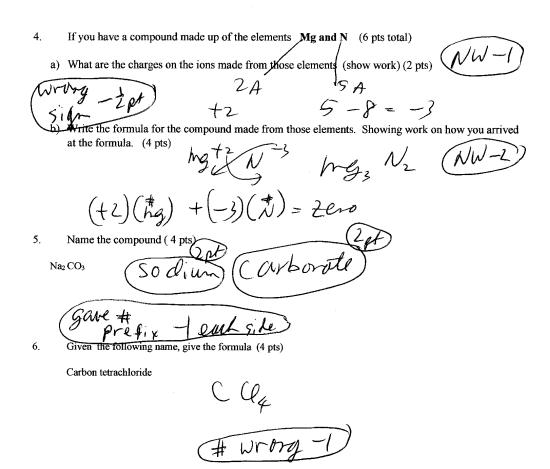
General Chemistry I Lecture Fall 2017 8/28/1	7 Monday 9am	class Dr. Hahn	Exam #	
Name Key	(print) Name_			(sign)
Please show work for partial credit and full credit Multiple choice questions have no partial credit continue on the empty back pages but clearly or cannot read it, I obviously cannot grade it).	it. Please write anyt label where the remai	hing you want gradening answer can be	ed legibly. If you re	in out of space, your answer
exam pages and make sure there are 8 real pages	ages + periodic table a	ssembly)	eriodic table. (Pi	ease count your
It is your responsibility to return the entire examinto Dr. Hahn's hands. If you do not and the exam will count as an UNEXCUSED missed exam	exam disappears or :	odic table assembly sits around for days	inside the rest of the NOT in Dr. Hahr	exam) directly n's possession, t
1 mole = molar mass of atom or molecule (in g NO Pay Li L CY MULTIPLE CHOICE. Choose the one atterna 32 pts total)	a dit ha			on. (2 pts each,
1) A person weighs 68.04 kg (150.0 mg per kilogram of body weight. A) 108 mg B) None of the above C) 112 mg	How many milligra	ums of the drug she	ould be given?	1)
E) 115 mg 2) What are the three states of matter	x 1, 50 m			
A) Compound, solid, liquid B) Solid, liquid, compound C) Solid, liquid, element D) Compound, element, mixture (E) Solid, liquid, gas	e WA:	= next out = next our ext 1/2 cm	tempted DECred edis	2) À
3) How many electrons, protons, and isotope of krypton? ⁸⁴ / ₃₆ Kr	l neutrons are in a n	eutral atom of the	following	3) <u>A</u>
A) 26 electrons, 36 protons, and B) 84 electrons, 24 protons, and C) 36 electrons, 48 protons, and D) 36 electrons, 36 protons, and E) None of the above are correct	36 neutrons 36 neutrons 84 neutrons			•
4) What is the formula for dinitrogen A) N ₂ O ₂ B) NO ₂	monoxide?	D) 2NO	E) NO	4)

5) The number 1.0	050×10^9 has how r	nany significant f	igures?		5) _	
A) 2	B) 9	C) 13	D) 3	E) 4	,	
B) 24 protons C) 12 protons D) 12 protons	on, Mg ²⁺ , has and 10 electrons. and 26 electrons. and 13 electrons. and 14 electrons. and 22 electrons.				6)	1
7) The SI prefixes A) 10 ⁹ and 10 B) 10 ⁻⁹ and 1 C) 10 ⁶ and 10 D) 10 ⁻⁹ and 1 E) 10 ³ and 10	0-6)-3 0-1	sent, respectively	:		7)	
	boils at -195.8°C.	Express the boiling	ng point of liquid ni	trogen in kelvin.	8) _6	-
C) 469.0 K D) -77.4 K E) 97.4 K	ntures are 0 K on the	·	= °C + 273.15)		9))
10) Which one of th A) fluorine	ne following elemen B) carbon	nts is most likely t C) oxygen	o form a 2+ ion? D) sodium	E) calcium	10)(
11) What are the tw A) Ca ⁺ , S ⁻	o different ions pre B) Ca, S		ound CaS? D) Ca ²⁻ , S ²⁺	(E) Ca ²⁺ , S ²⁻	11) (
A) An elemen B) An elemen retain their C) An elemen chemical n D) An elemen	t is combination of distinct identities. t is a substance that neans. t must be a solid at t must be heterogen	nposed of atoms of two or more substitutes to cannot be separate room temperature neous		ents substances ostances by	12)	
Dr. Hann	General Chemistry I	Lecture Exam I	Fall 2017 9am o	dass page 2		

13) Which of the following are isotopes?	13)
A) 12C and 12CO	
B) 14N and 14N3-	
C) 14N and 14N ₂	
(D) 14C and 13C	
E) 14C and 14N	
E) 14C and 14N	
14) Name the following binary compound: FeS.(Fe ion is usually charged +2 or +3) A) Iron (I) sulfide	14)
B) Iron sulfite	
C) Iron sulfide	
(D) Iron (II) sulfide	
E) Iron (I) sulfite	
15) There are the seven elements that naturally occur as diatomic molecules. This list contains four of those plus one that does not fit this distinction. Which one of the	15) <u>C</u>
following does not occur naturally as a diatomic molecule?	
A) Nitrogen	
B) Chlorine	
C) Neon	
D) Fluorine	
E) Hydrogen	
16) An anion is defined as	16) <u> </u>
(A)/a charged atom or group of atoms with a net negative charge.	
B) an atom or group of atoms with a net positive charge.	
C) a stable atom.	
D) a group of stable atoms.	

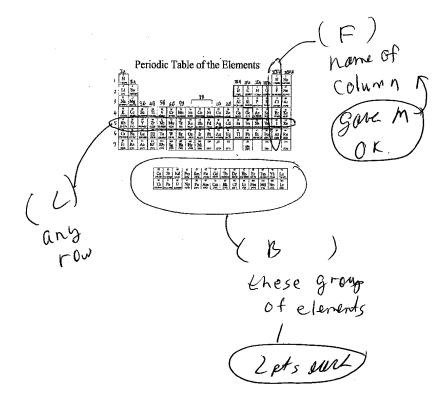
Part II: Short Answers (39 pts) Show work on all questions for partial and full credit even on questions which do not specify.

1.	Periodic Table and atom symbols (1 pts each blank,) pts total)
	(a) Give the symbol for the element chlorine
	(b) How many protons 17 (2pt) (pts 6ft)
	(c) How many electrons for the neutral atom $\frac{11}{35.5}$
	(d) Give the symbol in the format ${}^{A}_{z}X$ for the same element \sum_{i}
	(e) What group is the element in 1/4 e) What period is the element in 3
	(f) What is the likely charge on the element $\frac{1}{\sqrt{1 - f}} = \frac{1}{\sqrt{1 - f}}$ (pt)
	(g) Is the element a [(metal) or (nonmetal)]
2.	Metric Measurements: (6 pts, 3 pts each) Metric Measurements: (6 pts, 3 pts each)
	meter equals 100 centimeters or 10 raised to what power 10 (don't forget sign) (6 pt)
	(10°, -2,+2)
3.	Given the following list of chemical formulas, circle all which are covalent (your book calls this molecular) (4 pts total, ½ pts each)
K	Cl CO_2 Sr_3P_2 MgF_2 SO_2 Li_2O CCI $CaCl_2$



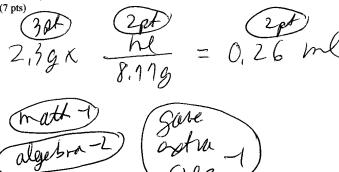
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 $(A) \, transition \, metal \, elements \, (B) \, lanthanide, \, actinide \, elements \, \, (C) \, main \, group \, elements \, \, (D) \, \, alkali \, metal \, elements \, (E) \, alkaline \, earth \, elements \, (F) \, halogens \, \quad (G) \, noble \, gases \, \quad (L) \, a \, period \, \, (M) \, \, a \, group$

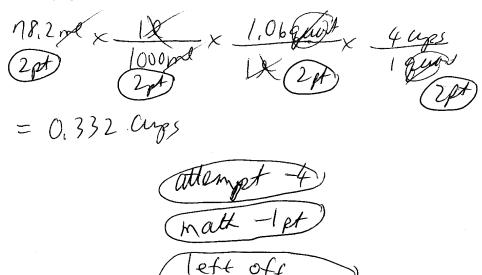


Long Answers (31 pts) Show work on all questions for partial and full credit even on questions which do not specify.

- Dimensional Analysis Problem: (15 pts) 1.
 - The <u>density</u> of a liquid pharmaceutical is <u>8.77 g / mL</u>. You need <u>2.3 grams</u> of the liquid pharmaceutical. How many mL of the pharmaceutical do you need to get 2.3 grams? [density = mass (grams) / volume (mL)]



b. How many cups is 78.2 mL of a solution? (4 cups = 1 quart, 1 L = 1.06 quart) (8 pts)



Dr. Hahn

General Chemistry | Lecture

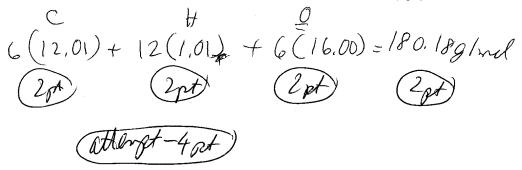
Exam i Fall 2017

9am class

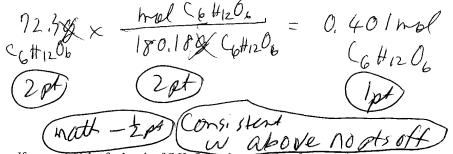
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molar mass =	1 mole =	6.022 x 10 ⁻²³
atomic mass or	of atoms	atoms
molecular weight	of molecules	molecules

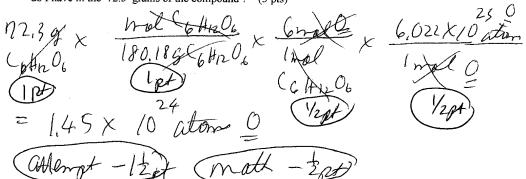
a. What is the molar mass (in grams) for a molecule with the formula $C_6H_{12}O_6$? (8 pts)



b. If I have 72.3 grams of the compound, how many $\underline{\text{moles}}$ of $C_6H_{12}O_6$ do I have ? (5 pts)



c. If you are told that for 1 mole of C₆H₁₂O₆ you have 6 moles of oxygens, how many atoms of oxygen do I have in the 72.3 grams of the compound? (3 pts)



			\sim		
General Chemistry I Lectur	e Fall 2017 8/28/17	Monday 10 ar	n class Dr. Hahn	Exam #	
NameKlly	150 Marie 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(print) Nar	ne		(sign)
Please show work for partial Multiple choice questions he continue on the empty back or cannot read it, I obviousl exam pages and make sure	ave no partial credit. c pages but clearly la y cannot grade it).	Please write a abel where the re	inything you want grac maining answer can be e exam including the	ded legibly. If you	run out of enace
It is your responsibility to minto Dr. Hahn's hands. If yexam will count as an UNI 1 mole = molar mass of ato MULTIPLE CHOICE. Cho	XCUSED missed ex TIM To molecule (in gra	exam disappears am. $-\frac{e + r}{ams} = 6.022 \times 10$	or sits around for day -23 atoms or molecule	es NOT in Dr. Hal	hn's possession, t
32 pis total)			-	1	- Carrier Carrier
1) What is the form A) N ₂ O ₂	nula for dinitrogen B) NO ₂	monoxide? C) N ₂ O	D) NO	E) 2NO	1)
2) How many electrisotope of krypto 34 Kr	rons, protons, and on?	neutrons are in	a neutral atom of the $NA = R$	e following of attems	etel)
B) 84 electron C) 36 electron D) None of the	s, 36 protons, and s, 24 protons, and s, 36 protons, and e above are correct s, 48 protons, and	36 neutrons 84 neutrons	NW=n attempt	· Work	-tcredit
B) An element C) An element	must be heterogen must be a solid at is a substance cor	neous room tempera nposed of atom	ture s of two or more ele ubstances in which th	ments	3) <u></u>
retain their	distinct identities. is a substance that		arated into simpler si		
4) Liquid nitrogen b A) all temperat B) 77.4 K C) 469.0 K D) -77.4 K E) -469.0 K	poils at -195.8°C. ures are 0 K on the	Express the boo e Kelvin scale (ling point of liquid n K = ^o C + 273.15)	nitrogen in kelvin.	4)
Dr. Hahn Gene	ral Chemistry I Lectu	ıre Exam I	Fall 2017 10 a	m. class page	1

	nm of body weight		ect dosage of a drug grams of the drug s		5) <u> </u>
	$.050 \times 10^{9} \text{ has how}$		-	E) 4	6)
A) 13	B) 3	C) 9	D) 2	E) 4	
7) Express the m A) 5.3 × 10 ⁻¹ B) 5.3 × 10 ⁻¹ C) 5.3 × 10 ⁻¹ D) 5.3 × 10 ⁻¹	5 2	scientific notatio	n.		6) <u>(</u>
E) 5.3 × 10 ⁻¹					
8) What are the t A) Solid, liq B) Compour C) Compour D) Solid, liq	hree states of matt uid, element nd, solid, liquid nd, element, mixtu uid, gas				8)
E) Solid, liq	uid, compound				
B) a stable a C) a group o	l atom or group of				9) <u>A</u>
10\ TT CT C'	7 - 7 1 - 77 -				10 A
A) 10 ⁻⁹ and	s <i>kilo</i> and <i>milli</i> rep	present, respective	eiy:		10)
A) 10 ⁻⁹ and B) 10 ³ and 1					
C) 10 ⁹ and 1					
D) 10 ⁻⁹ and					
E) 10 ⁶ and 1					
,					
B) 24 proton C) 24 proton D) 12 proton	ion, Mg ²⁺ , has is and 13 electrons is and 22 electrons is and 26 electrons is and 14 electrons is and 10 electrons	i. I.			11)
-					

Dr. Hahn General Chemistry I Lecture Exam I Fall 2017 10 am class page 2

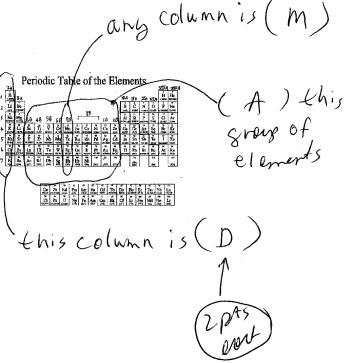
12) Name the follow	ving binary compou	ınd: FeS.(Fe ion i	s usually charged +	2 or +3)	12)
A) Iron sulfite	-	·		,	/
B) Iron (I) sulf	ide				
C) Iron sulfide					
D) Iron (I) sulf	ĭte				
E) Iron (II) sul	fide				
13) Which one of the	e following elemen	its is most likely to	o form a 2+ ion?		13)
A) oxygen	B) fluorine	C) carbon	D) calcium	E) sodium	14)
14) Which of the fol		s?			14) A
A) 14C and 13C					, , , ,
B) 14N and 14N	J 3-				
C) 12C and 12C	CO				
D) 14C and 14N	1				
E) 14N and 14N	$\sqrt{2}$				
following does not A) Nitrogen B) Neon	ven elements that nathose plus one that ot occur naturally a	does not fit this d	istinction. Which or	This list ne of the	15)
C) Chlorine					
D) Fluorine					
E) Hydrogen					
16) What are the two	different ions pres	ent in the compou	and CaS?		16)
A) Ca^{2-} , S^{2+}	B) Ca ²⁺ , S ²⁻	C) Ca, S	D) Ca-, S+	E) Ca+ S-	

Part II: Short Answers (39 pts) Show work on all questions for partial and full credit even on questions which do not specify.

1.	Periodic Table and atom symbols: 1 pts each blank 9 pts total)
	(a) Give the symbol for the element <u>oxvgen</u>
	(b) How many protons
	(c) How many electrons for the neutral atom $\frac{1}{\sqrt{h \cdot h \cdot e + s}}$
	(b) How many protons
	(e) What group is the element in e) What period is the element in Z
	(f) What is the likely charge on the element $\frac{-2}{6}$ Explain or show work. $\frac{1}{6}$
	6-8=-2
	(g) Is the element a [(metal) or (nonmetal)]
2.	Metric Measurements: (6 pts, 3 pts each)
	liter equals (000 milliliter or 10 raised to what power (don't forget sign) (6 pt)
	inter equals 100 milliner or 10 raised to what power 10 (don't forget sign) (6 pt)
	[1000-12 accepted -3 +3 mestra
3.	Given the following list of chemical formulas, circle all which are ionic (4 pts total, ½ pts each)
3.	Given the following list of chemical formulas, circle all which are folio (4 pis total, ½ pis each)
(v.	
(K)	CO_2 CO_2 CCl_4 $CCCl_4$ $CCCCl_4$ $CCCCl_4$ $CCCCl_4$ $CCCCl_4$ $CCCCCCC$ $CCCCCCCC$ $CCCCCCCC$ $CCCCCCCC$

3. If you have a compound made up of the elements in and se (6 pts total)
a) What are the charges on the ions made from those elements (show work) (2 pts)
(Wrong - 1) 3A +3 6A
b) Write the formula for the compound made from those elements. Showing work on how you arrived
at the formula. (4 pts) The proposition in the compound in the formula in the formula. (4 pts) The proposition in the compound in the formula in the formu
$(+3)(I_n) + (-2)(S_e) = 2e_0$
4. Name the compound (4 pts)
K3PO4 PO tassium phosphate 2pt
gave # prefix -1 each side
5. Given the following name, give the formula (4 pts)
carbon dioxide

(A) transition metal elements (B) lanthanide, actinide elements (C) main group elements (D) alkali metal elements (E) alkaline earth elements (F) halogens (G) noble gases (L) a period (M) a group



Part III: Long Answers (31 pts) Show work on all questions for partial and full credit even on questions which do not specify.

- 1. Dimensional Analysis Problem: (15 pts)
- a. The <u>density</u> of a liquid pharmaceutical is <u>3.88 g / mL</u>. You need <u>7.8 grams</u> of the liquid pharmaceutical. How many mL of the pharmaceutical do you need to get 7.8 grams? [density = mass (grams) / volume (mL)



math -1 gave alexbra -2 extra step

b. How many cups is 98.9 mL of a solution? (4 cups = 1 quart, 1 L = 1.06 quart) (8 pts)

98.9 ml x 1,06 quart

4 Cyps = 0, 419 Cyps

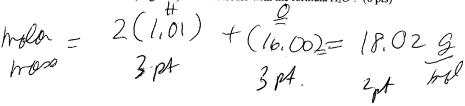
math -194 (left off Step -2)

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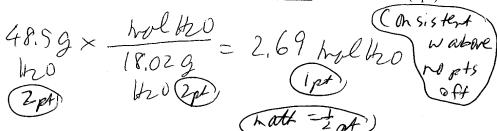
2. Mole Dimensional Analysis Question: (16 pts)

molar mass =	1 mole =	6.022 x 10 ⁻²³
atomic mass or	of atoms	atoms
molecular weight	of molecules	molecules

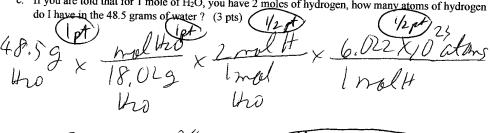
a. What is the molar mass (in grams) for a molecule with the formula $H_2\mathrm{O}$? (8 pts)



b. If I have 148.5 grams of the compound, how many moles of H₂O do I have ? (5 pts)



c. If you are told that for 1 mole of $\mathrm{H}_2\mathrm{O}$, you have 2 moles of hydrogen, how many atoms of hydrogen



8

Dr. Hahn General Chemistry | Lecture Exam I Fall 2017 10 am class page

Name				(print) Naı	ne			(ai)
contin	THE BELLEVICE CHICAGO	partial credit ar ons have no pa v back pages br riously cannot s	nd full credit or rtial credit. ut clearly labe grade it). Ret	on the Long A Please write of where the re urn your enting	nswers an anything y maining a e exam ind	d in some of ou want granswer can be	f the Short Answer (ded legibly. If you e found. (If I can't f periodic table.	
	our responsibility r. Hahn's hands will count as an				periodic ta or sits arc	ible assembl ound for da	y inside the rest of t ys NOT in Dr. H	the exam) d <u>i</u> ahn's posses
1 mole	= molar mass o	of atom or mole	cule (in gram	s) = 6.022 x 10	-23 atoms	or molecul	es	
MULT 32 pts	TPLE CHOICE. total)	Choose the on	e alternative	that best com	pletes the	statement o	or answers the ques	stion. (2 pts
	A) 108 m	gram of body g	g (150.0 lb), weight. Ho	and the conwind many mill	rect dosagigrams of	ge of a drug the drug sl	g is given as 1.50 hould be given?	1)
	B) None (C) 112 m _i D) 102 m _i	_						
	E) 115 mg	g						
	B) Solid, I C) Solid, I	ound, solid, lic iquid, compo iquid, elemen und, element	quid und it					2)
	3) How many e isotope of kr	electrons, prot ypton?	ons, and net	itrons are in	a neutral	atom of th	e following	3)
	A) 36 elect B) 84 elect C) 36 elect D) 36 elect	trons, 36 prote frons, 24 prote frons, 48 prote frons, 36 prote f the above are	ons, and 36 m ons, and 36 m ons, and 84 m	neutrons neutrons				
4	What is the f A) N ₂ O ₂	ormula for di		noxide? C) N ₂ O	D)	2NO	E) NO	4)

5) The number 1.	050 × 109 has how	many significant	figures?		5)
A) 2	B) 9	C) 13	D) 3	E) 4	
6) A magnesium i	ion, Mg ²⁺ , has				6)
-	s and 10 electrons.				0)
-	s and 26 electrons.				
•	s and 13 electrons.				
-	s and 13 electrons.				
-					
E) 24 protons	s and 22 electrons.				
7) The SI prefixes	kilo and milli rep	resent, respectively	y:		7)
A) 10 ⁹ and 10) - 6				,
B) 10 ⁹ and 1	0-6				
C) 10 ⁶ and 10)–3				
D) 10 ⁻⁹ and 1	0-1				
E) 10 ³ and 10					
8) Liquid nitrogen	hoile at _105 8°C	Everage the heili	ng point of liquid nit		0)
A) -469.0 K	100118 at -193.6 C	. Express the both	ng point of fiquid nit	rogen in kelvin.	8)
B) all tempera	atures are 0 K on t	he Kelvin scale (K	C = OC + 273.15		
C) 469.0 K					
D) -77.4 K					
E) 77.4 K					
9) Express the nur	nber 0.000053 in s	cientific notation			9)
A) 5.3×10^{-4}					<i>'</i> ,
B) 5.3 × 10-6					
C) 5.3×10^{-2}					
D) 5.3×10^{-5}					
E) 5.3×10^{-3}					
10) Which one of th					10)
A) fluorine	B) carbon	C) oxygen	D) sodium	E) calcium	
11) What are the tw	o different ions pr	esent in the compo	ound CaS?		11)
A) Ca+, S-	B) Ca, S	C) Ca-, S+	D) Ca ²⁻ , S ²⁺	E) Ca ²⁺ , S ²⁻	
, ,-	,, -	5, 54, 5	2) 64 , 5	E) Ca-1, 3-	
12) Which of the fo	llowing is true of a	in element?			12)
A) An elemen	t is a substance co	mposed of atoms of	of two or more eleme	nts	,
B) An elemen	t is combination of	f two or more subs	stances in which the s	substances	
	distinct identities.				
C) An element	t is a substance tha	it cannot be senara	ted into simpler subs	tances by	
chemical m			nea into simpler suos	stances by	
		t room temperature	<u> </u>		
E) An element	t must be heteroge	neous	•		
Dr. Hahn	General Chemistry	I Lecture Exam I	Fall 2017 9am cl	ass page 2	

•	13) Which of the following are isotopes?	13)
	A) 12C and 12CO	10)
	B) 14N and 14N3-	
	C) 14N and 14N ₂	
	D) 14C and 13C	
	E) 14C and 14N	
	14) Name the following binary compound: FeS.(Fe ion is usually charged +2 or +3)	14)
	A) Iron (I) sulfide	/
	B) Iron sulfite	
	C) Iron sulfide	
	D) Iron (II) sulfide	
	E) Iron (I) sulfite	
	15) There are the seven elements that naturally occur as diatomic molecules. This list contains four of those plus one that does not fit this distinction. Which one of the	15)
	following does not occur naturally as a diatomic molecule?	
	A) Nitrogen	
	B) Chlorine	
	C) Neon	
	D) Fluorine	
	E) Hydrogen	
	16) An <i>anion</i> is defined as	16)
	A) a charged atom or group of atoms with a net negative charge.	16)
	B) an atom or group of atoms with a net positive charge.	
	C) a stable atom.	
	D) a group of stable atoms.	

Periodic Table and atom symbols: (1 pts each blank, 9 pts total) 1. (a) Give the symbol for the element **chlorine** (b) How many protons How many electrons for the neutral atom (c) (d) Give the symbol in the format ${}^{A}_{z}X$ for the same element _____ (e) What group is the element in _____ e) What period is the element in ____ (f) What is the likely charge on the element _____ Explain or show work. (g) Is the element a [(metal) or (nonmetal)] 2. Metric Measurements: (6 pts, 3 pts each) meter equals _____ centimeters or 10 raised to what power ____ (don't forget sign) (6 pt) Given the following list of chemical formulas, circle all which are covalent (your book calls this 3. molecular) (4 pts total, ½ pts each) K Cl CO_2 Sr_3P_2 MgF_2 SO_2 Li₂O CCl₄ CaCl₂ Dr. Hahn General Chemistry | Lecture Exam | Fall 2017 9am class page

Short Answers (39 pts) Show work on all questions for partial and full credit even on

questions which do not specify.

4.		If you have a compound made up of the elements Mg and N (6 pts total)
	a)	What are the charges on the ions made from those elements (show work) (2 pts)
	b)	Write the formula for the compound made from those elements. Showing work on how you arrived at the formula. (4 pts)
*		
5.		Name the compound (4 pts)
	Na ₂	CO ₃
,		
6.		Given the following name, give the formula (4 pts)
		Carbon tetrachloride

9am class

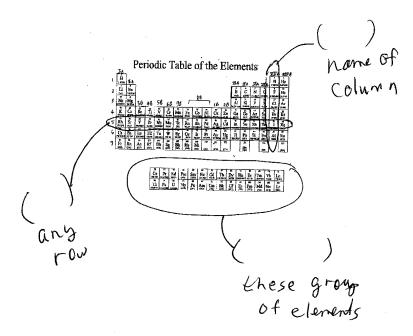
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General Chemistry | Lecture Exam | Fall 2017

Dr. Hahn

 $(A) \, transition \, metal \, elements \, (B) \, lanthanide, \, actinide \, elements \, \, (C) \, main \, group \, elements \, \, (D) \, \, alkalimetal \, elements \, (E) \, alkaline \, earth \, elements \, \, (F) \, halogens \, \quad (G) \, noble \, gases \, \quad (L) \, a \, period \, \, (M) \, \, a \, group$



page

Part III: Long Answers (31 pts) Show work on all questions for partial and full credit even on questions which do not specify.

- 1. Dimensional Analysis Problem: (15 pts)
 - a. The <u>density</u> of a liquid pharmaceutical is <u>8.77 g / mL</u>. You need <u>2.3 grams</u> of the liquid pharmaceutical. How many mL of the pharmaceutical do you need to get 2.3 grams? [density = mass (grams) / volume (mL)] (7 pts)

b. How many cups is 78.2 mL of a solution? (4 cups = 1 quart, 1 L = 1.06 quart) (8 pts)

Dr. Hahn General Chemistry I Lecture

Exam i Fall 2017

9am class

page

2. Mole Dimensional Analysis Question: (16 pts)

_molar mass =	1 mole =	6.022 x 10 ⁻²³			
atomic mass or	of atoms	atoms			
molecular weight	of molecules	molecules			

a. What is the molar mass (in grams) for a molecule with the formula $C_6H_{12}O_6$? (8 pts)

b. If I have 72.3 grams of the compound, how many $\underline{\text{moles}}$ of $C_6H_{12}O_6$ do I have ? (5 pts)

c. If you are told that for 1 mole of $C_6H_{12}O_6$ you have 6 moles of oxygens, how many atoms of oxygen do I have in the 72.3 grams of the compound? (3 pts)

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General Chemistry I Lecture	Fall 2017 8/28/17	Monday 10 am	class Dr. Hahn	Exam #	<u> </u>
Name		(print) Name			(sign)
Please show work for partial Multiple choice questions ha continue on the empty back or cannot read it, I obviously exam pages and make sure th	ve no partial credit. pages but clearly la cannot grade it).	 Please write any abel where the rema 	thing you want gradining answer can be xam including the	ded legibly. If you refound, (If I can't fin	un out of space
It is your responsibility to <u>ret</u> into Dr. Hahn's hands. If yo exam will count as an UNE	ou do not and the ϵ	exam disappears or	iodic table assembly sits around for day	y inside the rest of the s NOT in Dr. Hah	e exam) d <u>irectly</u> nn's possession, t
l mole = molar mass of atom	n or molecule (in gr	ams) = 6.022 x 10 ⁻²	³ atoms or molecule	es	
MULTIPLE CHOICE. Choo 32 pts total)	se the one alternat	ive that best compl	etes the statement o	or answers the questi	ion. (2 pts each,
1) What is the form	ula for dinitroger	n monoxide?			1)
A) N ₂ O ₂	B) NO ₂	C) N ₂ O	D) NO	E) 2NO	1/
2) How many electrisotope of krypto 84 Kr		neutrons are in a	neutral atom of th	ne following	2)
B) 84 electrons C) 36 electrons D) None of the	, 36 protons, and , 24 protons, and , 36 protons, and above are correct, , 48 protons, and	36 neutrons 84 neutrons t			
B) An element : C) An element : D) An element : retain their d	must be heteroge must be a solid at its a substance con its combination of listinct identities, is a substance that	neous t room temperatur mposed of atoms of two or more subs	of two or more electances in which the	he substances	3)
4) Liquid nitrogen be A) all temperate B) 77.4 K C) 469.0 K D) -77.4 K E) -469.0 K	oils at –195.8°C. ures are 0 K on th	Express the boilir e Kelvin scale (K	ng point of liquid to = °C + 273.15)	nitrogen in kelvin.	4)
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	ghs 68.04 kg (150. am of body weigh					5)
A) 112 mg	ani or body weigh	110 W many min	ingrams of the C	arug snoutu b	c given:	
B) 108 mg						
C) None of	the shows					
D) 102 mg	iic above					
E) 115 mg						
6) The number 1	$.050 \times 10^9$ has ho	w many significa	ant figures?			6)
A) 13	B) 3	C) 9	D) 2		E) 4	,
7) Express the m	amber 0.000053 in	scientific notat	ion			7)
A) 5.3 × 10-						′/
B) 5.3 × 10						
C) 5.3 × 10						
D) 5.3 × 10-						
E) 5.3 × 10-	4					
8) What are the t	hree states of mat	ter?				8)
A) Solid, liq	uid, element					
B) Compour	nd, solid, liquid					
C) Compour	nd, element, mixtu	ıre				
D) Solid, liq						
	uid, compound					
9) An anion is de	efined as					0)
•	l atom or group of	otomo with a ma	t manativa aban			9)
		atoms with a ne	t negative charg	ge.		
B) a stable a						
	f stable atoms.					
D) an atom (or group of atoms	with a net positi	ve charge.			
10) The SI prefixe		present, respecti	vely:			10)
A) 10 ^{−9} and	10-1					
B) 10 ³ and 1						
C) 10 ⁹ and 1	0-6					
D) 10 ⁻⁹ and	10-6					
E) 10 ⁶ and 1						
11) A magnesium	ion Ma2+ has					11)
	s and 13 electrons	•				11)
	is and 13 electrons					
	s and 26 electrons					
-	s and 14 electrons					
E) 12 proton	s and 10 electrons	i.				
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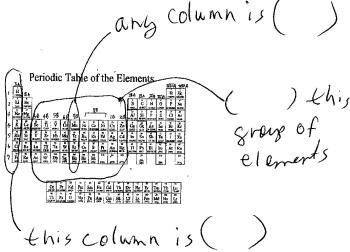
A) Iron sulfite	ng omary compou	ma: res.(re ion	is usually charged +.	2 or +3)	12)
B) Iron (I) sulfic	de				
C) Iron sulfide					
D) Iron (I) sulfit	e				
E) Iron (II) sulfi					
13) Which one of the	following elemen	ts is most likely t	o form a 2+ ion?		13)
A) oxygen	B) fluorine	C) carbon	D) calcium	E) sodium	
14) Which of the follo	owing are isotopes	;?			14)
A) 14C and 13C					,
B) 14N and 14N	3-				
C) 12C and 12C()				
D) 14C and 14N					
E) 14N and 14N2	2				
15) There are the sever contains four of the following does not all Nitrogen B) Neon C) Chlorine D) Fluorine E) Hydrogen	ose plus one that	does not fit this d	listinction. Which or	This list ae of the	15)
16) What are the two o	lifferent ions pres	ent in the compo	und CaS?		16)
A) Ca ² -, S ²⁺	B) Ca ²⁺ , S ²⁻	C) Ca, S	D) Ca-, S+	E) Ca+ S-	-/

Part II: Short Answers (39 pts) Show work on all questions for partial and full credit even on questions which do not specify.

1.	Periodic Table and atom symbols: (1 pts each blank, 9 pts total)	
	(a) Give the symbol for the element <u>oxygen</u>	
	(b) How many protons	
	(c) How many electrons for the neutral atom	
	(d) Give the symbol in the format ${}^{A}X$ for the same element	
	(e) What group is the element in e) What period is the element in	
	(f) What is the likely charge on the element Explain or show work.	
	(g) Is the element a [(metal) or (nonmetal)]	
2.	Metric Measurements: (6 pts, 3 pts each)	
	liter equals milliliter or 10 raised to what power (don't forget sign) (6 pt)	
3.	Given the following list of chemical formulas, circle all which are ionic (4 pts total, ½ pts each)	
КС	Cl CO_2 Sr_3P_2 MgF_2 SO_2 Li_2O CCl_4 CaC	12
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3.	If you have a compound made up of the elements In and Se (6 pts total)
a)) What are the charges on the ions made from those elements (show work) (2 pts)
b)	Write the formula for the compound made from those elements. Showing work on how you arrived at the formula. (4 pts)
4.	Name the compound (4 pts)
K ₃ PO	
5.	Given the following name, give the formula (4 pts)
carbon	n dioxide

(A) transition metal elements (B) lanthanide, actinide elements (C) main group elements (D) alkali metal elements (E) alkaline earth elements (F) halogens (G) noble gases (L) a period (M) a group



Part III: Long Answers (31 pts) Show work on all questions for partial and full credit even on questions which do not specify.

- 1. Dimensional Analysis Problem: (15 pts)
- a. The <u>density</u> of a liquid pharmaceutical is <u>3.88 g / mL</u>. You need <u>7.8 grams</u> of the liquid pharmaceutical. How many mL of the pharmaceutical do you need to get 7.8 grams? [density = mass (grams) / volume (mL)] (7 pts)

b. How many cups is 98.9 mL of a solution ? (4 cups = 1 quart, 1 L = 1.06 quart) (8 pts)

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2. Mole Dimensional Analysis Question: (16 pts)

molar mass =	1 mole =	6.022 x 10 ⁻²³
atomic mass or	of atoms	atoms
molecular weight	of molecules	molecules

a. What is the molar mass (in grams) for a molecule with the formula H_2O ? (8 pts)

b. If I have 72.9 48.5 grams of the compound, how many $\underline{\text{moles}}$ of H₂O do I have ? (5 pts)

c. If you are told that for 1 mole of H₂O, you have 2 moles of hydrogen, how many atoms of hydrogen do I have in the 48.5 grams of water? (3 pts)