Quiz IV General Chemistry I Lecture Fall 14 Dr. Hahn 20 pts 10/10 F 9:30am form A quiz #
Name Klay Name
(print name) (sign name)
Please show all work for full-credit and to get partial credit. R = 0.08206 L atm/ mol K) N _A = 6.022 x 10 ²³
(1pt) (1pt)
1. If you take 13.8 graphs of Na Cl and add water to make up a 0.500 L solution, what is the molarity (M =
mole/liter) of the solution. (Show work) (FW Na CI = 58.44 g NaCI/mol NaCI) (3.5 pts) (attempt - 1)
(M= (13,82 NACK(58,440)) 0 472M)
Ki zi-fi
15,8 gual net 10 de = 0 (1/1) lus
2. For the following precipitation reaction written as the molecular equation, fill in the blanks to write the
complete ionic equation (4 pts, 2 pts each)
(20)
Molecular equation Na ₂ CO ₃ (aq) + Mg Br ₂ (aq) → 2 Na Br (aq) + Mg CO ₃ (s)
Complete ionic reaction: no pts off coeff + charge
$2 \frac{N a^{-1} (aq) + CO_{3}^{-2} (aq) + Mg^{+2} (aq) + 2Br^{-1} (aq) \rightarrow 2 Na^{+1} + 2Br^{-1} (aq) + Mg^{+2} (aq) + 2Br^{-1} (aq) + 2Br^{-1} (aq) + Mg^{+2} (aq) + 2Br^{-1} (aq) + 2Br^{-1} (aq) + Mg^{+2} (aq) + 2Br^{-1} (aq) + $
(mg) 1003 (mg) 1218 (aq) 1211 (aq) + 174 (03 (8)
 Circle all of the following which are strong acids. You may circle one, all or none of the choices. (2.5
pts, ½ pt each)
(HNO ₃) HF (HCI) CH ₃ COOH (H ₂ SO ₄)
bad attempt 5
4. Stoichiometry: In the following reaction if I have 1.25 moles of the Fe, what is the theoretical yield of
the Fe ₂ O ₃ (FW Fe ₂ O ₃ = 159.70 g Fe ₂ O ₃ / mol Fe ₂ O ₃)(show work) (5 pts) (attempt -2) $4 \text{ Fe (s)} + 3 O_2 \text{ (g)} \Rightarrow 2 \text{ Fe}_2O_3 \text{ (s)}$
1,25 200 - 2 not KB2 03 159 200 FB. 03
r 1) (1) (2) 09 0
1 4 molfe 100 of = 11.89
(2 at)
(Ipt) FeO3 (Ipt) Fe, O2 (Ipt)
5. Give the oxidation state of the following atom. (show work) (4 pts, I pts number, 1 pt show work)
Willow Late of the following atom: (show work) (4 pts, 1 pts number, 1 pt snow work)
12 Zeno Nulla form Faid - 12 c in cos2 +4 alsebra - E
Iz most element (+3(-2) = -2
Extra Credit: (4 pts) Set up the following by filling in the blanks (you may use a ? or the letter symbol (P,V,
n or T) for an unknown variable. Plug into the equation to complete this question. You do not need to come up with the final correct answer but units need to be correct. (Kelvin and 1973) If the property of
up with the final correct answer but <u>units need to be correct</u> . (Kelvin = $^{\circ}$ C + 273.15, 1 atm = 760 torr = 760 mm Hg) Use the Combined Gas Law to answer the following. $(P_2 V_2)/(P_1 V_1) = T_2/T_1$
If a gas occupies 3.5 Liters at 1.2 atm & 25.0°C, what is the pressure of the gas at 1.5 Liters at 78.1 °C?
$P_1 = \frac{1.1 \text{ atm}}{1.20 \text{ tr}} V_1 = \frac{3.15}{1.20 \text{ tr}} V_2 = \frac{7.51}{1.20 \text{ tr}} V_2 = 7.51$
2 pts writing out the equation with all variables plugged into the equation. (on back if you run out of space)
((8)(1.50) 298.15 B2 = (451.25) (1,2)(3,5) 351,25)
751,05
Hilatin (3.52) - 298:15)
P2 2 3,3 atm 4 401
(otherst -1)

OV (9215 58,44) (0,0125 = 99,2)
Quiz IV General Chemistry I Lecture Fall 14 Dr. Hahn 20 pts 10/10 F 9:30am form B quiz #
Name (print name) (sign name) Please show all work for full eredit and to get partial credit. R=0,08206 L atm/ mol K) N _A =6.022 x 10 ²³
1. If you take 72.5 grams of Na Cl and add water to make up a 0.0125 L solution, what is the molarity (M = # mole/liter) of the solution. (Show work.) (FW Na Cl = 58.44 g NaCl/mol NaCl) (3.5 pts)
2. For the following precipitation reaction written as the molecular equation, fill in the blanks to write the complete ionic equation (4 pts, 2 pts each)
Molecular equation: $3 \text{ Ca (NO}_3)_2 \text{ (aq)} + 2 \text{ Na}_3 \text{ PO}_4 \text{ (aq)} \rightarrow 6 \text{ Na NO}_3 \text{ (aq)} + \text{Ca}_3 \text{ (PO}_4)_2 \text{ (s)}$
Complete ionic reaction:
$3 \text{ Ca}^{+2} + \text{ Ca}^{+2} $ (aq) +6 Na ⁺¹ + PO_4^{-3} (aq) $\Rightarrow \text{ CNa}^{+1}$ (aq) + CNO_3^{-1} (aq) + Ca ₃ (PO ₄) ₂ (s)
3. Circle all of the following which are weak acid. You may circle one, all or none of the choices. (2.5 pts, ½ pt each)
HNO3 (HF) HCI CH3COOH) H2SO4 (bad attempt -5)
4. Stoichiometry: In the following reaction if I start with 7.33 moles of the H ₂ , how many grams of the HCl will I generate (FW HCl = 36.46 g HCl / mol HCl) (show work) (5 pts) Cattle 2 + Cl ₂ (g) + Cl ₂ (g) → 2 H Cl (g)
1,33 moles x 2 moltile x 36,469 HCl - 534,53 HCl
12 pt lingt Implifice (\$35 g 440 lpt)
5. Give the oxidation state of the following atom. (4 pts, 1 pts number, 1 pt show work) (alsobra)
ca 20x0 element in most Pin PO43 +5 (+4-2)=-5-2)
Stable form $P - 8 = -3 - P = +8 - 3 = +5$ Extra Credit: (4 pts) Set up the following by filling in the blanks (you may use a 2 or the word up larger and productions)
Extra Credit: (4 pts) Set up the following by filling in the blanks (you may use a ? or the word unknown or the letter symbol (P,V, n or T) for an unknown variable. Plug into the equation to complete this question with correct units. Use the Ideal Gas Law to answer the following. [PV = n R T, R = 0.08206 (Liter Atm) / (Mol K)] (Kelvin = °C + 273.15, 1 atm = 760 torr = 760 mm Hg)
For 1.2 moles of a gas at 300 Kelvin at 770 torr, how much volume does the gas occupy?
$P = \frac{270 \text{ for } V = \frac{7}{100 \text{ for } V} = \frac{7}{100 \text{ for } V = \frac{7}{1000 \text{ for } V} = \frac{7}{1000 \text{ for } V = \frac{7}{100000000000000000000000000000000000$
(1.01 atm) $V = (1.2 \text{ mol}) (0.08206 \text{ latm}) (300k)$ V = (1.2)(0.08206)(300)/1.01 = 291
(V=(1,2(0,08206)(400)/1,01) = 292

Quiz IV General Chemistry I Lecture Fall 14 Dr. Hahn 20 pts 10/10 F 10:30am form A quiz #
Name Name
(print name) (sign_name)
Please show all work for full credit and to get partial credit. R = 0.08206 L atm/ mol K) Na = 6.022 x 10 ²³
1. If I dilute a 200 mL 0.25 M solution of H NO2 by adding enough water to make up 2.250 ml
solution, what is the concentration of the $H NO_3$? $(M_1V_1 = M_2V_2)$ (show work) (3.5 pts)
(200ml) (0,25m) = M2 (3502ml)
2. For the following precipitation reaction written as the molecular equation, fill in the blanks to write $-\frac{1}{2}$
the net ionic equation (4 pts, 2 pts each)
Molecular equation: Pb (NO ₃) ₂ (aq) + Na ₂ SO ₄ (aq) \rightarrow 2 Na NO ₃ (aq) + Pb SO ₄ (s)
Net ionic equation: Pb^{+2} (aq) + 504^{-2} (aq) $\rightarrow Pb504$ (s)
3. Circle all of the following which are strong bases. You may circle one, all or none of the choices. (2.5 pts, ½ pt each)
(NaOH) (KOH) NH3 (Ba(OH)) NH4OH (Ctllypt -2)
4. Stoichiometry: In the following reaction, how many moles of H ₂ O will generate if I start with 73.2
grams of the Ch3OH? (FW CH3OH = 32.05 g CH3OH / mol CH3OH) (show work) (5 mta)
2 Chison (1) + 3 O2(g) + 4 H ₂ O(g)
73,29 CH30HX (mol (4306) X 4 molbro - 4 = 2 (125)
(2pt) (12.09g(4304) 2mg = 7,) (1)
(1st) CAROLD mel 40
5. Give the oxidation state of the following atom. Either show work or explain where you got the
oxidation state. (4 pts, 1 pts number, 1 pt show work)
Ca in CaCl ₂ $+1$ S in SO ₃ ⁻² $+4$ () = -16 -16 -16
9 group IIA 5+3(-2) = -2
Extra Gredit: (4 pts) Set up the following by filling in the blanks (you may use a 2 and a 1
to come up with the final correct answer but units need to be correct. (Kelvin = $^{\circ}$ C + 273.15, 1 atm = 760 torr = 760 mm Hg) Use the Combined Gas Law to answer the following. (P ₂ V ₂)/(P ₁ V ₁) = T ₂ /T ₁
If a gas measures 35.0°C at 1.1 atm, for a 1.5 Liter samples, what volume does the gas occupy at 17.3 °C and 1.1 atm?
P1 = 1 lata V1 = 158 T1 = 30815 P1 = 1121 115
$P_1 = \frac{1}{100} t_1 = \frac{1.5 l}{1.5}$ $T_1 = \frac{308(15)}{100} P_2 = \frac{1}{100} t_1 V_2 = \frac{7}{100} T_2 = \frac{290 \cdot 6}{100} (2)$
2 pts writing out the equation with all variables plugged into the equation (on back if you run out of space)
Water V2 (790 45)
(Jahn) (1.58) = 72 = 208.15 7 2 = 208.15
not T
(on vert - Fearl)

Quiz IV General Chemistry I Lecture Fall 14 D	r. Hahn 20 pts 10/10 F 10:30am fo	rm B quiz #
Name Kly	Name	- (attempt)
(print name)	(sign name)	- unemer
Please show all work for full credit and to get part	ial credit R = 0.08206 L atm/mol K)	NA = 6.022 x 1023 - 15 pt
1. If I dilute a 50.0 mL 0.125 M solution of N solution, what is the concentration of the Na NO ₃ ? M = 0, 125 m = 50.0 mL	In NO ₃ by adding enough water to make $(M_1V_1 = M_2V_2)$ (show work) (3.5 pt. $V_2 = 2.50$ m $V_3 = 2.50$ m	se up a 250 mL - Lpt
(0.125m) (50,0ml) = M2	1	(250mg)
 For the following precipitation reaction written the net ionic equation (4 pts, 2 pts each) 	tten as the molecular equation, fill int	/
	\rightarrow 2 NH ₄ I (aq) + Ba S (s)	m2 = 0,0250M
Net ionic equation: $\frac{1}{\sqrt{2}}$ (aq) + S ⁻² ($aq) \rightarrow RaS$ (s)	
Circle all of the following which are weak (2.5 pts, ½ pt each)		ne of the choices.
NaOH KOH (NH3 Ba(
4. Stoichiometry: In the following reaction, h 80.2 grams of the Al (molar mass Al = 26.98 g/mo 2 Al (s) + 3 Cl ₂ (g) → 2 AlCl ₃ (s)	1) (show work) (5 pts) attly get	te if I start with 2 bod attempt -3
80.2gx molAl x 2 mol	ACC13 = 2,97	7
Bot De pt	st sec	ipt test
5. Give the oxidation state of the following ato	m. (4 pts, 1 pts number, 1 pt show wo	ork)
N = +4 (3aid 3)(-12)	I in KI	7-8=-1
Extra Credit: (4 pts) Set up the following by filling the letter symbol (P,V, n or T) for an unknown varieth correct units. Use the Ideal Gas Law to answ Atm) / (Mol K)] (Kelvin = °C + 273.15, 1 atm = 76	riable. Plug into the equation to come the following. [PV = n R T. R =	plete this question
For a gas at 29.2 °C and 1.2 atm contained in a 2.5 I		
P = 1,2 atm v = 2,51 n = ?	THE THE PARTY OF T	
2 pts writing out the equation with all variables plug $ (1, 2 \text{ atm}) (2, 5 l) = (n) (0, 0) $ $ n = (1, 2) (2, 5) (0, 0) $	ged in. (complete on back if run out of 08206 Latm) (302	of spaces Convert 2,35) = 2pt
N2 ((12)(2)9[0.08	206)(302,35) = 0	1.12 moles

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Name Name
Name Name (print name) (sign name)
Please show all work for full credit and to get partial credit. $R = 0.08206 L$ atm/ mol K) $N_A = 6.022 \times 10^{23}$
1. If you take 13.8 grams of Na Cl and add water to make up a 0.500 L solution, what is the molarity (M # mole/liter) of the solution. (Show work.) (FW Na Cl = 58.44 g NaCl/mol NaCl) (3.5 pts)
2. For the following precipitation reaction written as the molecular equation, fill in the blanks to write the complete ionic equation (4 pts, 2 pts each)
Molecular equation Na ₂ CO ₃ (aq) + Mg Br ₂ (aq) \rightarrow 2 Na Br (aq) + Mg CO ₃ (s)
Complete ionic reaction:
(aq) + CO_3^{-2} (aq) + Mg^{+2} (aq) + $2Br^{-1}$ (aq) $\rightarrow 2Na^{+1} + Br^{-1}$ (aq) + (s)
3. Circle all of the following which are strong acids. You may circle one, all or none of the choices. (2.5 pts, $\frac{1}{2}$ pt each)
HNO ₃ HF HCl CH ₃ COOH H ₂ SO ₄
4. Stoichiometry: In the following reaction if I have 1.25 moles of the Fe, what is the theoretical yield of the Fe ₂ O ₃ (FW Fe ₂ O ₃ = $159.70 \text{ g Fe}_2\text{O}_3 / \text{mol Fe}_2\text{O}_3$)(show work) (5 pts) $4 \text{ Fe} (s) + 3 \text{ O}_2 (g) \Rightarrow 2 \text{ Fe}_2\text{O}_3 (s)$
5. Give the oxidation state of the following atom. (show work) (4 pts, 1 pts number, 1 pt show work)
I ₂ C in CO ₃ - ²
Extra Credit: (4 pts) Set up the following by filling in the blanks (you may use a ? or the letter symbol (P,V, n or T) for an unknown variable. Plug into the equation to complete this question. You do not need to come up with the final correct answer but units need to be correct. (Kelvin = $^{\circ}$ C + 273.15, 1 atm = 760 torr = 760 mm Hg) Use the Combined Gas Law to answer the following. (P ₂ V ₂)/(P ₁ V ₁) = T ₂ /T ₁
If a gas occupies 3.5 Liters at 1.2 atm & 25.0°C, what is the pressure of the gas at 1.5 Liters at 78.1 °C?
$P_1 = V_1 = V_2 = T_2 $
2 pts writing out the equation with all variables plugged into the equation. (on back if you run out of space)

Quiz IV General Chemistry I Lecture Fall 14 Dr. Hahn 20 pts 10/10 F 9:30am form B quiz #
Name Name
Name Name (print name) Name
Please show all work for full credit and to get partial credit. $R = 0.08206 L$ atm/ mol K) $N_A = 6.022 \times 10^{23}$
1. If you take 72.5 grams of Na Cl and add water to make up a 0.0125 L solution, what is the molarity (M = # mole/liter) of the solution. (Show work.) (FW Na Cl = 58.44 g NaCl/mol NaCl) (3.5 pts)
2. For the following precipitation reaction written as the molecular equation, fill in the blanks to write the complete ionic equation (4 pts, 2 pts each)
Molecular equation: $3 \text{ Ca (NO}_3)_2 \text{ (aq)} + 2 \text{ Na}_3 \text{ PO}_4 \text{ (aq)} \rightarrow 6 \text{ Na NO}_3 \text{(aq)} + \text{Ca}_3 \text{ (PO}_4)_2 \text{ (s)}$
Complete ionic reaction:
$3 \text{ Ca}^{+2} + \underline{\qquad} (aq) + 6 \text{ Na}^{+1} + PO_4^{-3} (aq) \rightarrow \underline{\qquad} (aq) + NO_3^{-1} (aq) + Ca_3 (PO_4)_2 (s)$
3. Circle all of the following which are weak acid. You may circle one, all or none of the choices. (2.5 pts, ½ pt each) HNO ₃ HF HCl CH ₃ COOH H ₂ SO ₄
4. Stoichiometry: In the following reaction if I start with 7.33 moles of the H_2 , how many grams of the $HC1$ will I generate (FW $HC1 = 36.46$ g $HC1$ / mol $HC1$) (show work) (5 pts) $H_2(g) + Cl_2(g) \rightarrow 2 H C1(g)$
5. Give the oxidation state of the following atom. (4 pts, 1 pts number, 1 pt show work)
Ca P in PO ₄ -3
Extra Credit: (4 pts) Set up the following by filling in the blanks (you may use a ? or the word unknown or the letter symbol (P,V, n or T) for an unknown variable. Plug into the equation to complete this question with correct units. Use the Ideal Gas Law to answer the following. [PV = n R T, R = 0.08206 (Liter Atm) / (Mol K)] (Kelvin = °C + 273.15, 1 atm = 760 torr = 760 mm Hg) For 1.2 moles of a gas at 300 Kelvin at 770 torr, how much volume does the gas occupy?
P = $V = $ $n = $ $T = $ (2 pts, ½ pt each)
2 pts writing out the equation with all variables plugged in. (complete on back if run out of space)

Quiz IV General Chemistry I Lecture Fall 14 Dr. Hahn 20 pts 10/10 F 10:30am form A quiz #
Name Name
Name Name (print name) (sign name)
Please show all work for full credit and to get partial credit. $R = 0.08206 L$ atm/ mol K) $N_A = 6.022 \times 10^{23}$
1. If I dilute a 200 mL 0.25 M solution of H NO ₃ by adding enough water to make up a 350 mL solution, what is the concentration of the H NO ₃ ? $(M_1V_1 = M_2V_2)$ (show work) (3.5 pts)
2. For the following precipitation reaction written as the molecular equation, fill in the blanks to write the net ionic equation (4 pts, 2 pts each)
Molecular equation: Pb $(NO_3)_2$ $(aq) + Na_2 SO_4$ $(aq) \rightarrow 2 Na NO_3$ $(aq) + Pb SO_4$ (s)
Net ionic equation: Pb^{+2} (aq) + (aq) \rightarrow (s)
3. Circle all of the following which are strong bases. You may circle one, all or none of the choices. (2.5 pts, ½ pt each) NaOH KOH NH ₃ Ba(OH) ₂ NH ₄ OH
4. Stoichiometry: In the following reaction, how many moles of H ₂ O will I generate if I start with 73.2 grams of the CH ₃ OH? (FW CH ₃ OH = 32.05 g CH ₃ OH / mol CH ₃ OH) (show work) (5 pts) 2 CH ₃ OH (l) + 3 O ₂ (g) → 2 CO ₂ (g) + 4 H ₂ O (g)
5. Give the oxidation state of the following atom. Either show work or explain where you got the oxidation state. (4 pts, 1 pts number, 1 pt show work)
Ca in CaCl ₂ S in SO ₃ -2
Extra Credit: (4 pts) Set up the following by filling in the blanks (you may use a ? or the letter symbol (P,V, n or T) for an unknown variable. Plug into the equation to complete this question. You do not need to come up with the final correct answer but <u>units need to be correct</u> . (Kelvin = ${}^{\circ}$ C + 273.15, 1 atm = 760 torr = 760 mm Hg) Use the Combined Gas Law to answer the following. (P ₂ V ₂)/(P ₁ V ₁) = T ₂ /T ₁
If a gas measures 35.0°C at 1.1 atm, for a 1.5 Liter samples, what volume does the gas occupy at 17.3 °C and 1.1 atm?
$P_1 = V_1 = V_2 $
2 pts writing out the equation with all variables plugged into the equation (on back if you run out of space)

Quiz IV General Chemistry I Lecture Fall 14 Dr. Hahn 20 pts 10/10 F 10:30am form B quiz #
Name Name
Name Name (sign name)
Please show all work for full credit and to get partial credit. $R = 0.08206 L$ atm/ mol K) $N_A = 6.022 \times 10^{23}$
1. If I dilute a 50.0 mL 0.125 M solution of Na NO ₃ by adding enough water to make up a 250 mL solution, what is the concentration of the Na NO ₃ ? $(M_1V_1 = M_2V_2)$ (show work) (3.5 pts)
2. For the following precipitation reaction written as the molecular equation, fill in the blanks to write the net ionic equation (4 pts, 2 pts each)
Molecular equation: Ba I_2 (aq) + (NH ₄) ₂ S (aq) \rightarrow 2 NH ₄ I (aq) + Ba S (s)
Net ionic equation: $(aq) + S^{-2}(aq) \rightarrow (s)$
3 .Circle all of the following which are weak bases. You may circle one, all or none of the choices. (2.5 pts, ½ pt each) NaOH KOH NH ₃ Ba(OH) ₂ NH ₄ OH
4. Stoichiometry: In the following reaction, how many moles of AlCl ₃ will I generate if I start with 80.2 grams of the Al (molar mass Al = 26.98 g/mol) (show work) (5 pts) 2 Al (s) + 3 Cl ₂ (g) → 2 AlCl ₃ (s)
5. Give the oxidation state of the following atom. (4 pts, 1 pts number, 1 pt show work)
N in NO ₂ I in KI
Extra Credit: (4 pts) Set up the following by filling in the blanks (you may use a ? or the word unknown the letter symbol (P,V, n or T) for an unknown variable. Plug into the equation to complete this question with correct units. Use the Ideal Gas Law to answer the following. [PV = n R T, R = 0.08206 (Liter Atm) / (Mol K)] (Kelvin = °C + 273.15, 1 atm = 760 torr = 760 mm Hg) For a gas at 29.2 °C and 1.2 atm contained in a 2.5 Liter container, how many moles of gas do you have?
$P = $ $V = $ $n = $ $T = $ $(2 pts, \frac{1}{2} pt each)$
2 pts writing out the equation with all variables plugged in. (complete on back if run out of space)