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Quiz General Chemistry I Lecture Spring 15 Dr. Hahn 20 pts 3/26 R 8:30am form A quiz #
Name Name (sign name)
Please show all work for full credit and for partial credit. { $P_{total} = P_a + P_b + P_c + \times \chi_a = P_a / P_{total} = n_a / n_{total}$ } { $PV=nRT$ , $(P_1V_1)/(P_2V_2)=T_1/T_2$ $R=0.08206$ (L atm)/(mol K), $K={}^oC+273.15$ } molar V at $STP=22.4$ Liters
1. Complete the following acid base reaction. Reaction does not need to be balanced. (6 pts)
$H Cl (aq) + Ca (OH)_2 (aq) \rightarrow Ca Cl_2 + 2 + 2$
2. For the following reagent, give the oxidation state of the element listed. Either explain why or show work for your oxidation state number answer. (8 pts, 4 pts each)
Na H CO <sub>3</sub> What is the oxidation state of Na in the molecule
What is the oxidation state of C in the molecule $\frac{+4}{C}$ (+)+1+C+3(-2)=0 $C=+b+2Na H+2+C=6=20 C=+4$
Na H + 2 + $\frac{1}{2}$ - $\frac{1}{6}$ = $\frac{1}{2}$ C = $\frac{1}{4}$ 3. If you have a gas in a cylinder with a volume of 7.998 Liter at 29.3 °C at 1.1 atm and then change the
cylinder conditions to have a new volume of 2.305 Liter at 35.2 °C, what is the new pressure in your cylinder? (6 pts) $V_2 = 2.305$ L $T_2 = 35$ °C + $73.15 = 308.35$ L $P_2 = 7$
$T_1 = 29.3^{\circ}C + 273.15 = 302.45 K$ $\frac{V_2 V_2}{V_1 P_1} = \frac{12}{T_1} \rightarrow 2.904$
Attendance for $3/24/15$ Tuesday: Mostly whose books are in the back of the room in the announcement
video? Dr. Hahn's Dad's P2= (308,2516) (7,9988) (1,10/m)
Extra Credit (2 pts): If the O <sub>2</sub> has a pressure of 0.37 atm and the gas in a cylinder has other gases in the same cylinder at pressure of 1.33 atm, what is the pressure of the other gases?
(total) Stotal = Por + Pother 1.33 atm = 0.37 atm + Pother Pother = 1.33 atm -0.37 atm = 0.96 atm
Poine = 1.33 alm -0.37am = 0.96 alm

Name	Koix	Name		
(print name)		(sign nam	ie)	
Please show a {PV=nRT, (P	ll work for full credit and IV <sub>1</sub> )/(P <sub>2</sub> V <sub>2</sub> )=T <sub>1</sub> /T <sub>2</sub> R=0.00	for partial credit. { Pt8206 (L atm)/(mol K),	$p_{otal} = P_a + P_b + P_c + \chi$ $K = {}^{0}C + 273.15} \text{ mola}$	$a = P_a / P_{total} = n_a / n_{total}$ ar V at STP = 22.4 Liters
1. Comp	lete the following acid bas	e reaction. Reaction of	loes not need to be bal	lanced.(6 pts)
H NO <sub>3</sub> (aq) +	Na OH (aq) → Wal	VO3 + Hz	0_	
	e following reagent, give t for your oxidation state nu			her explain why or show
NO <sub>3</sub> -1	What is the oxidation sta	te of the N in the mole	ecule	
N+3	b(-2) = -	,		
	$\mathcal{N} = -$	-1 +6 =	+>	
	What is the oxidation sta			
	Sp. # -8=	6-8=-	2	
3 If you occupy? (6 p	have 3.4 moles of a gas at ts) $PV = NRT$	278.2 K at 788 mm	Hg pressure, what vol	ume does the gas
N=9,4		, (	V= (4,4mg)	(0,08206)(210)
N = 9.4 $T = 21.6$	8.2 K R=0	,08206	(10)	(C/8,2K)
	•	laton	- 101	tain)
r = 11	88 mm Hgx	DCA WILL	= 1,04 a	Am to 15
	or 3/24/15 Tuesday: Give	e at least one gas law e	quation given during	the videos? $V = 15$
PV	= nrt p	2/2 Ta	-	
	P	2 Vz T		
Extra Credit (	2 pts): If you have 2 gas gas has pressure of 82.3 m	ses in a gas cylinder ar	nd one of the gases has	s pressure of 725 mm Hg
the the other	Las - Pa +	PL	some or the Europ III to	Hg = 801 mm
, F()	tol - "T		P1 2 m2	11/2 - CD2 ml
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Quiz General Chemistry I Lecture Spring 15	5 Dr. Hahn 20 pts 3/26 R 9:55 am form A quiz #
Name Key (print name)	Name (sign name)
Please show all work for full credit and for partia $\{PV=nRT, (P_1V_1)/(P_2V_2)=T_1/T_2 \ R=0.08206 \ (La)$	l credit. { $P_{total} = P_a + P_b + P_c + \cdot \chi_a = P_a / P_{total} = n_a / n_{total}$ } ttm)/(mol K), K=oC+273.15} molar V at STP = 22.4 Liters
1 For the reaction, shown below, if you star	t with 32.5 mL of H Br of concentration of 0.500 M

1. For the reaction shown below, if you start with 32.5 mL of H Br of concentration of 0.500 M solution and titrate it with Ca (OH)<sub>2</sub> of concentration of 0.250 M, how many mL of NaOH will you need at the equivalence point? (do not use the equation given here: MacidVacid = MbaseVbase) (6 pts)

$2 \text{ HBr} + \text{Ca}(OH)_2 \rightarrow \text{Ca Br}_2 + 2 \text{ H}_2O$	account (acount
32,5 me, (0,500 mal HB)	(mol (a(O4)2) x (000ml
32,5 me x (0,500 mul HB) X HBV (000 me HB) X	(2 mol) 3750 mol
Soln.	(HBr CaCou)2
= 32,5 ml La(O4)2	

2. For the following reagent, give the oxidation state of the element listed. Either explain why or show work for your oxidation state number answer. (8 pts, 4 pts each)

H <sub>2</sub> SO <sub>4</sub>	What is the oxidation state of the S in the molecule
2(+1)-	+ $S + 4(-2) = 0$ $S = -2 + 8 = +6$
	What is the oxidation state of the H in the molecule
+	1 Hingp. I - 9 (+1)

3 If you have  $N_2$  (FW = 28.02 g / mol) and you have 78.7 grams of the gas, what is the volume at STP? (6 pts)

Attendance for 3/24/15 Tuesday: What is the color of the background in the youtube video?

Extra Credit (2 pts): If you have 785.2 torr of a mixture of gases and you know pressure the Ne in the mixture is 75.2 torr, what is mole fraction of the Ne in the total gas mixture?

Name	Cly	Name (sign_nan	ne)
Please show	all work for full credit and for par	tial credit. { P	$_{\text{total}} = P_{\text{a}} + P_{\text{b}} + P_{\text{c}} + \dots + \chi_{\text{a}} = P_{\text{a}} / P_{\text{total}} = n_{\text{a}} / n_{\text{total}} $ $_{\text{b}} = \text{C} + 273.15 $ molar V at STP = 22.4 Liters
and and	he reaction shown below, if you st itrate it with 75.5 mL what is the here: $M_{acid}V_{acid} = M_{base}V_{base}$ ) (6	molarity of the	5 M Ba(OH) <sub>2</sub> and pour 50.0 mL into a beaker H NO <sub>3</sub> (aq) solution? (do not use the equation
2 HNO3 + 50,0ml Ba (Ob)2	Ba(OH) <sub>2</sub> $\rightarrow$ 2 H <sub>2</sub> O Ba (NO <sub>3</sub> ) <sub>2</sub> $\times \frac{O_1(25) \text{ mol Ba}(0)}{(600) \text{ ml Ba}(0)}$	(A)2 X	2 mel tralas = 0,0125
2. For	0,0125mol (15,5mlx 1000n the following reagent, give the oxidation state number a	lation state of t	he element listed. Either explain why or show
PO <sub>4</sub> -3	What is the oxidation state of the $4(-2) = -3$		ecule $\pm 5$ $-3 + 8 = +5$
Si	What is the oxidation state of the $-\beta = -2$	e O (oxygen) i	n the molecule
3 If you ha	we 17.7 grams of He gas (FW = $4.0$	0 g/mol), wha	t volume will the gas occupy at STP? (6 pts)
17.76  Attendance molar mass	for 3/24/15 Tuesday: According to equation derived from the PV = nI	o the youtube	video, will you have to do the derivation of the r exam? [(yes) or (no)] (circle one)
Extra Credi	t (2 pts): If you the mole fraction	of H <sub>2</sub> in a gas	mixture is 0.87 and the pressure of the total gas $\frac{P_{H2}}{I_{i}89a4m}P_{H3} = (0.89)V_{i}8$

Quiz IV General Chemistry I Lecture Spring 15	Dr. Hahn 20 pts $3/26$ R $8:30$ am form A quiz # $\frac{1}{2}$
Name	Name
(print name)	(sign name)
Please show all work for full credit and for partial $\{PV=nRT, (P_1V_1)/(P_2V_2)=T_1/T_2 \ R=0.08206 \ (L \ at the constraint of the cons$	credit. { $P_{total} = P_a + P_b + P_c + \cdot \chi_a = P_a / P_{total} = n_a / n_{total}$ } m)/(mol K), K= $^{o}$ C+273.15} molar V at STP = 22.4 Liters
1. Complete the following acid base reaction.	Reaction does not need to be balanced.( 6 pts)
H Cl (aq) + Ca (OH)₂ (aq) →	
<ol><li>For the following reagent, give the oxidation work for your oxidation state number answer.</li></ol>	on state of the element listed. Either explain why or show ver. (8 pts, 4 pts each)
Na H CO <sub>3</sub> What is the oxidation state of Na in	the molecule
What is the oxidation state of C in	the molecule
	me of 7.998 Liter at 29.3 °C at 1.1 atm and then change the of 2.305 Liter at 35.2 °C, what is the new pressure in your
Attendance for 3/24/15 Tuesday: Mostly whose by video?	books are in the back of the room in the announcement
Extra Credit (2 pts): If the O <sub>2</sub> has a pressure of 0 same cylinder at pressure of 1.33 atm, what is the	0.37 atm and the gas in a cylinder has other gases in the pressure of the other gases?

				8:30am form B quiz # 2-
(print name)		(sign	n name)	
Please show {PV=nRT, (	all work for full credit $P_1V_1$ / $(P_2V_2)=T_1/T_2$ R	t and for partial credit =0.08206 (L atm)/(m	t. { $P_{total} = P_a + P_b + P_b$ nol K), $K = C + 273.1$	$P_c+\chi_a = P_a / P_{total} = n_a / n_{total}$ 5} molar V at STP = 22.4 Liters
1. Com	olete the following aci	d base reaction. Reac	ction does not need t	o be balanced.( 6 pts)
H NO <sub>3</sub> (aq)	+ Na OH (aq) →	+		
	ne following reagent, a for your oxidation sta			ed. Either explain why or show
NO <sub>3</sub> -1	What is the oxidation	on state of the N in the	e molecule	-
	What is the oxidation	on state of the O (oxy	gen)	
3 If you occupy? (6		gas at 278.2 K at 78	8 mm Hg pressure, v	what volume does the gas
occupy: (o	лој			
				•
Attendance i	or 3/24/15 Tuesday:	Give at least one gas	s law equation given	during the videos?

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Name			Name			2-1
(print name)	)		(sign name)			
Please show {PV=nRT, (	all work for full creating $(P_1V_1)/(P_2V_2)=T_1/T_2$	dit and for partial of R=0.08206 (L atm	eredit. { $P_{total} = P_a$ n)/(mol K), $K^{=0}C^{-1}$	+ P <sub>b</sub> +P <sub>c</sub> +. +273.15} m	$\chi_a = P_a / P_{total}$ nolar V at STP =	= n <sub>a</sub> / n <sub>total</sub> } = 22.4 Liters
solu	the reaction shown be tion and titrate it with at the equivalence p	1 Ca (OH)2 of con	centration of 0.250	) M, how n	nany mL of Na(	)H will you
2 HBr + 0	$Ca(OH)_2 \rightarrow Ca Br_2$	+ 2 H <sub>2</sub> O				
	the following reagent k for your oxidation s				Either explain	why or show
$H_2SO_4$	What is the oxida	tion state of the S	in the molecule			
H <sub>2</sub> SO <sub>4</sub>	What is the oxida	tion state of the S	in the molecule			
H <sub>2</sub> SO <sub>4</sub>						•
H <sub>2</sub> SO <sub>4</sub>		tion state of the S				
H <sub>2</sub> SO <sub>4</sub>						•
H <sub>2</sub> SO <sub>4</sub>						• •
H <sub>2</sub> SO <sub>4</sub>						• 1
3 1		tion state of the H	in the molecule _		gas, what is the	volume at
3 1	What is the oxidation of the second of the	tion state of the H	in the molecule _		gas, what is the	volume at
3 1	What is the oxidation of the second of the	tion state of the H	in the molecule _		gas, what is the	volume at
3 1	What is the oxidation of the second of the	tion state of the H	in the molecule _		gas, what is the	volume at
3 1	What is the oxidation of the second of the	tion state of the H	in the molecule _		gas, what is the	volume at

Extra Credit (2 pts): If you have 785.2 torr of a mixture of gases and you know pressure the Ne in the mixture is 75.2 torr, what is mole fraction of the Ne in the total gas mixture?

Quiz IV General Chemistry I Lecture Spring 15	Dr. Hahn 20 pts $3/26$ R 9:55 am form B quiz # $\sqrt{-10}$
	Name
(print name)	(sign name)
Please show all work for full credit and for partial of $\{PV=nRT, (P_1V_1)/(P_2V_2)=T_1/T_2 \ R=0.08206 \ (L \ atn$	credit. { $P_{total} = P_a + P_b + P_c + \cdot \chi_a = P_a / P_{total} = n_a / n_{total}$ } n)/(mol K), K= $^{\circ}$ C+273.15} molar V at STP = 22.4 Liters
1. For the reaction shown below, if you start $v$ and titrate it with 75.5 mL what is the mola given here: $M_{acid}V_{acid} = M_{base}V_{base}$ ) (6 pts)	with a 0.125 M Ba(OH) <sub>2</sub> and pour 50.0 mL into a beaker arity of the H NO <sub>3</sub> (aq) solution? (do not use the equation)
$2 \text{ HNO}_3 + \text{ Ba(OH)}_2 \Rightarrow 2 \text{ H}_2\text{O} \text{ Ba (NO}_3)_2$	
2. For the following reagent, give the oxidation work for your oxidation state number answers.	on state of the element listed. Either explain why or show er. (8 pts, 4 pts each)
$PO_4^{-3}$ What is the oxidation state of the P	in the molecule
104	
What is the oxidation state of the O	(oxygen) in the molecule
3 If you have 17.7 grams of He gas (FW = $4.00$ g.	/mol), what volume will the gas occupy at STP? (6 pts)
Attendance for $3/24/15$ Tuesday: According to the molar mass equation derived from the PV = nRT of	e youtube video, will you have to do the derivation of the on a quiz or exam? [(yes) or (no)] (circle one)

Extra Credit (2 pts): If you the mole fraction of  $H_2$  in a gas mixture is 0.87 and the pressure of the total gas is 1.89 atm, what is the pressur of  $H_2$  in atmosphere?