,8
- b) 2,7
- c) 2,8,8,1
- d) 2,5

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QUESTION 11

No two elements have the same amount of...

- ☞ A. Protons
- ☞ B. Neutrons
- ☞ C. Valence Electrons
- ☞ D. Atoms

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QUESTION 12

Which of the following is true about atomic structure?

- ✎ A. The electron cloud takes up the greatest amount of space in an atom.
- ✎ B. The Nucleus makes up most of the mass of the atom, holding the protons and electrons.
- ✎ C. The Neutrons are negatively charged.
- ✎ D. The electrons are the smallest subatomic particle found in the nucleus.

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MATTER

∞ LAW OF CONSERVATION OF MASS.

QUESTION 13

How can we tell when a chemical reaction supports the law of conservation of mass?

- ✎ A. When the compounds we start with are the same as the compounds we end with.
- ✎ B. When the matter we start with is more numerous than the matter we end with.
- ✎ C. When the atoms we start with are the same type and amount as the atoms we end with.
- ✎ D. When we get more matter at the end than we had at the beginning.

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QUESTION 14

Josh is running an experiment in a closed system. He starts with 300g of substance A and mixes 50g of Substance B. Substance B dissolves into substance A. To finish the experiment he adds in one 5g tablet to the mixture. A gas forms and is collected. What is the total ending mass of his experiment?

- ☞ A. 350g
- ☞ B. 250g
- ☞ C. 300g
- ☞ D. 355g

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MIXTURES vs. PURE SUBSTANCES

∞ This section will test your knowledge of Pure Substances and Mixtures.

QUESTION 15

Which of the following is a homogeneous mixture?

- ☞ A. Milk
- ☞ B. A box of Legos
- ☞ C. Sugar
- ☞ D. Cookie dough ice cream

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QUESTION 16

☞ Which of the following is NOT an example of a diatomic molecule?

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☞ B. SO_2

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QUESTION 18

- ☞ The chemical combination of element A and element B would result in
- ☞ A. An atom AB
- ☞ B. An element AB
- ☞ C. A compound AB
- ☞ D. A molecule AB

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QUESTION 19

Identify the charge that atoms always have?

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- B. They are always negatively charged
- C. They are always neutrally charged
- D. They can be positively charged, negatively charged, or neutrally charged

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QUESTION 20

H₂, N₂, and O₂ are all examples of _____?

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- B. Ions
- C. Liquids
- D. Compounds

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QUESTION 21

Identify the difference between elements and compounds.

- ✎ A. Elements contain more than one kind of atom, while compounds contain only one type of atom.
- ✎ B. Elements can only be separated by physical means, while compounds cannot.
- ✎ C. Elements contain only one type of atom, while compounds contain more than one type of atom.
- ✎ D. Elements are acids, while compounds are always bases.

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BONUS: 5 points

- ∞ Explain how you can predict an element's physical and chemical properties by its placement on the periodic table.
- ∞ Write neatly, put “QE Review Bonus” at the top, and turn in with your name/core/date on the day of the Quarterly Exam for extra credit!