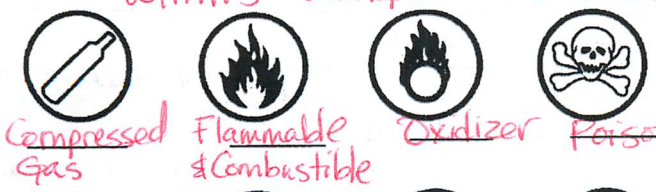
GRADE 9 EXAM REVIEW - Chemistry

1. Write the meaning of each of the following symbol.

WHMIS - Workplace Hazardous Materials Information System



Compressed Gas | Flammable & Combustible | Oxidizer | Poisonous

Toxic | Biohazard | Corrosive | Reactive

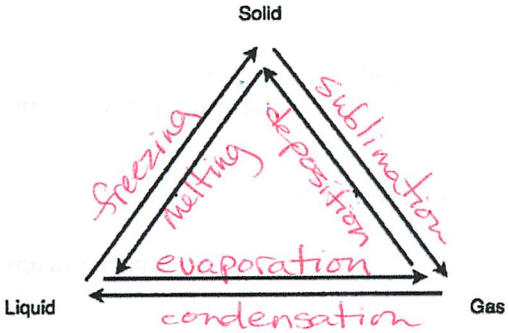
① Flammable - Danger
② Corrosive - Caution
③ Poisonous - Danger
④ Explosive - Caution

HHPS - Hazardous Household Product Symbols

① ② ③ ④

Warning

2. Write the change of state represented by each arrow in the diagram given below.

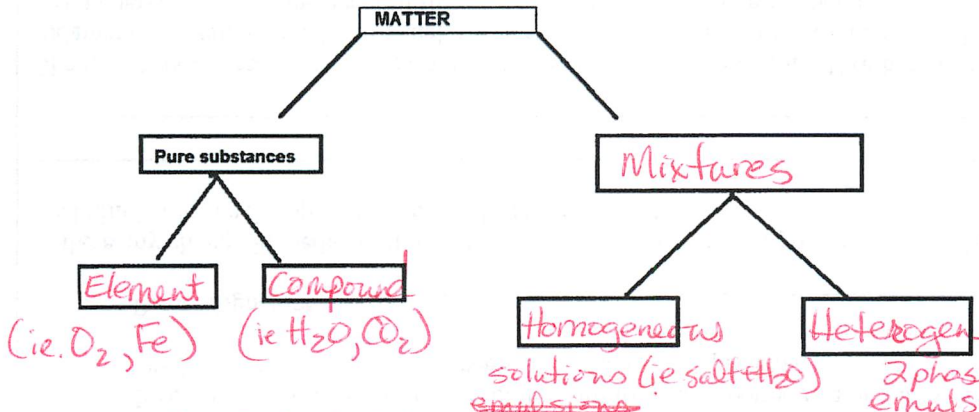


$H_2O_{(l)}$ liquid

$CO_{2(g)}$ gas

$C_6H_{12}O_{6(s)}$ solid

3. Complete the missing terms in each box.



4. Describe the physical property of a wood log. Give Quantitative and Qualitative properties. Give a Chemical proprty too. ① hard, brown, rough (qualitative) ② mass (log is 10kg), density (wood is 1000 kg/m³) ③ Wood is combustible

5. What are the symbols for each element below? Draw the Bohr Diagram for each. Determine which element would lose electrons. Which one gains electrons?

Li F

a) Lithium & Fluorine

Ca O

b) calcium & oxygen

- metals always lose e⁻ Li, Ca, Mg
- non metals gain e⁻ F, O, Cl
- for ionic compounds (metal + non-metal)

H O

c) Hydrogen & oxygen

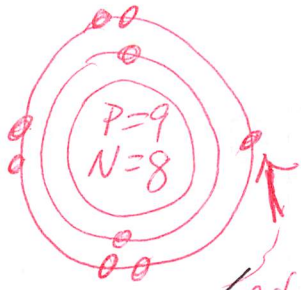
* covalent - 2 non-metals e⁻ are shared

Mg Cl

d) magnesium & chlorine

5(a) $^{7}_{3}Li$ likely lose e^- mass # → 17 $^{19}_{9}F$ → atomic #

$N = 7-3 = 4$



$N = 17-9 = 8$

ionic

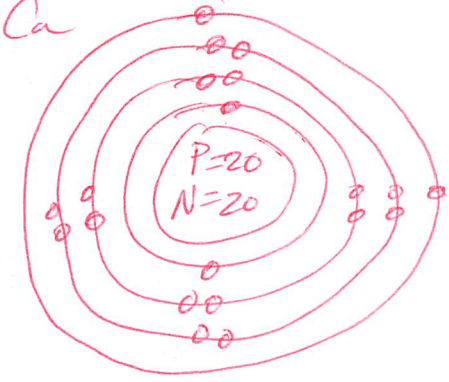
Li^+ when e^- lost

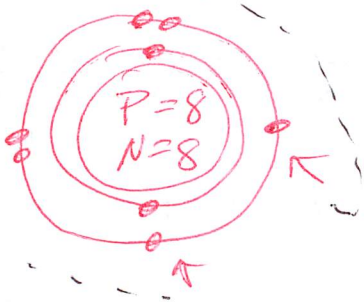
likely gain e^-

F^- when e^- gained

5(b) $^{40}_{20}Ca$ $^{16}_{8}O$

ionic





likely lose $2e^-$

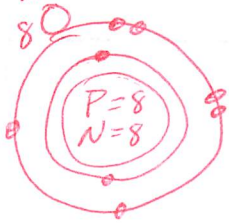
Ca^{2+}

likely gain $2e^-$

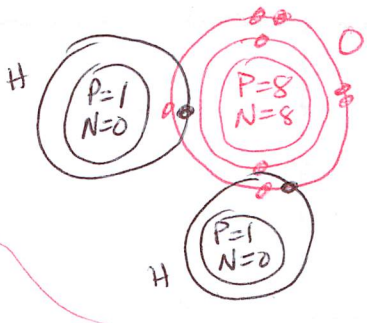
O^{2-}

5(c) $^{1}_{1}H$ $^{16}_{8}O$

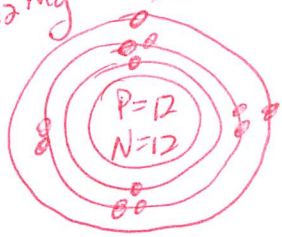
covalent (share e^-)

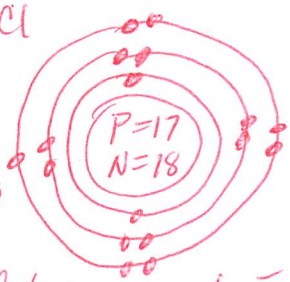


Need to share w 2H



5(d) $^{24}_{12}Mg$ $^{35}_{17}Cl$





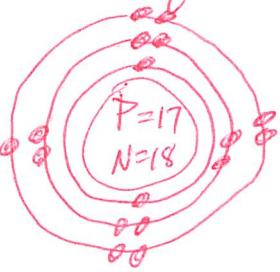
likely lose $2e^-$

Mg^{2+}

likely gain $1e^-$

Cl^{1-}

Need a 2nd chlorine to take the other e^- from Mg.



That is why formula is $MgCl_2$

6. Write the names for these common compounds

H_2O watey	CO_2 carbon dioxide
NaCl salt (sodium chloride)	O_2 oxygen

USE GRASP to solve the following problems

$d = m/V$

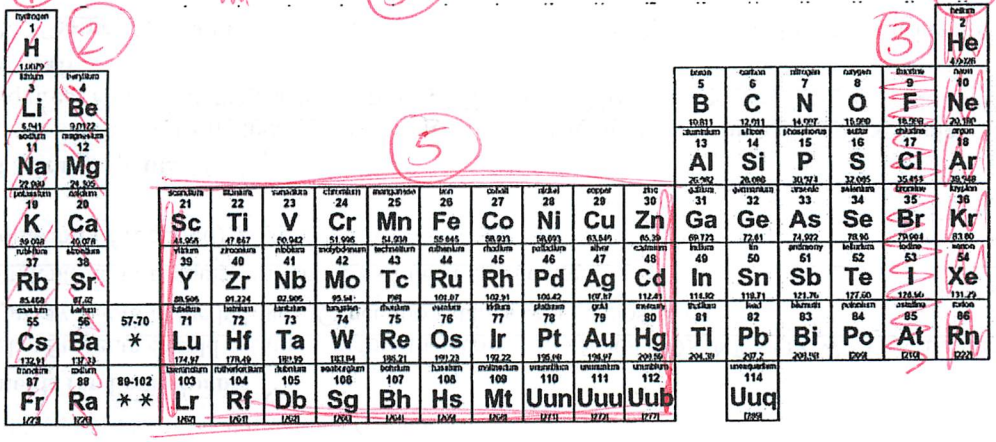
7. Calculate the density of a material that has a mass of 52.457 g and a volume of 13.5 cm^3. $d = \frac{52.457\,g}{13.5\,cm^3} = 3.89\,\frac{g}{cm^3}$

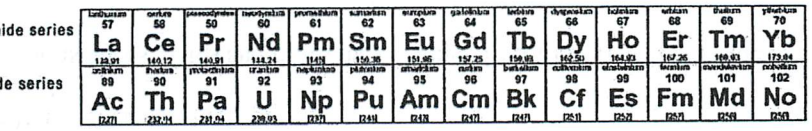
See Full Solution.

8. What is the mass of a 350 cm^3 sample of pure silicon with a density of 2.336 g/cm^3? $m = d \times V = 2.336\,\frac{g}{cm^3} \times 350\,cm^3$

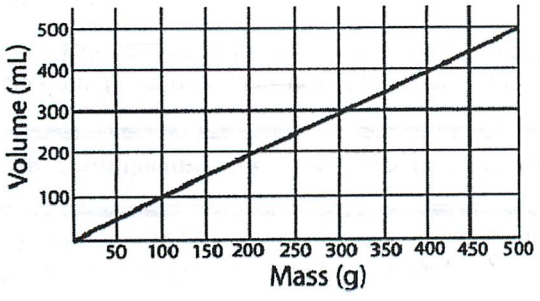
$m = 818\,g$

9. Color the periodic table with a legend for the following: Alkalie Metals, Alkaline Earth Metals, Halogens, Noble Gases, Transition Metals.





10. What is the density for the data given below?



$Slope = \frac{\Delta V}{\Delta M}$ (rise) (run)

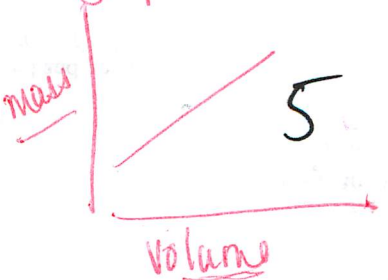
$Slope = \frac{500-0\ ml}{500-0\ g}$

$Slope = \frac{1\ ml}{1\ g}$

$density = \frac{1\ g}{ml}$

(inverse of slope of this graph)

* Usually slope is same as density when graph is:



11. State the contributions to atomic theory for Bohr and Rutherford.

See Attached.

Full Solution

7. Given: $m = 52.457\,g$, $V = 13.5\,cm^3$
Required: density (d)
Analysis: $d = \frac{m}{V}$
Solution: $d = \frac{52.457\,g}{13.5\,cm^3}$

$d = 3.89\,\frac{g}{cm^3}$

Paraphrase: the density of the material is $3.89\,\frac{g}{cm^3}$.

8. Given: $V = 350\,cm^3$, $d = 2.336\,g/cm^3$
Required: mass
Analysis: $m = d \cdot V$
Solution: $m = 2.336\,\frac{g}{cm^3} \times 350\,cm^3$

$= 818\,g$

Paraphrase: The mass of pure silicon is 818g.

11.

Rutherford	Bohr
- Gold Foil Experiment - discovered most of atom was empty space (most alpha particles went straight through) - positive nucleus given deflection of positive alpha particles - positive nucleus → protons.	- line spectrum through refraction - different colors → different energy levels - exciting e^- to different energy levels.