錯誤原因:	第二類錯誤: 題目理解錯誤	題目分數:	< 0 > / < 1 >

原題目:

Which of the following always occur when an acid is neutralized with an alkaline?

1. **There is a decrease of pH**
2. **A salt is formed**
3. **An Exothermic Reaction**
4. **A gas is produced**

錯誤答案 與 錯誤思路:	正確答案:
(1) & (2) & (3): "*Neutralization means the formation of water and salt form the reaction between OH^- & H^+. The **decrease of H^+** would **lower the pH value of the solution***" [Misconception: The wrong mindset.]	(2) & (3): "The question is an acid is neutralized with an alkaline. **Original solution is an Acidic Solution.** An alkaline solution is added, the H^+ is used in neutralization reaction and increase of pH"

知識點 與 正確思路:

The neutralization of Acid & Alkaline:

"The acid would obtain a higher pH value when a alkaline solution is added. "

錯題總結:

It is important for us to find out **The pH value of the Original Solution** during the neutralization.

錯誤原因:	第三類錯誤: 解題無思路	題目分數:	< 0 > / < 1 >

原題目:

X is a white solid. When dilute sulphuric acid is added to X, a colorless gas is produced. When mixed with lead(II) nitrate solution, an aqueous solution of X gives a white precipitate. X is probably:

A. **Magnesium Carbonate**
B. **Ammonium Carbonate**
C. **Sodium Chloride**
D. **Ammonium Chloride**

錯誤答案 與 錯誤思路:	正確答案:
Magnesium Carbonate is an insoluble salt, it is impossible to dissolve in the water to form **mobile ion** and thus **NOT** forming of **Lead (II) Carbonate.**	**Ammonium Carbonate** is a **Soluble Salt** which can form mobile ion and further form the **Lead (II) Carbonate $_{(s)}$**

知識點 與 正確思路:

The preparation of salt:

First of all, the first property show that X must be a solid which react with H_2SO_4 → Gas → NO ANS C & ANS D

After that, the second property of **X** which can **form White precipitate with $PbNO_{3\,(s)}$**

Miss this concept →How to form a insoluble salt → Two soluble sub. Is added.

→Insoluble: $MgCO_3$

→Soluble: $(NH_4)_3NO_3$

錯題總結:

"The formation of **Aqueous Salt** **MUST** from the **Mobile Ions**."

錯誤原因:	第三類錯誤: 解題無思路	題目分數:	< 0 > / < 1 >

原題目:

A white solid dissolves in water to form an acidic solution. The solid is probably:

A. CaO

B. Na_2CO_3

C. NH_4Cl

D. NaCl

錯誤答案 與 錯誤思路:	正確答案:
#	C. Since the Ammonium Chloride can dissolve in water to form NH_4^+ & Cl^-. **The NH_4^+ which can react with the water to hydronium ion | Acidic |**"

知識點 與 正確思路:

Actually, hydrogen ion would react with the water molecule to form of hydronium ion

$H^+ + H_2O \rightarrow H_3O^+$ // In chemistry, **$H^+ = H_3O^+$** [**Also The Acidic Property**]

In the question, **$NH_4^+ + H_2O \rightarrow NH_3 + H_3O^+$** // Can be also written as **[$NH_4^+ \rightarrow NH_3 + H^+$]**

Actually, the **Conc. Of The Hydrogen Ion** can be increased → The pH value of the solution increase

錯題總結:

錯誤原因:	第二類錯誤: 題目理解錯誤	題目分數:	< 0 > / < 1 >

原題目:

20 cm^3 of 0.5 M nitric acid is added slowly into 10 cm^3 of 1.0 M potassium hydroxide solution. Which of the following statements is correct?

A. The concentration of nitrate ions in the mixture remains unchanged

B. The mixture does not conduct electricity at the end of the experiment

C. The pH value of the mixture decreases.

D. The temperature of the mixture decreases

錯誤答案 與 錯誤思路:	正確答案:
The Nitrate ions don't participate in the reaction →The Mol no. of the Nitrate ion don't change →The conc. is no change **NEVER AGAIN ! ! !**	**C. The pH value of the mixture decreases.**

知識點 與 正確思路:

Should look at all choices next time.

錯題總結:

The **Affecting Factors Of Conc**. [or molarity] are

- The Volume
- The No. of Mole

錯誤原因:	第二類錯誤: 題目理解錯誤	題目分數:	< 0 > / < 1 >

原題目:

Determinate which of the following reaction is/are impossible.

1. $CaO_{(s)} + Na_2SO_{4(aq)} \rightarrow CaSO_4 + 2NaOH$
2. $Fe_{(s)} + H_2SO_{4(aq)} \rightarrow Fe_2(SO_4)_3$
3. $Cu_{(s)} + HCl_{(l)} \rightarrow CuCl_2 + H_2$
4. $AgCl_{(s)} + NaNO_{3(aq)} \rightarrow NaCl + AgNO_3$

錯誤答案 與 錯誤思路:	正確答案:
2&3 are impossible. Another Are possible: " In order to prepare a soluble salt → (Solid) + (Aqueous)" " 1&4 are correct. "	1&2&3&4 are incorrect. "There is No Reaction between Bases and Salt." [Both 1 & 4]: →Actually, there is **No Mobile** ion can be released form solid →The mobile ion **CAN NOT** be **Exchanged** **→No new salt is formed → No reaction.**

知識點 與 正確思路:

To consider whether the equation is possible or not.It is necessary to:

- Think about does it **Suit The Theory Of Preparing Salt.**
- Think does it possible to have **Exchange Of The Mobile Ions**
- Think about the **Exchanges Of Electron**

錯題總結:

Always think about the **Exchange of the Mobile ion** is possible or not. → Also the **Exchange of the Electron**.

錯誤原因:	第二類錯誤: 題目理解錯誤	題目分數:	< 0 > / < 1 >

原題目:

What would happen when Mg ribbon is added to the Sodium Bisulphate solution?

A) A Gas is given off

B) A precipitate is formed.

C) The pH value of the solution decreases.

D) There is no reaction

錯誤答案 與 錯誤思路:	正確答案:
Sodium Bisulphate is a **kind of salt** →Mg won't loss the e^- to form mobile ion **→No futher reaction**	Since the **Sodium Bisulphate** is a kind of **Acidic Salt** **$NaHSO_{4(aq)} = Na^+ + HSO_4^- \rightarrow Na^+ + H^+ + SO_4^{2-}$** ' $2H^+ + Mg \rightarrow Mg^{2+} + H_2$ '

知識點 與 正確思路:

Acidic Salt is not stable enough.

The **Anion** of that salt **Tends to further broken down the H^+.**

That is the reason why the **Acidic Salt Solution** is Acidic.

錯題總結:

Acidic Salt would dissolve in water to form H^+

錯誤原因:	第二類錯誤: 題目理解錯誤	題目分數:	< 0 > / < 1 >

原題目:

Which of the following salts is soluble in water?

A) Sodium Nitrate

B) Lead(II) Sulphate

C) Magnesium Carbonate

D) Cesium hydroxide

錯誤答案 與 錯誤思路:	正確答案:
Both A&D are soluble → A&D	The def. of **Salt** ➞ **Can be obtained form the neutralization** Cesium hydroxide can not be obtained ➞ NO

知識點 與 正確思路:

Not all ionic compound are salt.

→The **Def. of the Salt** = the **Ionic Compound** can be obtained form the **Acid-Base Neutralization**

錯題總結:

Don't mix up with bases and salt

Questions after revising:

A) A white solid which dissolve in water to form an acidic solution. The solid can be:

a) $FeCl_2$

b) NH_4F

c) $Mg(HSO_4)_2$

d) Na_2SO_4

B) Which of the following salt can not be soluble in water?

a) Ammonium Nitrate

b) Barium Oxide

c) Silver Bisulphate

d) None of the above

C) According the following instruction:

Both statements are true and the 2nd statement is a correct explanation of the 1st statement
Both statements are true and the 2nd statement is NOT a correct explanation of the 1st statement.
The 1st statement is false but the 2nd statement is true.
Both statements are false.

1st: Iron(III)Chloride is not soluble in water

2nd : We can obtain Iron(III)Chloride by adding Iron to cold Hydrochloric acid solution

1st:The reaction between Sodium Carbonate & Calcium hydroxide, is the only way to obtain sodium hydroxide

2nd:Only Calcium hydroxide can be dissolve in water and react with the carbonate ion to form solid.

Remark:

- The Solubility of bases:

  Bicarbonate > Hydroxide > Oxide ~ Carbonate

- The pH Lv. of the same cation:

  Oxide > Hydroxide > Carbonate > Bicarbonate

- The Common name of the bases:

$NaHCO_3$	→	Baking Soda
Na_2CO_3	→	Washing Soda
NaOH	→	Caustic Soda
$Ca(OH)_2$	→	Slakelime
CaO	→	Quicklime