

CHM 1142

Exam 1

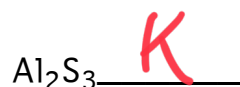
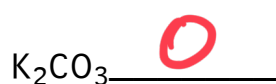
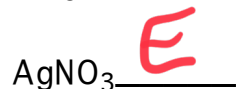
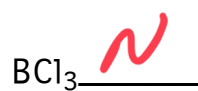
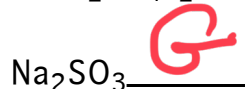
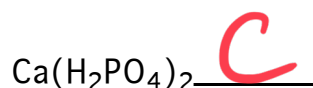
TUD Department of Chemistry

Fall 2017

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200 points total

50pts 1) Match the formula to the correct name,



a. dialuminum trisulfide

b. dipotassium oxide

c. calcium dihydrogen phosphate

d. hydrobromic acid

e. silver nitrate

f. sodium nitrate

g. sodium sulfite

h. sodium sulfate

i. potassium trichloride

j. lithium permanganate

k. aluminum sulfide

l. sodium sulfite

m. potassium oxide

n. boron trichloride

o. potassium carbonate

p. phosphorus trichloride

q. bromic acid

r. ferric chloride

s. iron(II) chloride

t. calcium phosphate

u. hydrobromous acid

v. bromic acid

64 pts 2) Write the names or formula for the following compounds:

CaS calcium sulfide

sodium bicarbonate NaHCO_3

SnBr₂ Tin(II) bromide

Al₂O₃ aluminum oxide

AgOH silver hydroxide

N₂O₄ dinitrogen tetroxide

KI potassium iodide

sulfur trioxide SO_3

Al₂(CO₃)₃ aluminum carbonate

HClO₃ chloric acid

ClO₂ chlorine dioxide

copper (I) bromite CuBrO_2

200 points total

36pts 3) Answer the following:

a) Circle the warmer temperature?

20°C 20K

b) How many neutrons are in an atom of Sr-90?

$$90 - 38 = 52$$

c) How many mL are in 0.667 L?

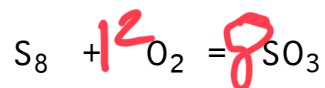
$$0.667 \text{ L} \left(\frac{1000 \text{ mL}}{1} \right) = 667 \text{ mL}$$

d) Circle the greater distance

0.100 m

1000 mm

e) Balance the following equation:



200 points total

f) What prefix means "nine"?

nona

g) Convert 2.2×10^{-3} to decimal notation?

0.0022

h) Write the name and symbol of a halogen.

F fluorine

Br bromine

Cl chlorine

I iodine

i) Circle the subatomic particle with the greater mass?

electron

neutron

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15pts 4) How many significant figures are in the following?

10.08210 7

0.0900000 6

1.00 x 10⁻⁷ 3

1205000 4

1.022000 x 10⁻⁴ 7

10pts 5) Fill in the following table:

Symbol	# of protons	# of neutrons	# of electrons	charge
<u>Na-23</u>	11	12	<u>11</u>	0
K- <u>40</u>	<u>19</u>	21	<u>18</u>	+1
Ar-40	<u>18</u>	<u>22</u>	18	<u>0</u>
<u>Al</u> -27	13	<u>14</u>	<u>10</u>	+3

200 points total

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10pts6) What mass of a liquid with $d=1.82 \text{ g/mL}$ has a volume of 24 mL ?

$$24 \text{ mL} \left(\frac{1.82 \text{ g}}{\text{mL}} \right) = 44 \text{ g}$$

10pts7) A snake is 3.2 feet long.

2.54 cm = 1 inch

a) What is his length in mm?

$$3.2 \text{ ft} \left(\frac{12 \text{ in}}{1 \text{ ft}} \right) \left(2.54 \frac{\text{cm}}{\text{in}} \right) \left(\frac{10 \text{ mm}}{\text{cm}} \right) = 980 \text{ mm}$$

5pts 8) Assume that an element consists of two isotopes with masses of 90.00 amu and 120.00 amu. If the abundance of the 90.00 amu isotope is 80.00% and the abundance of the 120.00 amu isotope is 20.000%, what should appear in the periodic chart as the atomic weight of the element?

$$0.8000 (90.00 \text{ amu}) + 0.2000 (120.00 \text{ amu}) = 96.00 \text{ amu}$$