New West Charter High School -- Honors/Chemistry -- Unit 2 Exam -- 150/120 points

Show all of your work. Partial credit for partial performance. And of course, no copying.

Write TRUE if the statement is true OR write the word(s) that substitute for the underlined word that would make it true. Writing false only earns partial credit. Three points.

_____ 1) The scientist that discovered radioactivity was Crookes.

_____ 2) Iron is the most abundant metal in the Earth's crust.

_____ 3) Opacity is a physical property that has to do with transparency of light.

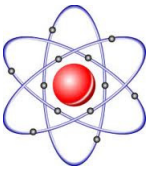
_____ 4) The element most commonly used in semiconductors is silicon.

_____ 5) We can classify all matter as either a pure substance or a compound.

_____ 6) The Rutherford gold foil experiment discovered the nucleus of the atom.

_____ 7) Different isotopes of the same element have different number of protons in the nucleus.

_____ 8) The third most abundant element in the galaxy is helium.



_____ 9) Matter is anything that takes up space and has volume.

_____ 10) There were a lot of things to memorize for this test. I have to treat the subject more seriously in the future because I want to succeed.

Short Answer / Fill-in. Three points each.

11) Three evidences of a chemical change are _____, _____, and _____.

12) The three main phases of matter are _____, _____, and _____.

13) The chemical property that describes how effective an acid is at attacking metals is called its _____.

14) The most reactive of all the elements is _____. (spelling counts here)

15) The noble gas found inside fluorescent bulbs and makes up about 1% of the air is _____.

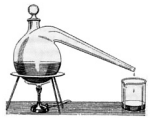
16) Calcium and magnesium are in the same chemical group called _____.

17) Name three allotropes of carbon: _____, _____ & _____.

18) What was the mistake Mendeleev made in designing the first Periodic Table of the Elements?

_____

19) All of the elements are categorized into three types: Metals, _____, and _____.



20) 1/12 the mass of a Carbon-12 atom is called what? _____.

21) What is the difference between a gas and a vapor? _____

_____.

22) Put the three subatomic particles into mass order, from most massive to least massive:

_____ _____ _____

23) What are the three most abundant elements in the ocean? _____

_____.

24) A change in matter is ALWAYS accompanied by a change in what? _____

25) Circle the three physical properties here:

luster malleability reactivity toxicity radioactivity

flammability conductivity stability

26) For an easy ten points, name all six changes of phase AND the individual phases that each describes:

a) _____ _____ to _____

b) _____ _____ to _____

c) _____ _____ to _____

d) _____ _____ to _____

e) _____ _____ to _____

f) _____ _____ to _____

27) Short answer. What is the difference between the atomic number and the atomic mass of an element?

_____

_____

28) Short essay. For five points, describe three methods we can use to determine the density of a regular solid that sinks in water, an irregular solid that sinks in water and an unknown liquid.

_____

_____

_____

_____.

29) What is periodic about the Periodic Table of the Elements? _____

_____.

30) Write in the symbols for six noble gases: _____ _____ _____ _____

_____ _____

Matching Section. Write the letter that best corresponds to each example. Two points each.

_____ 31) Antoine Lavoisier
_____ 32) Lord Rutherford
_____ 33) James Chadwick
_____ 34) J. J. Thomson
_____ 35) Wilhelm Roentgen

a) ancient Roman scientist; discovered the wheel
b) given credit for the discovery of the electron
c) showed the atom was mostly empty space
d) designed the first Crookes tube
e) lost his head over chemistry
f) coined the term "atomos," meaning indivisible
g) discovered the neutron in 1932
h) performed the famous oil drop experiment
i) discovered X-rays

36) For six points, make a detailed drawing of Rutherford's gold foil experiment of 1911. Include the source, the target and the detector. Label everything.

For each of the following symbols, write how many protons, neutrons and electrons each has (three points):

37) $^{108}_{47}Ag$

38) $^{235}_{92}U$

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39) Name three separation techniques besides magnetism and centrifugation: _____,

_____, _____.

40) Write the ancient names for the following elements:

silver _____ tungsten _____

iron _____

41) Give three of the features of Dalton's Atomic Theory of 1803: _____

_____

_____

_____

42) This element's nitride rivals diamond in hardness and can be found in our Mojave desert. It is:

_____

43) The O^{2-} ion has _____ protons and _____ electrons.

Calculations Section - Show All Your Work - Five points each.

44) An unknown material, in the shape of a cube, has a mass of 283.6 g. It measures 4.19 cm on a side. Find its density.

45) An 176.35 gram sample of pure gold is submerged in a graduate cylinder containing 325.6 mL water. What will the new volume in the cylinder be if the density of gold is 19.32 g/cm^3?

46) Find the average atomic mass of element X if 53.47% of a sample is found to be isotope X-48, 22.13% is X-49, and the remainder is X-52.