Misconception:

- How can we define a solution can be a acid-base indicator ?
  - Wrong ans.: [It can react with different pH value to give out color change]
    | Reason : Not Accurate.
  - **Correct ans.:** [The solution can show out the **Different Colors** in
    | *Acidic Conditions*| *Alkaline Conditions* |

//In a science experiment, Peter put two plant extracts into acids and alkalis of different pH values. The results are shown below://

pH value	Colour of extract from red cabbage	Colour of extract from blueberries
1	Deep red	Pink
2	Reddish purple	Pink
3	Reddish purple	Pink
4	Pale violet	Colourless
5	Pale violet	Colourless
6	Pale violet	Colourless
7	Blue	Colourless
8	Blue	Colourless
9	Blue	Colourless
10	Green	Brownish green
11	Yellowish green	Brownish green
12	Yellow	Brownish green
13	Yellow	Brownish green
14	Yellow	Brownish green

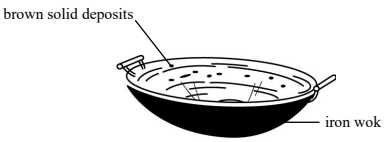
Q: Which extract is a better acid-base indicator? Explain your answer.
WA: The extract form the red cabbage. It have variety of color change in low pH value.
| Not Accurate

CA: It have **More Different Colors** in the **pH range** from **1 to 14**

- Why Commercial Universal indicator made by mixing a number of acid-base indicator?
  - To Make Sure that: The indicator can show **Different Colors** at **Different pH Value**
- Why we can't get the crystal salt after follow the correct procedure?
  - It is possible that the solution **is not concentrated** enough
    - → **Longer heating is required**.
- Importance & Crystallization:
  - Why we need to **Heat gently**?
    - Heating can enhance the reaction rate.
  - Why **Stirring** is important?
    - Can react with a larger contact surface and **Uniformly Distributed** throughout the acid for a **Fast and Complete** reaction.
  - Why Cooling is important?
    - The **Solubility is Decreased** when the **Temperature is Decreasing** slowly
      → The **Excess of Solute** can't further Dissolve in the **Filtrate**
      →The **Particle Rearrange** → form a **Large Crystal**.
  - Why it is important to dry the hydrated crystal without heating?
    - The heating may remove the water of crystallization of the crystal.
    - The heating may cause the crystal be unstable.
- The **Acid CAN NOT** react with **SALT!!**
  - In order to Prepare Salt → Acid + Alkaline substances [E.g.:Na_2CO_3 , $NaHCO_3$]
- List all the Apparatus in order to prepare soluble salt:
  | Beaker, Bunsen Buner, Tripod, Wire gauze, Heat insulating mat, Safety Goggles, Glass rod, Evaporation dish, filter paper, filter funnel.
  | Spatula is missing → For Adding the solid salt.

- Why we need to add excess of Fe into the HSO4(aq) in order to preparing the soluble salt?
  | Also need to talk about why it is necessary
  Try Again:

- Are there any Simple Chemical Test for distinguishing $FeSO_4$ & $Fe_2(SO4)_3$
  - Never write $Fe(OH)_3$ is in yellow color !!!!!!
- Why $CaCO_3$ is more suitable to lower the pH value of the soil than $Ca(OH)_2$?
  - **Since the $Ca(OH)_2$ is more soluble than $CaCO_3$**, It would be very easy to wash away and hence **Not Long Lasting**.
- **Never use Metal ion to neutralized** the Alkaline Pollutants.
  - Reason: Although Some Metal ion can react with the alkali to form some solid metal hydroxide → Lower pH
    →However, the metal hydroxide "Some may contain of color" → **Destroy the env.**
    → Should use Acid "Acid + Alkali → Water + Salt"
- Tricky Question:
  - Some brown solid deposits are sometimes found on iron woks if the woks are not thoroughly dried after washing. These brown substances cannot be washed away with water but can be removed with vinegar.
    a) What are the brown precipitate?
    |Is NOT $Fe(OH)_3$!!
    [Not the reaction between Alkali and metal ion !!]
    b) Write the Full Chemical equation to explain the why the vinegar can wash away the brown precipitate?



- Why ammonium solution still have strong smell as ammonia gas. Explain the reason.
  | Not Only Explain there are Many of Ammonia molecules in the solution
  →Also need to explain **How to Get the Smell !!!**

Caution:

- The salt from the reaction with the **ethanoic acid** → **Ethanoate Salt**.
  - According to the molecular arrangement → **NO < $NaCH_3COO$ >**
    →It should be CH_3COONa !!!| Same as other metal [E.g.: CH_3COOK]
- It is necessary to **memorize** all **Apparatus** & the **Procedure**
- When the question ask for [How to prepare a ## Salt form ###] can be obtain more than one equation!
  - E.g.: How to prepare Barium Sulphate from Barium Carbonate?
    - **It is IMPOSSIBLE to prepare that salt within one reaction!**
      | Can write more than one equations.
- Ionic Equation:
  1. First look at the state of the reactant
  2. If **Solid** → **All write in the ionic equation** | If **Aqueous → Only Write the mobile ion** !!
     - Aqueous to Solid → No **Spectator Ion**.

Question After Revision:

- Write down the ionic equation of the following equation.
  - Iron(II)oxide React with Hydrochloric Acid

- Write full equations to show how you would carry out the following preparations:
  - Aluminum Sulphate-7-Water from Aluminum oxide
  - Lead Sulphate from Lead Carbonate

- [Do this question in simple & accurate way:]
  - Describe how to prepare Aluminium Chloride /4M

- Some industrial sewage are alkaline, how to neutralized it before dispose it?

- Why some antacid tablets can't use Al_2O_3 as the main substances?

- Why antacid tablets can't use KOH as the main substances?

- Find the chemical formulae of the followings and identify which one is highly soluble electrolytes or bases?

Name of the substances	Chemical Formulae	Kind of the substances
Caustic Soda		
Baking Soda		
Slaked Lime		
Lime Stone		
Common Salt		

| Always look at the Question carefully!

- **Tricky Question:**

a)

b)

- Why ammonium solution still have strong smell as ammonia gas. Explain the reason.