

Yazan R Alkhateeb

civil engineering

lab Chemistry 108

like

Share

Subscribe

Exp. 5 Test of Cations (+) & Anions (-)

* Qualitative Analysis.

* المطلوب : حفظ الوسط [حمضي / قاعدي]

والمواد الكاشفة والنواتج

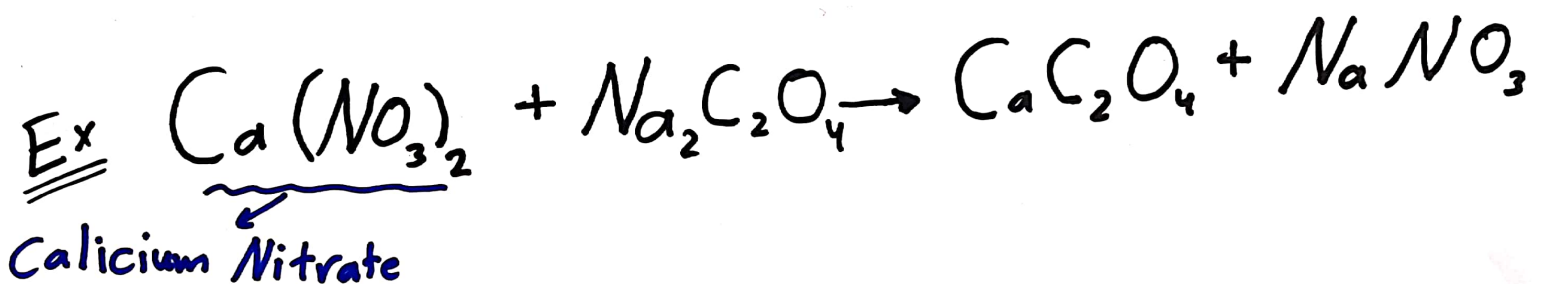
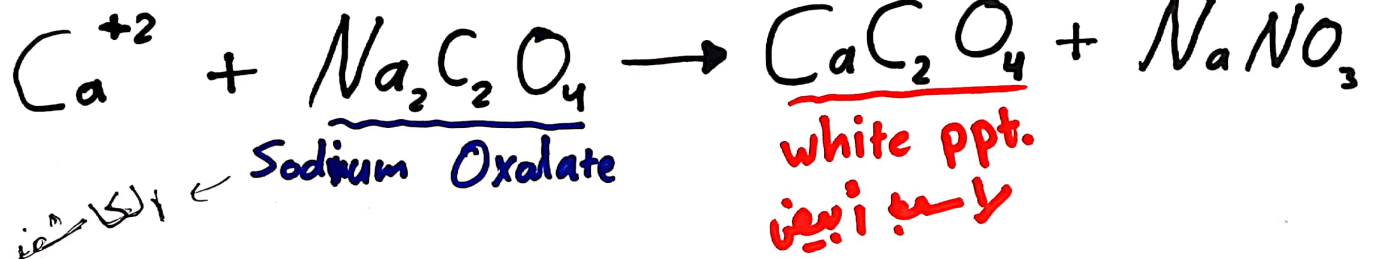
* المعادلات ليست للحفظ.

* HCl : Hydrochloride Acid.

* NaOH : Sodium hydroxide.

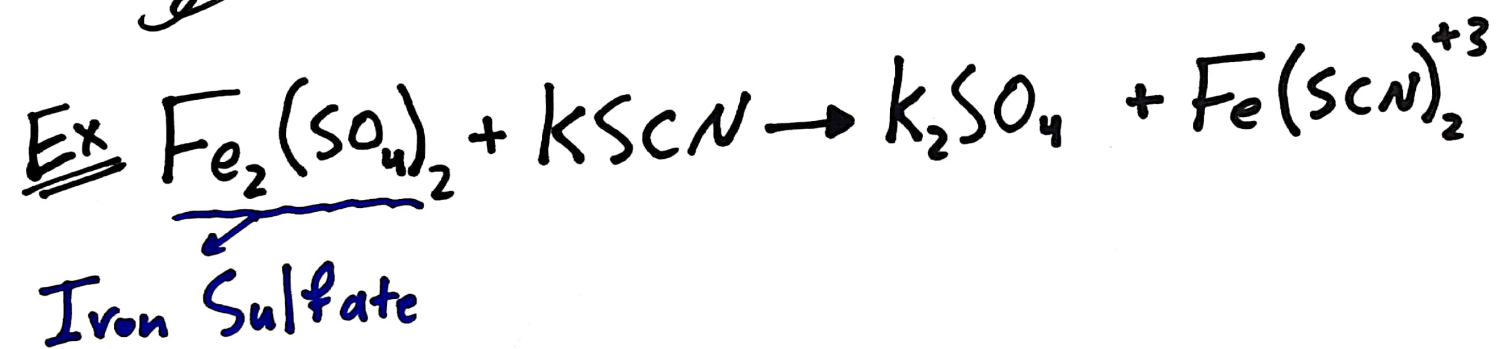
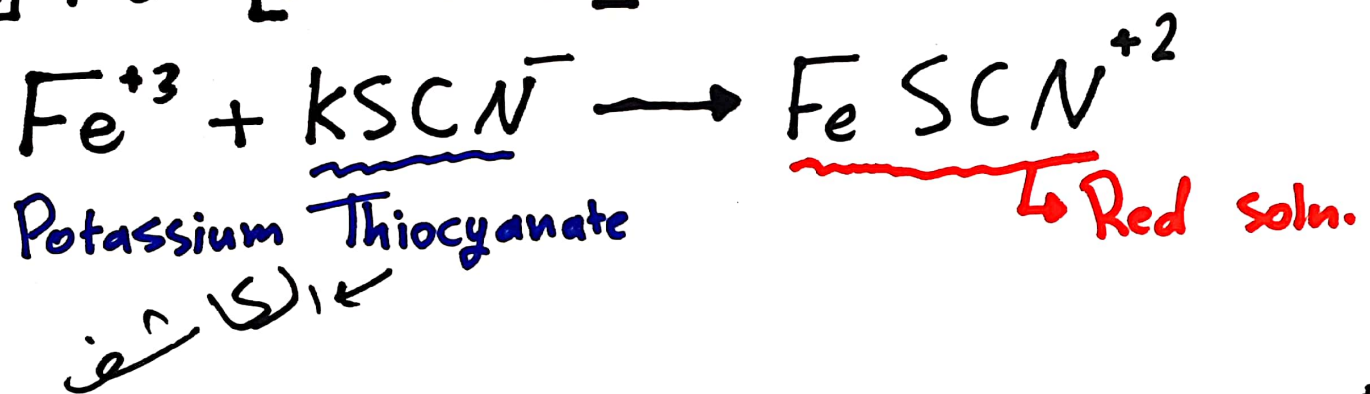
(2) Cations:

1 Ca^{+2} [Calcium Test]



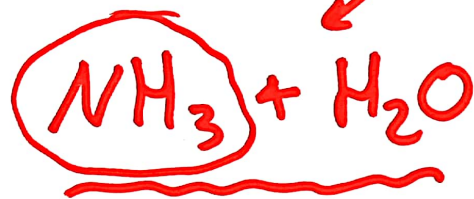
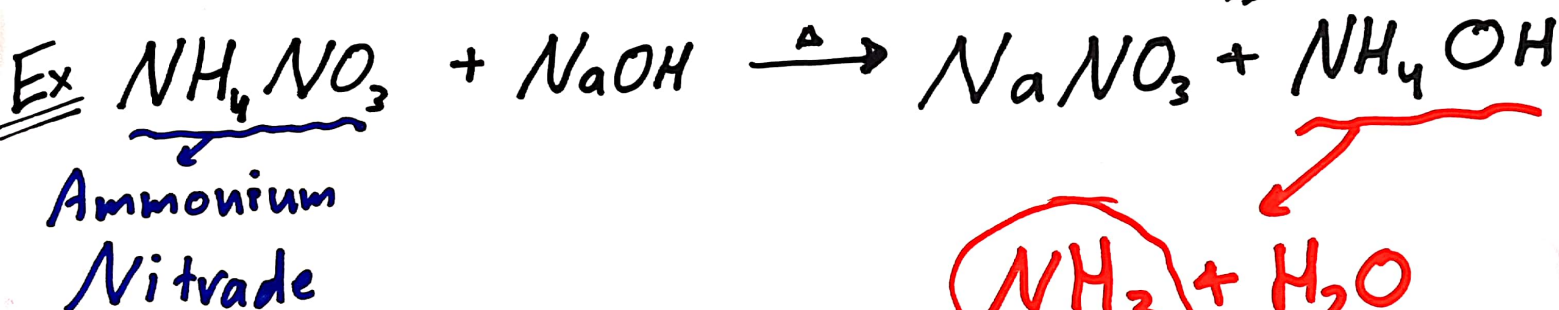
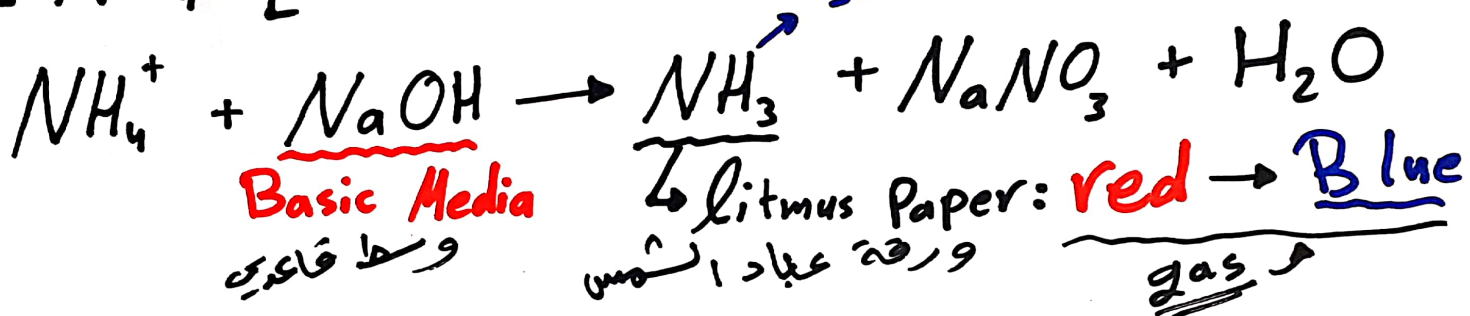
③ Cations :
~.~.~.

② Fe^{+3} [Ferric Test]



④ Cations:

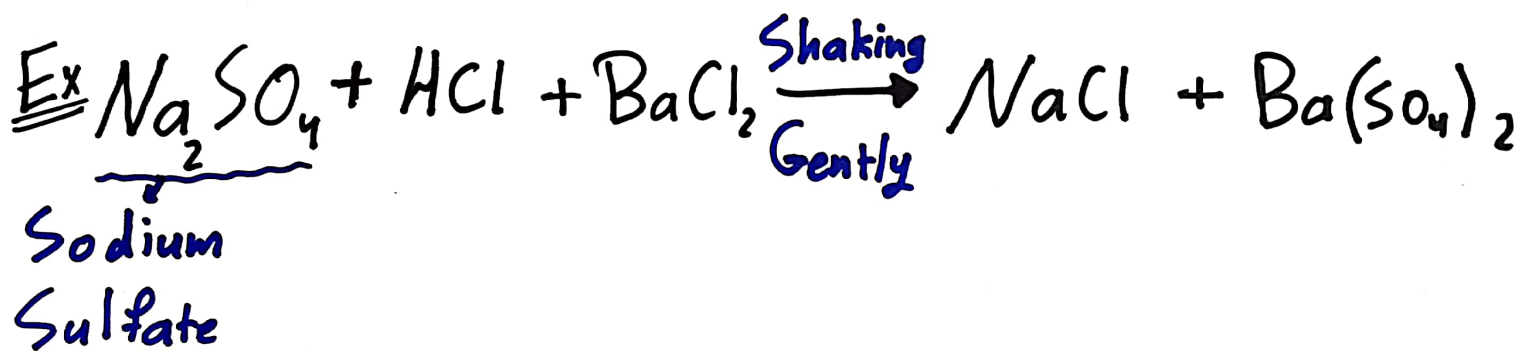
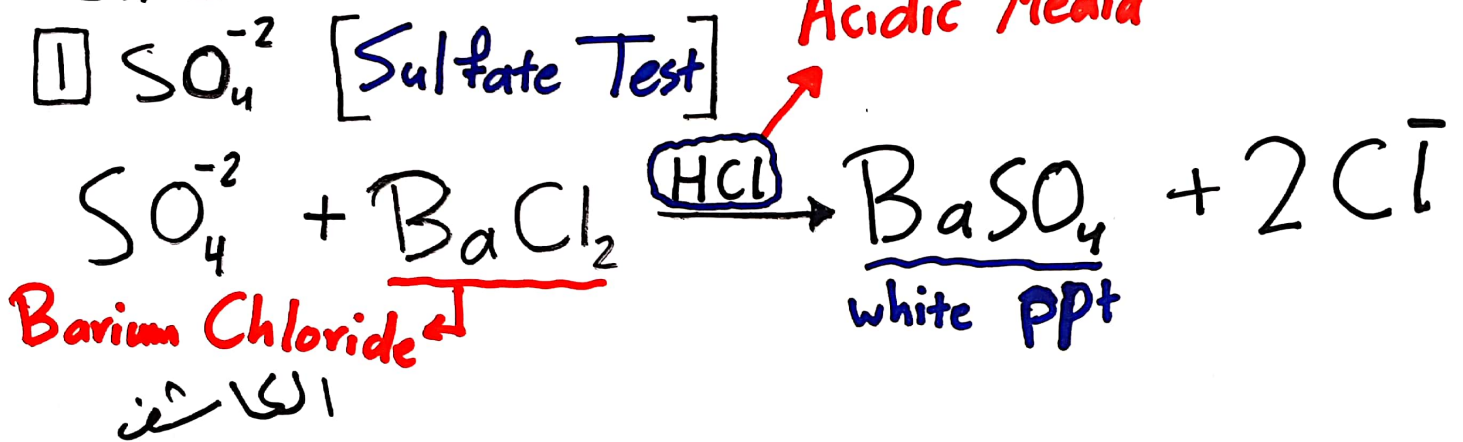
[3] NH_4^+ [Ammonium Test]



⑥ Anions:

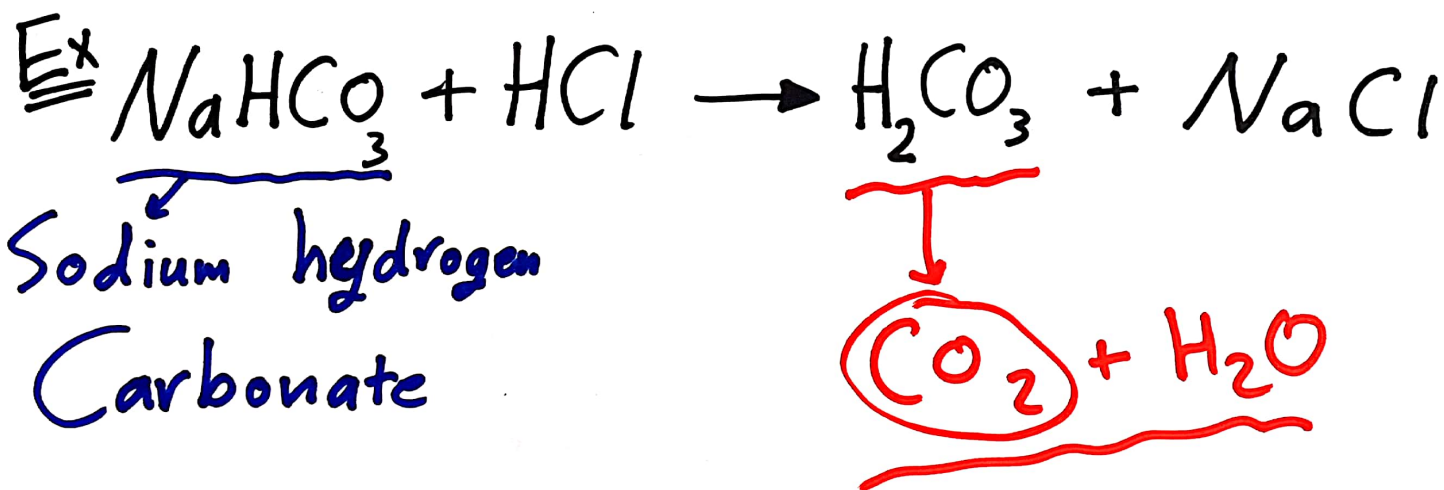
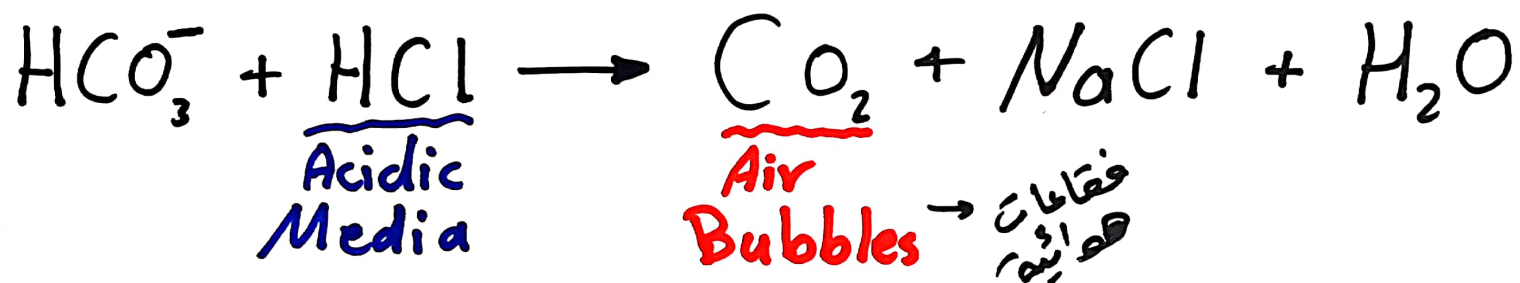
① SO_4^{-2} [Sulfate Test]

Acidic Media



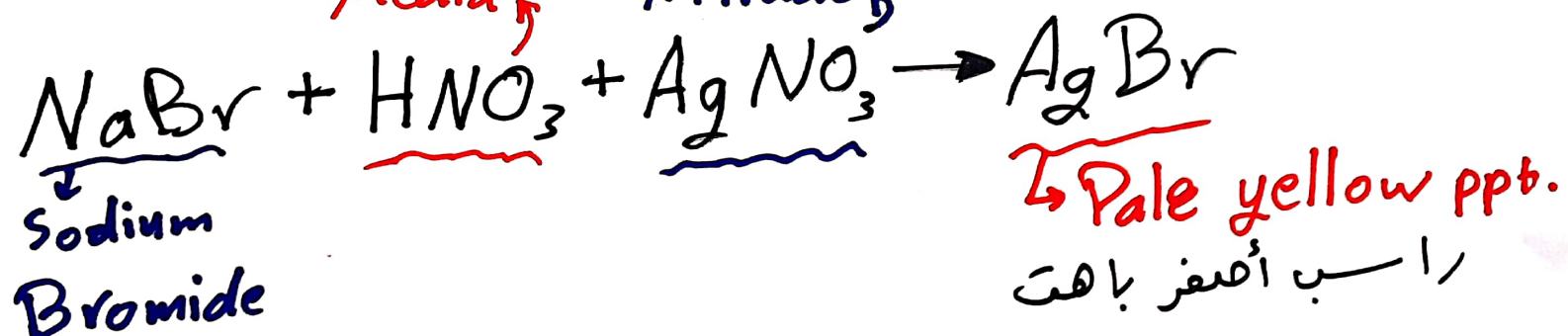
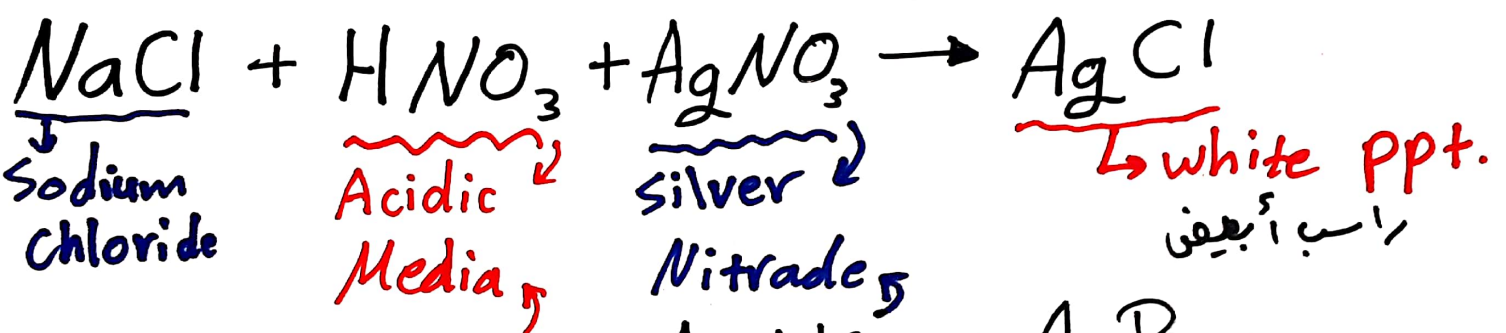
⑥ Anions :

② HCO_3^- [Bicarbonate Test]



③ Anions:

③ Cl^- , Br^- [Chloride & Bromide ions Test]



Q1 The Sulphate ion can be detected by :

- 1) Adding BaCl_2 Soln in Acidic Media & a white ppt. will appear.
- 2) Adding BaCl_2 soln in Basic Media & a white ppt. will appear.
- 3) Adding HCl Soln, a gas will Change the wet red litmus to blue.
- 4) Adding NaOH soln, a gas will Change the wet blue litmus to red.
- 5) Adding NaOH soln, Ammonia smell can be detected.

Q2 The Cl^- Can be detected by:

- 1) Sodium Oxalate.
- 2) Potassium Thiocyanate.
- 3) ☒ Silver nitrate + Acid.
- 4) Barium Chloride + Acid.
- 5) Hydrochloric Acid.

Q3] The Iron (III) ion Can be detected by :

- 1) Adding BaCl_2 Soln, in acidic Media & a white ppt. will appear.
- 2) Adding KSCN soln, & ared color will appear.
- 3) Adding KSCN soln, & a white color will appear.
- 4) Adding HCl soln, a gas will Change the wet red litmus paper to blue.
- 5) Adding NaOH soln, a gas will Change the wet blue litmus paper to red.

Q4] An unknown salt give a gas that convert the litmus Paper from red to blue when detected with Sodium Hydroxide & a pale yellow precipitate when reacted with Silver nitrate in acidic Media. The formula of the salt is :

- 1) CaBr_2 2) $\text{Fe}_2(\text{SO}_4)_3$ 3) NH_4Br 4) NH_4HCO_3
~~5) NH_4Cl~~ 5) FeBr_3



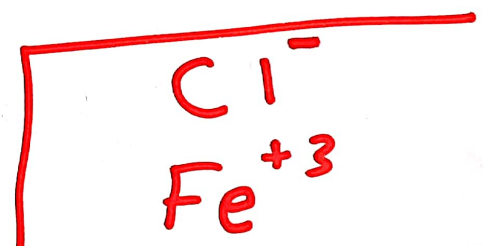
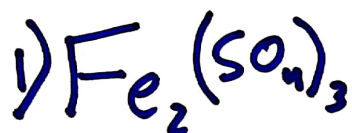
Q5] When an unknown react with Sodium hydroxide ^(NaOH) soln, It evolved ^{ol} a gas which convert the wet red litmus paper to blue ~~gas evolved~~ The resulted aqueous layer from the pervious rxn was treated with hydrochloric Acid ^{HCl} soln & Carbon ^{H₂O₃} dioxide evolved immediately as a result of rxn,

The unknown is:

- 1) CaCl_2 2) $\text{Ca}(\text{HCO}_3)_2$ 3) NH_4Cl
- ~~4) NH_4HCO_3~~

Q6] four unknown salts have The formula: AB , XY , ZW , AY . The following Results were obtained by Testing the ions in the sample : الجدول بالصفحة التالية

According To the previous Table, The salt AY is:



Unknown Compound	Potassium Thiocyanate	Sodium Oxalate	Red Lit. Paper	Silver Nitrate	Barium Chloride
AB	Red color	-ve	-ve	-ve	White ppt
XY	-ve	White ppt.	-ve	White ppt	-ve
ZW	-ve	-ve	Blue	Pale Yellow ppt	-ve
AY	Red color	-ve	-ve	White ppt	-ve

+ve: Positive results

-ve: negative results

ppt: Precipitate

لـ ٤٦

Q6