

Chemistry 1 Final Exam Review 2018

1. What is the difference between a physical change and a chemical change?

Physical = no new substance. Chemical = new substance made.

2. What are the four ways (indicators) to tell when a chemical change has occurred?

- 1.) precipitate = solid formed
- 2.) burning
- 3.) gas - bubbles
- 4.) rusting

3. What happens to the particles during a chemical change?

The particle rearrange

4. List three examples of chemical and physical changes.

Chemical:

- 1.) Cook eggs
- 2.) Rusting
- 3.) Milk sours

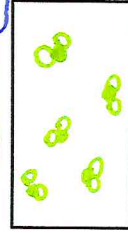
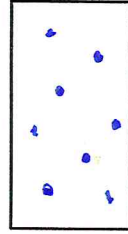
Physical:

- 1.) Cut a tree
- 2.) Cut hair/paper
- 3.) Ice turns to water

5. How is a pure substance different from a mixture?

Pure substance = all particles the same
Mixture = different types of particles

6. What are the two types of pure substances? Give two examples of each and make a particle drawing of each below.



- Oxygen
- Hydrogen

- H₂O - water
- CO₂ - carbon dioxide
- NaCl - salt

7. A neutral atom has an atomic number of 44 and a mass number of 97. What is the element, and how many protons, neutrons and electrons does it contain?

97
- 44 Ru
53
Element - Ruthenium
Protons - 44
Neutrons - 53
Electrons - 44

Subatomic particles
Protons, electrons,
neutrons

8. What is an atom made up of, and how are atoms of different elements different from each other? They are different because they have a different number of protons! (Atomic #)

9. What is an atom's mass number? How do you calculate it?

Atomic mass = protons + neutrons

10. Given the isotope notation $^{75}_{33}\text{X}$; what is element X? What is its atomic number, mass number, and how many protons, neutrons and electrons does it contain? $\rightarrow 33$

X = As, Arsenic $\rightarrow 33 \rightarrow 42 \rightarrow 33$
 $75 - 33 = 42$

11. Write the correct isotope notation for an atom containing 62 protons and electrons and 75 neutrons.

$^{137}_{62}\text{Sm}$ mass = 137
 $62 + 75 = 137$

12. What do isotopes have in common and how are they different? Write the isotope notation for two isotopes of your own creation.

Same = protons + name (Symbol) $^{12}_6\text{C}$ $^{13}_6\text{C}$
different = neutrons

13. What are valence electrons? (electrons outside)

The number of electrons in the outer energy level.

14. List the number of valence electrons for helium, phosphorus, barium, gallium, cesium, and krypton, and draw the Lewis dot structure for each.



15. What are the horizontal rows on the periodic table called? What do elements in the same row have in common? $\rightarrow$ periods

They have the same energy levels

16. What are the vertical columns on the periodic table called? What do elements in the same column have in common? $\rightarrow$ groups or family

They share similar physical and chemical properties.
- Valence electrons
- ions (charge)