Science 10 Honours   Chemistry Test #1 Review

1. Define matter.

anything that has mass and volume

2. Explain the difference between element, compound, and molecule.

element - only one kind of atom
compound - 2 or more different kinds of atoms
molecule - 2 or more atoms

3. Explain how ionic compounds are formed and describe at least 2 properties of ionic compounds.

- electrons transferred from a metal to a nonmetal
- high melting point or solid at room temp
- form electrolytes or conduct a current when dissolved in H_2O

4. Explain how covalent compounds are formed and describe at least 2 properties of covalent compounds.

- electrons are shared between 2 or more non metals
- wide range of melting points or s, l, or g at room temp
- do not conduct when dissolved in H_2O
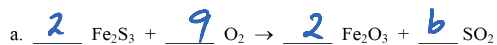
5. Complete the following table:

Symbol	Atomic #	Atomic mass	# Protons	# Neutrons	# Electrons
U	92	237	92	145	92
Lr	103	260	103	157	103
S^{2-}	16	32	16	16	18
Ag	47	108	47		47
Fe^{3+}	26	56	26	30	23

6. Write the correct name or formula.

Ca_3P_2	Calcium phosphide	tin (II) hydroxide	$Sn(OH)_2$
SCl_5	sulphur pentachloride	zinc phosphate	$Zn_3(PO_4)_2$
$Mn(CrO_4)_2$	manganese (IV) chromate	iron (III) cyanide	$Fe(CN)_3$
K_2SO_3	potassium sulphite	dinitrogen tetroxide	N_2O_4
$Mg(SCN)_2$	magnesium thiocyanate	aluminum chloride	$AlCl_3$

7. Balance the following equations.

a. __2__ Fe_2S_3 + __9__ O_2 → __2__ Fe_2O_3 + __6__ SO_2

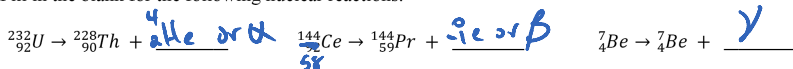b. _____ $K_2Cr_2O_7$ + __14__ HCl → __2__ KCl + __2__ $CrCl_3$ + __7__ H_2O + __3__ Cl_2

8. How do you identify each of the following reaction types: synthesis, decomposition, single replacement, double replacement, neutralization, and combustion.

[handwritten annotations] 2 elements → 1 compound · 1 element ; 2 compounds ; acid+base ; $CH_4 + O_2$; 1 element 1 compound

What they start with
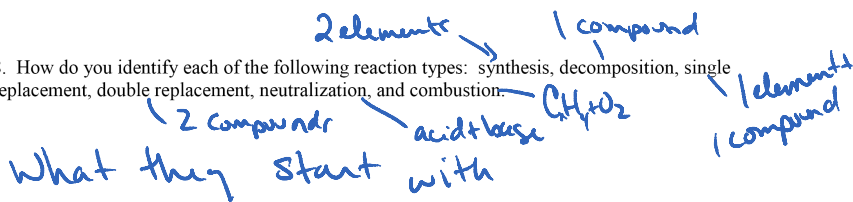
9. What is the other name for an α particle? What is the other name for a β particle?

^4_2He $^0_{-1}e$

10. Fill in the blank for the following nuclear reactions.

$^{232}_{92}U \rightarrow \ ^{228}_{90}Th + \underline{^4_2He}$ or α $^{144}_{58}Ce \rightarrow \ ^{144}_{59}Pr + \underline{^0_{-1}e}$ or β $^7_4Be \rightarrow \ ^7_4Be + \underline{\gamma}$

11. List at least on characteristic of each of the following families: Alkali metals, Alkaline Earth metals, Halogens, Noble gases

[handwritten] reactive nonmetal   unreactive   1 valence e^- very reactive   2 valence e^-

12. If the half-life of a radioactive isotope is 12 days, what fraction of a sample would remain after 48 days?

[handwritten] 0 time = 1 ; 12 = ½ ; 24 = ¼ ; 36 = ⅛ ; 48 = $\boxed{\frac{1}{16}}$
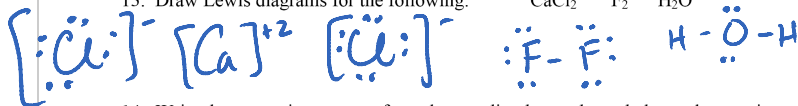
13. Draw Lewis diagrams for the following: $CaCl_2$ F_2 H_2O

$$[:\ddot{C}l:]^- \quad [Ca]^{+2} \quad [:\ddot{C}l:]^- \qquad :\ddot{F}-\ddot{F}: \qquad H-\ddot{O}-H$$

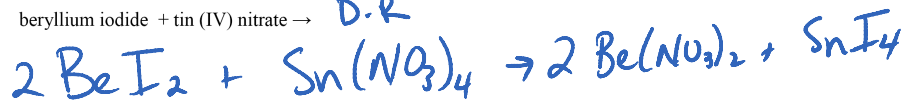14. Write the names into correct formulas, predict the products, balance the reactions, and name the reaction type

aluminum + chlorine →

$$2\,Al + 3\,Cl_2 \rightarrow 2\,AlCl_3 \qquad \text{Synthesis}$$

beryllium iodide + tin (IV) nitrate →   D.R

$$2\,BeI_2 + Sn(NO_3)_4 \rightarrow 2\,Be(NO_3)_2 + SnI_4$$

hydrochloric acid + magnesium hydroxide

$$2\,HCl + Mg(OH)_2 \rightarrow MgCl_2 + 2\,H_2O$$

ethyne gas (C_2H_2) + oxygen →

$$2\,C_2H_2 + 5\,O_2 \rightarrow 4\,CO_2 + 2\,H_2O$$

(answers are on my website….if you only copy the answers, you are only cheating yourself!)