

Honors Review

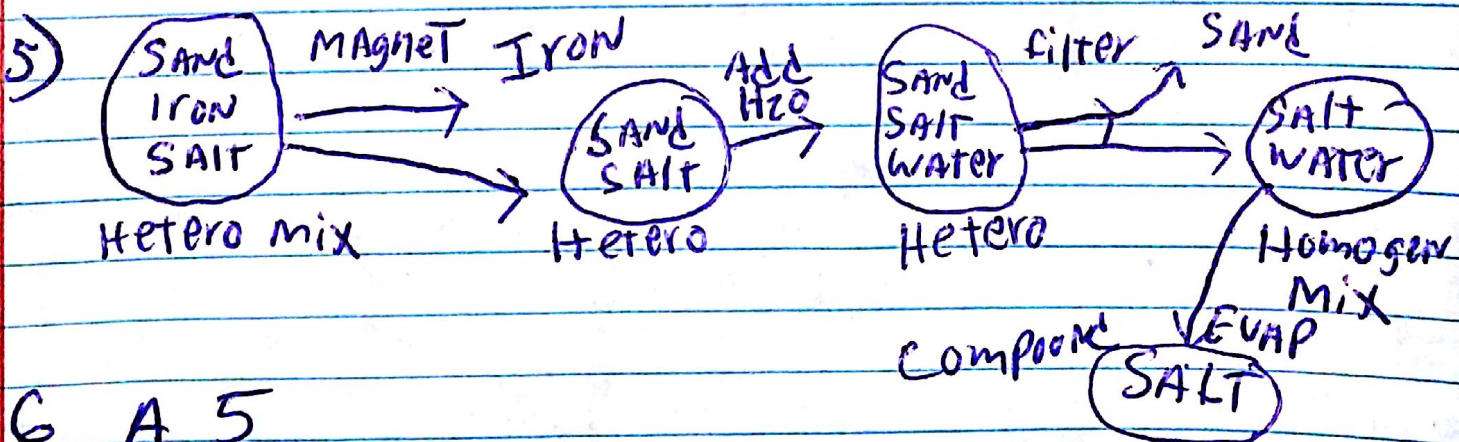
- 1) Notes or google
- 2) endothermic temp decrease
Exothermic temp INCREASE

- 3) bubbles (Form GAS)
Color change
TEMP change
Precipitate forms

- 4) Solid - Tight Packing, fixed Volume
fixed SHAPE, Low ENERGY

liquid - loose packing, fixed Volume
Undefined shape, Mid energy

gas - NOT Packed, Undefined Volume
Undefined SHAPE, high energy



- 6 A 5
- B 4
- C 4
- d 2

6 PART 2

a) $.138915 \rightarrow 0.139$

b) $.0043 \rightarrow .004$

c) $3888 + 2238.52 = 6126.52$
 $4000 + 2240 - 80 = 6160 \rightarrow 6000$

d) $442.548 \rightarrow 440$

Sci NOT

$$1.18 \times 10^5$$

$$1.50 \times 10^{-6}$$

$$5256000, 00001528$$

7a milli centi deci base deca hecto kilo

b 150000 mg $.01505 \text{ L}$ $.00025068 \text{ km}$

$$10101000 \text{ cg}$$

8 $d = \frac{m}{V} = \frac{230.34}{52} = 4.4296 \rightarrow 4.4 \text{ g/mL}$

9 Intensive & CAN be used to determine WHAT MATERIAL IS

$$M = d \times V = 1.55 \times 10^{-5} \text{ g/mL} \times 2300 \text{ mL} = .0357 \text{ g}$$

10) - Same compound must have same amount of the same elements

- different number of elements results in making a different compound

Conservation of Matter - States
Matter not created or destroyed in
Chem or Phys reactions

11) No gained mass

Gas was combined to create a
new compound in crucible

Yes - Seal the system to prevent
gas from entering

Isotope - Atom of element with different
mass due to diff # of neutrons

$\frac{1}{2}$ life - Time required to convert $\frac{1}{2}$ of
atoms of an isotope to a new
isotope

12) F Na

13) a) similar size

b) same # of valance e^- so similar property

14) A) little mass, neg charge - electron cloud

B) 1 mass unit, no charge - ~~atom~~ nucleus

C) 1 mass unit, positive charge - nucleus

P^+ N^0 e^- Ve

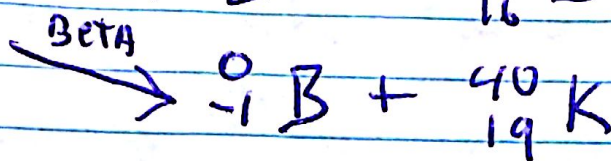
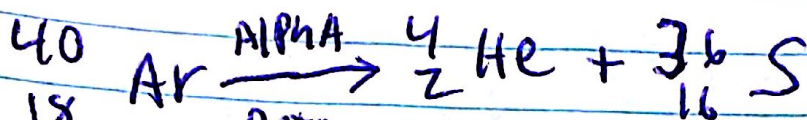
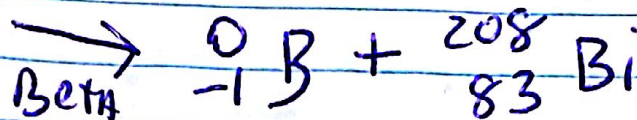
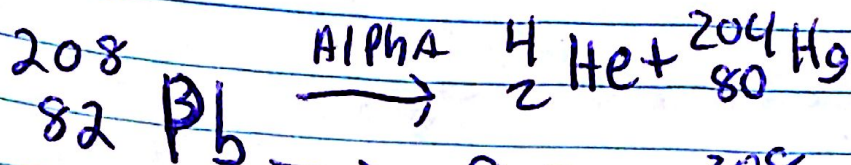
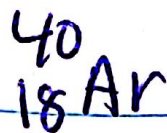
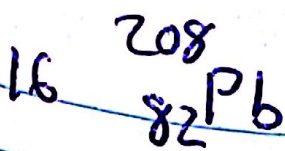
15

Ca 20 20 20 2

F 9 10 9 7

N 7 7 7 5

Cl 17 18 17 7



17 look up

	A	B	C
18			
NAME	Phosphorus	Arsenic	Bromine
CLASS	NON METAL	metalloid	NON METAL
NEEL	31	75	78
SYM	P	AS	Br
PT	15	33	35
e ⁻	15	36	35
n ^o	16	42	43
MASS #	31	75	78
VE	5	5	7
Lewis dot	$\cdot\cdot\cdot\cdot\cdot$ P $\cdot\cdot\cdot\cdot\cdot$	$\cdot\cdot\cdot\cdot\cdot$ AS $\cdot\cdot\cdot\cdot\cdot$	$\cdot\cdot\cdot\cdot\cdot$ Br $\cdot\cdot\cdot\cdot\cdot$

$$1) \quad 3(40.08) + 2(30.98) + 8(16.00) = 310.2$$

120.24 61.96 128

$$100 \times \left(\frac{120.24}{310.2} \right) = 38.76\%$$

$$2) \quad 2(26.98) + 3(32.06) + 12(16.00) = 342.14$$

53.96 + 96.18 192 $\frac{g}{mol}$

$$3) \quad 3.50 \times (40.08 + 3(16) + 3(1.01)) = 318.78$$

↓
319 g/mol

$$4) \quad \frac{45.0 g}{12.01 + 2(16.00)} = 1.022727 \Rightarrow 1.02 \text{ mol } CO_2$$

$$5) \quad \frac{2.25 \times 10^{23} \text{ Atom}}{6.022 \times 10^{23} \frac{\text{Atom}}{\text{mol}}} = .3736 \text{ mol} \times 24.31 \frac{g}{\text{mol}}$$

$$= 9.08295 \Rightarrow 9.08 g$$

$$6) \quad \frac{2.23 \times 10^{24}}{6.022 \times 10^{23}} = 3.7031 \times (2(16.00)) = 118.498$$

↓
118 g O₂

$$7) \frac{150.0}{342.14} = .43842 \times 6.022 \times 10^{23}$$

$$= 2.640147 \times 10^{23} \Rightarrow 2.640 \times 10^{23} \text{ molecules}$$

$$8) Q = m C \Delta T \Rightarrow 50.0 \text{ g} \cdot 4.184 \frac{\text{J}}{\text{g}^\circ\text{C}} \cdot 58.0^\circ\text{C}$$

$$= 12133.6 \text{ J} \Rightarrow 12100 \text{ J}$$

$$9) C = \frac{Q}{m \Delta T} = \frac{96.25 \text{ J}}{550.7 \text{ g} \cdot 10.0} = 0.01747775$$

$$\downarrow$$

$$0.0175 \frac{\text{J}}{\text{g}^\circ\text{C}}$$

Hydrate

m H	16.280	$\frac{2.400}{18.02} = .1332$	= 2
m AH	13.880	$\frac{.1332}{.06665}$	
m H ₂ O	2.400		

$$137.33 + 2(35.45) \quad \frac{13.880}{208.23} = \frac{.06665}{.06665} = 1$$



Barium chloride dihydrate

$$10) \frac{1.841 \times 10^{21} \text{ molecules}}{6.022 \times 10^{23} \frac{\text{molecules}}{\text{mol}}} = .003057 \text{ mol}$$

$$11) \frac{2200 \text{ g}}{342.14 \text{ g/mol}} \times 6.022 \times 10^{23} = 3.87 \times 10^{24} \text{ molecules}$$

12) Find 25.5% of ~~325.0~~ 325.0 g

$$325.0 \times .255 = 82.88 \text{ g}$$

$$\frac{10(12.01) + 12(1.01) + 2(16.00)}{164.22}$$

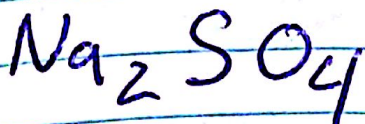
$$\frac{82.88 \text{ g}}{164.22 \text{ g/mol}} \times 6.022 \times 10^{23} = 3.039 \times 10^{23} \text{ molecules}$$

$$13) \frac{1.24}{30.47} = \frac{.040}{.040} = 1 \quad \frac{1.92}{16.00} = \frac{.12}{.040} = 3$$

$$\text{Emp P} = \text{PO}_3 \quad 30.47 + 3(16.00) = 78.97$$

$$\frac{398}{78.97} = 5.03 \text{ molecular} = \text{P}_5\text{O}_{15}$$

$$14 \quad \frac{32.38}{22.99} = \frac{1.41}{.706} \quad \frac{22.65}{32.06} = \frac{.706}{.706} \quad \frac{44.99}{16.00} = \frac{2.81}{.706}$$



1	Sodium Bromide	11	SiO ₂
2	Calcium Acetate	12	Ni ₂ S ₃
3	diPhosphorus Pentoxide	13	Cu CrO ₄
4	titanium SULFATE	14	Ag C ₂ H ₃ O ₂
5	Fe₂(SO₄)₃ Iron III Phosphate	15	B ₂ Br ₄
6	POTASSIUM Nitride	16	Mg(OH) ₂
7	Sulfur dioxide	17	Sn(CO ₃) ₂
8	Copper I Hydroxide	18	(NH ₄) ₂ O
9	Zinc Nitrate	19	Sn Se ₂
10	Cobalt III sulfide	20	C Cl ₄

15 A 1s² 2s¹

B 1s² 2s² 2p⁵

C 1s² 2s² 2p⁶

D 1s² 2s² 2p⁶ 3s² 3p⁶ 4s¹ 3d¹⁰

17 1 = 1s so 2

2 = 2s & 2p so 8

3 = 3s 3p 3d → 18

4 = 3s 3p 3d 4f = 32

19) NOT covered BUT Red more energy

20) use Identifying color in flame

E Ti

F $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^5$

G Na

H [Ar] $4s^1 3d^{10}$

S $\Rightarrow \frac{\uparrow\downarrow}{1s} \frac{\uparrow\downarrow}{2s} \frac{\uparrow\downarrow}{2p} \frac{\uparrow\downarrow}{3s} \frac{\uparrow\downarrow}{3p} \frac{\uparrow}{3p}$

Ca $\Rightarrow \frac{\uparrow\downarrow}{1s} \frac{\uparrow\downarrow}{2s} \frac{\uparrow\downarrow}{2p} \frac{\uparrow\downarrow}{3s} \frac{\uparrow\downarrow}{3p} \frac{\uparrow\downarrow}{4s}$

F $\frac{\uparrow\downarrow}{1s} \frac{\uparrow\downarrow}{2s} \frac{\uparrow\downarrow}{2p} \frac{\uparrow\downarrow}{2p}$