

Experiment 17  
Ions in Solution

Name KEY  
Drawer Number \_\_\_\_\_

Observations and Conclusions

Part I. Ionic and Covalent Compounds in Aqueous Solution

	Substance	Conductivity	Electrolyte Type	Major Species in Solution	Minor Species in Solution (if appropriate)
1.	distilled H <sub>2</sub> O	NONE	NON	N/A	H <sup>+</sup> , OH <sup>-</sup> <u>VERY</u> MINOR
2.	tap H <sub>2</sub> O	MEDIUM	DILUTE STRONG	UNKNOWN IONS (Ca <sup>2+</sup> , Cl <sup>-</sup> , etc)	UNKNOWN
3.	NaCl(s)	NONE	NON	Na <sup>+</sup> , Cl <sup>-</sup> (NOT MOBILE)	NONE
4.	NaCl(aq)	HIGH	STRONG	Na <sup>+</sup> <sub>(aq)</sub> , Cl <sup>-</sup> <sub>(aq)</sub>	NONE
5.	KClO <sub>3</sub> (s)	NONE	NONE	K <sup>+</sup> , ClO <sub>3</sub> <sup>-</sup> (NOT MOBILE)	NONE
6.	KClO <sub>3</sub> (l)	HIGH	STRONG	K <sup>+</sup> , ClO <sub>3</sub> <sup>-</sup> (MOBILE)	NONE
7.	KClO <sub>3</sub> (aq)	HIGH	STRONG	K <sup>+</sup> <sub>(aq)</sub> , ClO <sub>3</sub> <sup>-</sup> <sub>(aq)</sub>	NONE
8.	CuSO <sub>4</sub> (aq)	HIGH	STRONG	Cu <sup>2+</sup> <sub>(aq)</sub> , SO <sub>4</sub> <sup>2-</sup> <sub>(aq)</sub>	HSO <sub>4</sub> <sup>-</sup> <sub>(aq)</sub> , OH <sup>-</sup> <sub>(aq)</sub>
9.	CH <sub>3</sub> CH <sub>2</sub> OH(l)	NONE	NON	N/A	CH <sub>3</sub> CH <sub>2</sub> O <sup>-</sup> <u>VERY</u> CH <sub>3</sub> CH <sub>2</sub> OH <sub>2</sub> <sup>+</sup> <u>MINOR</u>
10.	CH <sub>3</sub> CH <sub>2</sub> OH(aq)	NONE	NON	CH <sub>3</sub> CH <sub>2</sub> OH	NONE
11.	C <sub>12</sub> H <sub>22</sub> O <sub>11</sub> (s)	NONE	NON	N/A	N/A
12.	C <sub>12</sub> H <sub>22</sub> O <sub>11</sub> (aq)	NONE	NON	C <sub>12</sub> H <sub>22</sub> O <sub>11</sub> <sub>(aq)</sub>	NONE

← IN ALL AQ. SOLUTIONS

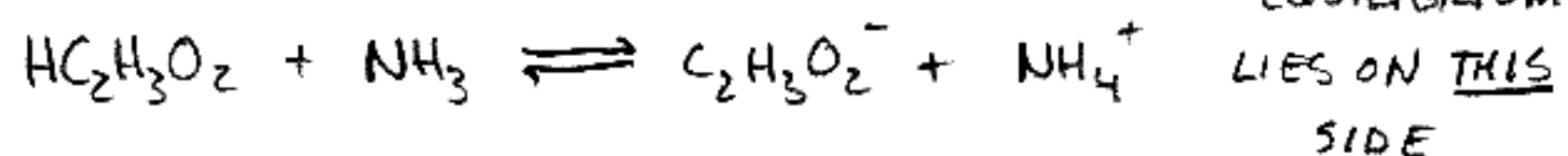
← JUST ILLUSTRATING AUTOIONIZATION

## Part II. Acids and Bases in Aqueous Solution

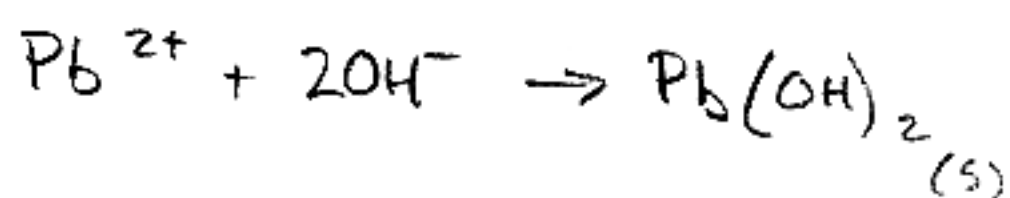
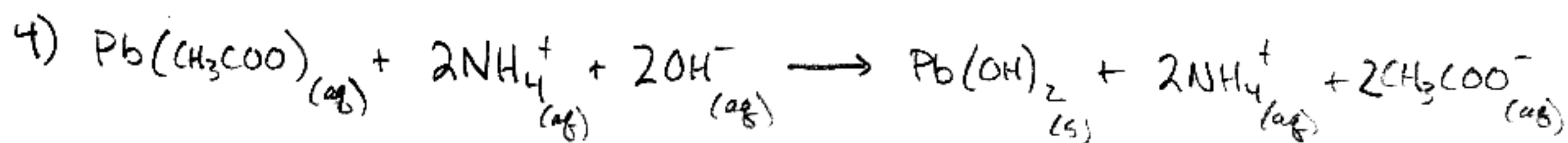
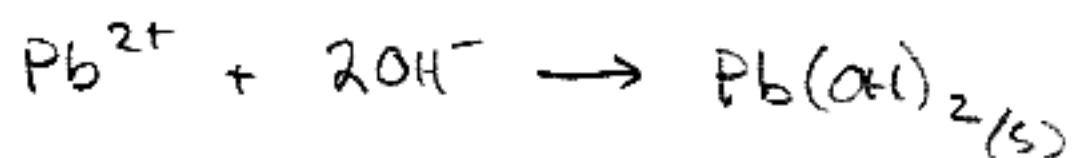
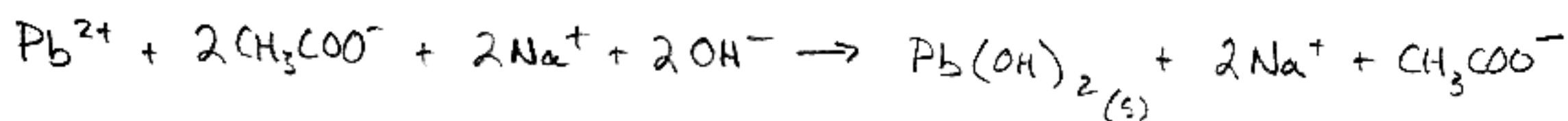
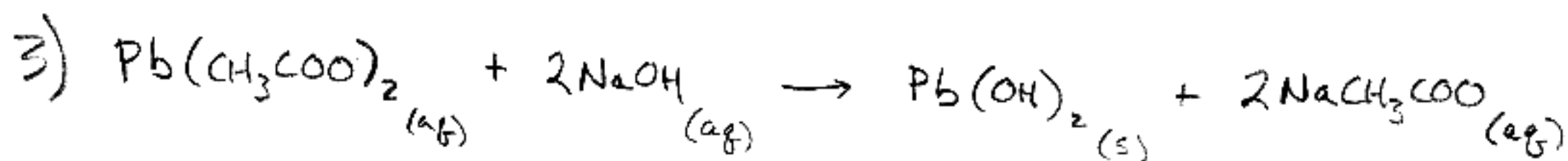
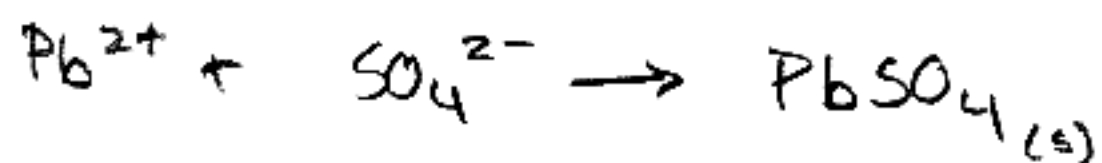
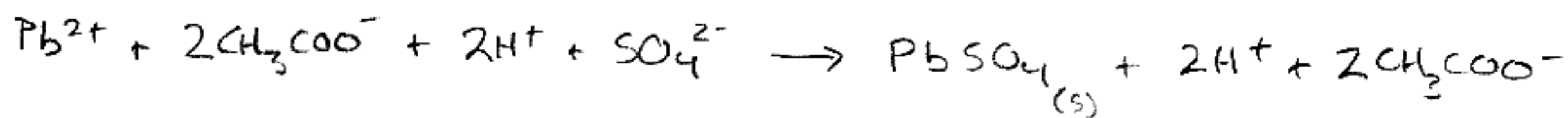
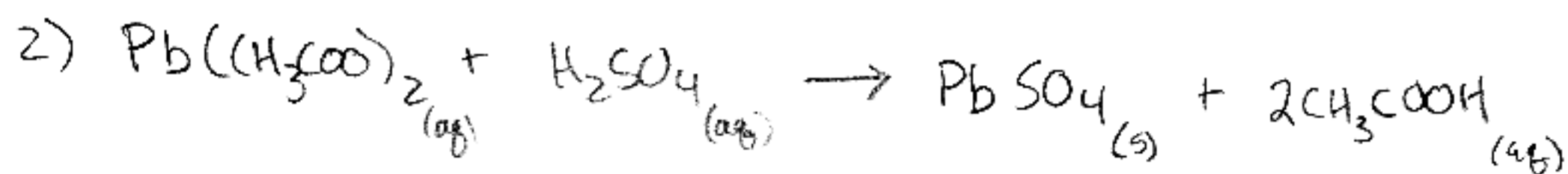
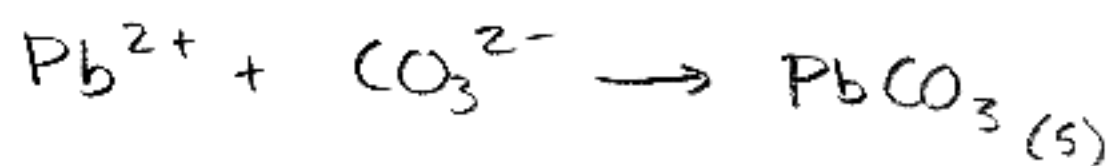
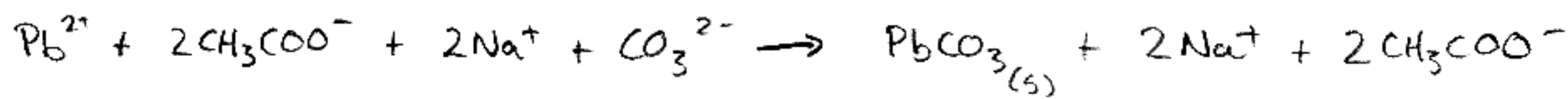
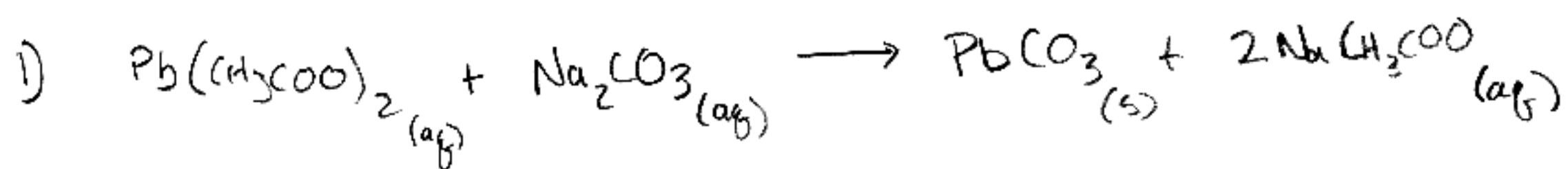
	Sample	Conductivity	Electrolyte Type	Major Species in Solution	Minor Species in Solution (if applicable)
1.	$\text{HC}_2\text{H}_3\text{O}_2(\text{aq})$	MED/LOW	WEAK	$\text{HC}_2\text{H}_3\text{O}_2(\text{aq})$	$\text{C}_2\text{H}_3\text{O}_2^-(\text{aq}), \text{H}^+(\text{aq})$
2.	$\text{HCl}(\text{aq})$	HIGH	STRONG	$\text{H}^+(\text{aq}), \text{Cl}^-(\text{aq})$	NONE
3.	$\text{NaOH}(\text{aq})$	HIGH	STRONG	$\text{Na}^+(\text{aq}), \text{OH}^-(\text{aq})$	NONE
4.	$\text{NH}_3(\text{aq})$	MED/LOW	WEAK	$\text{NH}_3(\text{aq})$	$\text{NH}_4^+(\text{aq}), \text{OH}^-(\text{aq})$
5.	$\text{HC}_2\text{H}_3\text{O}_2(\text{aq}) + \text{NH}_3(\text{aq})$	MED/HIGH	FAIRLY STRONG	$\text{C}_2\text{H}_3\text{O}_2^-(\text{aq}), \text{NH}_4^+(\text{aq})$	$\text{HC}_2\text{H}_3\text{O}_2(\text{aq}), \text{NH}_3(\text{aq})$

↖ WEAK ACID + WEAK BASE

## Part III. Reactions in Aqueous Solution

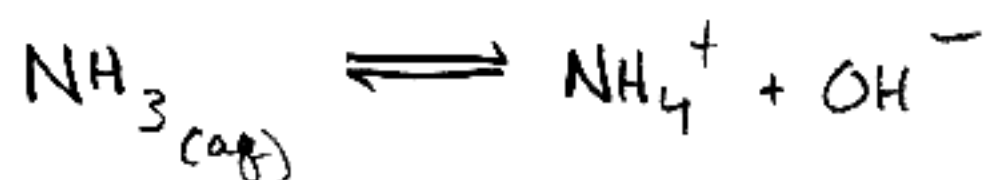


Reactants	$\text{Na}_2\text{CO}_3(\text{aq})$	$\text{H}_2\text{SO}_4(\text{aq})$	$\text{NaOH}(\text{aq})$	$\text{NH}_3(\text{aq})$
$\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2(\text{aq})$	1.	2.	3.	4.
$\text{Fe}(\text{NO}_3)_3(\text{aq})$	5.	6.	7.	8.
$\text{NH}_4\text{C}_2\text{H}_3\text{O}_2(\text{aq})$		9.	10.	11.
$\text{H}_2\text{SO}_4(\text{aq})$	12.		13.	14.
$\text{HNO}_3(\text{aq})$ to ppt from #1	15.			

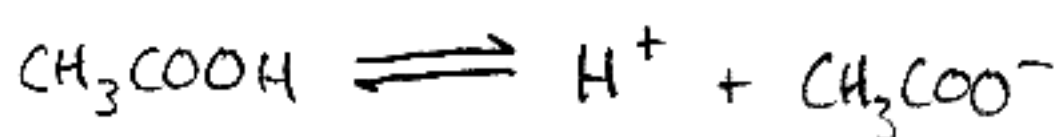
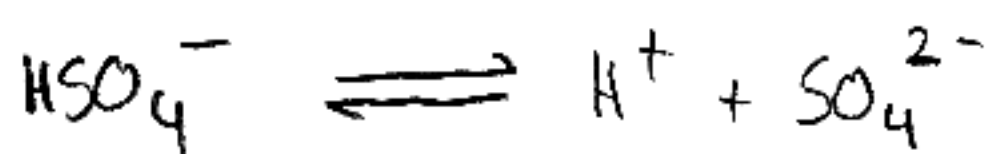


YOU CAN FIGURE OUT THE REST.

NOTE:



EQ. LIES IN FAVOR OF  $\text{NH}_3(\text{aq})$



NOT 100% DISSOCIATION

MAKES WRITING IONIC EQUATIONS  
A LITTLE MISLEADING