CHEMISTRY 235 EXPERIMENT 8
QUALITATIVE ANALYSIS

METHOD AND RESULTS

You are given eight compounds containing FOUR of the anions HCO_3^-, CO_3^{2-}, CH_3COO^-, $HCOO^-$, $(COO)_2^{2-}$, I^-, Br^-, and Cl^-. Identify the anion present in each case. Write equations wherever appropriate in the deduction column. In a number of cases gases are evolved. **You should carry out tests on these gases to identify them.**

COMPOUND A

TEST	OBSERVATIONS	DEDUCTIONS
1. Add a few drops of conc. H_2SO_4 to solid A. Warm.		
2. Make a soln. of A and use it for the following tests. Use a fresh portion for each test unless otherwise instructed.		
a) Add $AgNO_3(aq)$		
b) Add a few drops dil. H_2SO_4 then $KMnO_4(aq)$. Warm.		

COMPOUND B

TEST	OBSERVATIONS	DEDUCTIONS
1. Add a few drops conc. H_2SO_4 to some solid B.		
2. Mix some $MnO_2(s)$ or $PbO_2(s)$ with solid B. Add a few drops of conc. H_2SO_4. Warm in fume cupboard.		

FBB NASC 4/10/91 C235 P5 V.1.0 2hr.

TEST	OBSERVATIONS	DEDUCTIONS
3. Mix some solid B with $K_2Cr_2O_7(s)$. Add a few drops conc. H_2SO_4. WORK IN THE FUME CUPBOARD. VERY TOXIC SUBSTANCE FORMED.		
4. Make a soln. of B and use it for the following tests.		
a) Add $AgNO_3(aq)$. Split the result into 2 parts.		
i) Add $NH_3(aq)$ to one part.		
ii) Add dil. HNO_3 to 2nd part.		
b) Add $Pb(NO_3)_2(aq)$. Heat and cool again.		

COMPOUND C

TEST	OBSERVATIONS	DEDUCTIONS
1. Add a few drops of conc. H_2SO_4 to solid C. Warm if necessary.		
2. Add a few drops conc. HNO_3 to solid C.		

TEST	OBSERVATIONS	DEDUCTIONS
3. Prepare a soln. of C and use for these tests. Use a fresh portion for each test unless otherwise instructed.		
a) Add $AgNO_3(aq)$. Split the result into 2 parts.		
i) Add conc. $NH_3(aq)$ to 1st part, then dilute with water.		
ii) Add dil. HNO_3 to the 2nd part.		
b) Add $Pb(NO_3)_2(aq)$. Heat and then cool.		
c) Add some $CHCl_3$ then $Cl_2(aq)$ or acidified NaOCl(aq).		

COMPOUND D

TEST	OBSERVATIONS	DEDUCTIONS
1. Add a few drops conc. H_2SO_4 to solid D. Warm.		
2. Make a soln. of D and use for these tests. Use a fresh portion for each test unless otherwise instructed.		
a) Add $AgNO_3(aq)$. Split result into 2 parts.		

TEST	OBSERVATIONS	DEDUCTIONS
i) Add dil. HNO_3 to 1st. part.		
ii) Add conc. $NH_3(aq)$ to the 2nd. part.		
b) Add $CHCl_3$ then $Cl_2(aq)$ or acidified $NaOCl(aq)$.		
c) Add a few drops dil. H_2SO_4 then $K_2Cr_2O_7(aq)$, then a drop of starch soln.		
d) Add $Pb(NO_3)_2(aq)$. Heat and then cool.		