CHEMISTRY 235 EXPERIMENT 5
QUALITATIVE ANALYSIS

METHOD AND RESULTS

The compounds A, B, and C contain the ions Co^{2+}, Ba^{2+} and Ca^{2+}. Identify the ion present in each compound. Write the equation, where relevant, for each reaction in the deduction column.

COMPOUND A

TEST	OBSERVATIONS	DEDUCTIONS
Make an aqueous soln. of A for the following tests. Use a fresh portion for each test unless otherwise instructed.		
a) Add NaOH(aq) until in excess.		
b) Add NH_3(aq) until in excess.		
c) Add Na_2CO_3(aq)		
d) Add dil. HCl then H_2S(aq).		
e) Add ethanol followed by NH_4SCN(aq).		

COMPOUND B

TEST	OBSERVATIONS	DEDUCTIONS
a) Perform a flame test on B.		
Prepare a solution of B and use it for the following tests. Use a fresh portion for each test unless otherwise instructed.		

TEST	OBSERVATIONS	DEDUCTIONS
b) Add NaOH(aq) until in excess.		
c) Add NH_3(aq) until in excess.		
d) Add Na_2CO_3(aq) and then dil. HCl or dil. HNO_3.		
e) Add K_2SO_4(aq) then dil. HCl or dil. HNO_3.		
f) Add Na_3PO_4(aq) then dil. HNO_3.		
g) Add $Na_2(COO)_2$(aq)[1] then dil. HCl or dil. HNO_3.		
h) Add H_2S soln.		
i) Add K_2CrO_4(aq) and divide result into 2 parts.		
α) To one part add dil HCl or dil. HNO_3.		
β) To 2nd part add ethanoic acid.		

[1]Sodium oxalate (sodium ethanedioate) solution

COMPOUND C

TESTS	OBSERVATIONS	DEDUCTIONS
a) Perform a flame test on C.		
Prepare an aqueous soln. of C and use it for the following tests.		
b) Add NaOH(aq) until in excess.		
c) Add NH_3(aq) until in excess.		
d) Add Na_2CO_3(aq) then dil. HCl or dil. HNO_3.		
e) Add Na_3PO_4(aq) then dil. HCl or dil. HNO_3.		
f) Add $Na_2(COO)_2$(aq) then dil. HCl or dil. HNO_3.		
g) Add K_2CrO_4(aq).		