

K	C	A	T
45		24	69

/138 = %

Name: _____

Chemistry Unit Test - SNC 1D

1. For each of the following, identify as an:
- element
 - compound
 - solution
 - colloid
 - suspension
 - mechanical mixture

a box of smarties	
vinegar	
lead	
air	
muddy water	
mayonnaise	
argon	
calcium carbonate	
copper(II) sulphate pentahydrate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$)	
steel, composed of iron, carbon, nickel and vanadium	

10A

2. On the next page, there are 34 word statements and on the following page there are 34 words, each of which corresponds to one of the statements. Please note the letter code that goes with each word. Please place the MOST CORRECT **CAPITAL** LETTER in the space provide before each statement. Please use pencil. Some statements may apply to more than one word, however, there is always a better choice. If you fold your test carefully you will be able to see the statements and the letter code at the same time!!

	may be homogeneous or heterogeneous and always contain more than one type of particle
	are negatively charged and orbit the nucleus
	are composed of two or more elements that are chemically bonded in a precise ratio of atoms as described by a chemical formula
	has distinctly different regions in its overall composition
	are always homogeneous and are able to allow light to pass through without causing a Tyndall effect (causes light to scatter, like a flashlight through fog)
	are homogeneous and do not separate and are often opaque (opaque: do not allow light to pass through)
	were the only elements for which we were able to complete Bohr diagrams
	occurs when atoms share valence shell electrons
	are gas particles that are made from elemental molecules that use a covalent bond in order to create full valence shells through sharing
	is classified as a non-metal
	any observation that uses numbers and can frequently be used to identify a substance
	is the number of protons located in the nucleus and also determines an atom's location on the periodic table
	form monatomic gases and are located in the column on the far right of the periodic table
	are located in the second last column of the periodic table
	are made from the columns ranging from scandium to zinc and are located in the middle of the periodic table
	the outermost electron shell in any atom
	occurs when there is a loser atom and a gainer atom
	are neutral and located in the nucleus and make up more than half of an atom's total mass
	is the sum of the protons plus neutrons that are located in the nucleus of an atom
	can be measured without destroying the substance being tested
	are the most common type of element found on the periodic table
	do not create new chemical compounds
	always create new compounds that will have a new chemical formula
	have only one type of atom only
	are able to separate into two phases if left to stand
	have a negative charge
	any observation that is made without the use of numbers
	have been removed from the main part of the periodic table and have been placed below in order to make the periodic table fit on a regular piece of paper
	are located in the first column of the periodic table
	are located in the second column of the periodic table
	cannot be measured without destroying the substance being tested
	is something that is the same throughout
	are positively charged and located in the nucleus
	have a positive charge

A homogeneous
B heterogeneous
C elements
D compounds
E mixtures
F colloids
G suspensions
H solutions
I physical changes
J chemical changes
K physical properties
L chemical properties
M qualitative
N quantitative
O protons
P neutrons
Q electrons
R mass number
S atomic number
T alkali metals
U alkaline earth metals
V halogens
W noble gases
X transition metals
Y rare earth metals
Z diatomic gases
AA metals
BB main group elements
CC valence shell
DD ionic bonding
EE covalent bonding
FF cations
GG anions
HH hydrogen

3. Add labels to this periodic table as was done on the exercise during class. Please use the list of words on the previous page as an aid to help with this process.

The periodic table is shown with arrows pointing from a list of labels on the right to specific elements. The labels are: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102. The arrows point from these labels to the corresponding elements in the periodic table.

m=DV

4. Please use proper format for both density calculations as used in class and on the quiz. Please convert units such that units are in agreement during each calculation.

mega M	kilo k	hepto h	deca da	base unit	deci d	centi c	milli m	micro μ
←	←	←	←	←	←	←	←	←
÷1000	÷10	÷10	÷10	÷10	÷10	÷10	÷10	÷1000
→	→	→	→	→	→	→	→	→
x1000	x10	x10	x10	x10	x10	x10	x10	x1000

- a) Determine the mass in kg of 1.245 L of liquid mercury given that the density of liquid mercury is 13.55 mg/mL

/7A

- b) 25.00 g of a metal has a volume of 2.2046 L. Use this information and the table at the bottom of this page to identify the metal in this question.

/7A

Densities of some common metals

<u>Metal</u>	<u>Density (g/cm³)</u>
<u>Aluminum</u>	<u>2.70</u>
<u>Copper</u>	<u>8.94</u>
<u>Gold</u>	<u>19.3</u>
<u>Iron</u>	<u>7.86</u>
<u>Lead</u>	<u>11.34</u>
<u>Magnesium</u>	<u>1.74</u>
<u>Silver</u>	<u>10.5</u>
<u>Tin</u>	<u>5.75</u>
<u>Zinc</u>	<u>7.14</u>

/14A

5. What does the "atomic number" of the element tell you? What is the atomic number of the element potassium?

/2T

6. What does the mass number of the element tell you. What do you need to know to calculate a mass number?

/2T

7. Please complete the missing information in the following:

_____	192 Ir 77	# of p ⁺ = _____ # of n = _____ # of e ⁻ = _____
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_____	96 Mo 42	# of p ⁺ = _____ # of n = _____ # of e ⁻ = _____
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_____	_____ _____	# of p ⁺ = <u>48</u> # of n = <u>64</u> # of e ⁻ = <u>48</u>
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_____	_____ _____	# of p ⁺ = <u>59</u> # of n = <u>82</u> # of e ⁻ = <u>59</u>
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/7T

8. What is the key difference between a physical vs a chemical change?

/1T

9. Please identify as a physical or chemical change. If it is a chemical change please add the evidence of chemical change

a) a candle flame _____

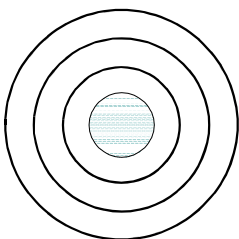
b) melting candle wax _____

/3T

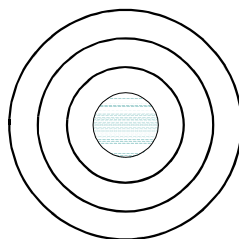
/15T

10. Complete each Bohr diagram by adding electrons in the correct locations. Which of the diagrams that you have completed have a full valence shell?

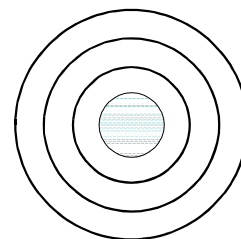
Ne



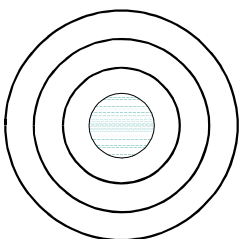
N



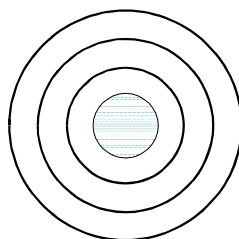
S



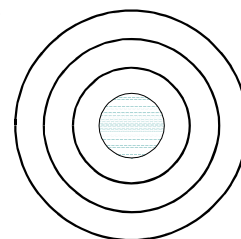
Na



Si



He



/14T

11. Show how ionic bonding works between Mg and Cl. To do this, draw Bohr diagrams of the neutral atoms and then redraw the atoms after they have lost or gained electrons and show using an arrow where the electrons have travelled. Please use dots for the magnesium electrons and small "x"s for the chlorine electrons. Hint, to do this correctly, you will need to draw a total of 6 Bohr diagrams. Write the chemical formula.

/10T

/24T

12. Show how covalent bonding works between hydrogen and oxygen to form water. Please draw hydrogen and oxygen before bonding and then a second time to show how the bonding works. Please use dots for the hydrogen electrons and small "x"s for the oxygen electrons. Write the chemical formula.

/10T

13. Please use instructions from either question #11 or #12 to show the bonding between P and H

/10T

14. Please write the type and number of atoms found in each formula.

/10T

$C_{12}H_{22}O_{11}$	$Fe(NO_3)_3$	$Co(NH_3)_6Cl_3$
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/30T