Careless Mistakes:

- Which of the following concentrations is **INCORRECT** if 10 g of sodium carbonate solid is dissolved in water to give a 500 cm^3 solution?
  Reminder: **Check the question again once we have get the "correct data"**
- 0.15mole of Na_2CO_3 have 0.45mole of ion [T | F]
  Reminder: **Do not only look at the suffix**
  | X | 0.15 * (2 + 3) = 0.75 mole of ion |
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Misconception:

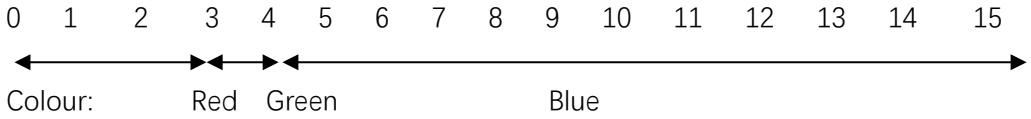
- What is the concentration of bromine in a 200 cm3 solution containing 1.598 g of bromine?
  Explain: Bromine solution is in simple molecular structure (Br_2)
- Which of the following solutions will have the lowest pH value?
  [1M of H_2SO_4] [2M of HCl] [2M of $HCOOCH_3$]
  Explain: Although A&B both are strong acid and have 2M of Hydrogen atom can be ionized in total. However,
  | HCl is stronger than H_2SO_4 , and able to ionize more hydrogen atom |
- pH Paper Contains **MORE THAN ONE INDICATOR**

Addition of $CuSO_4$ can lower the pH value of NaOH solution	It is because Copper(II) hydroxide is formed which is a blue insoluble solid.

Ans: B [Both 2 statements are correct. However, 2nd statement is not the correct explanation of the 1st statement]
Correct reason: The hydroxide ions are precipitated out to form a blue precipitate, $Cu(OH)_2$
| The original 2nd Statement need clarified the OH^- are precipitated out to form $Cu(OH)_2$.

Special Question:

- A sample of a certain concentrated acid has a density of 1.96 g cm 3 and contains 95.0% of the acid by mass. What is the concentration (correct to one decimal place) of the acid in the sample?
  - Relative molecular mass of the acid is 100-
  Mindset: Calculate with the unit.
- Which of the following elements burns in air to form an oxide that gives a solution with a pH value smaller than 7 when shaken with water?
  [Sulphur] & [Iron] & [Zinc] & [Hydrogen]
  Mindset: **pH value smaller → Acidic Substance Formed**
  |Ans: **A Sulphur burns to form sulphur dioxide which is acidic; while zinc oxide and oxides of iron do not dissolve in water. The oxide of hydrogen is water, which is neutral.**|
- The colour of indicator *X* in solutions of different pH values is shown below.



  Indicator X would be possible for distinguishing
  [aqueous solutions of sodium chloride and calcium hydroxide.]
  [aqueous solutions of hydrogen chloride and pure water.]
  [aqueous solutions of ammonia and sodium hydroxide]
  [pure water and limewater.]
  | Mindset: Find each of the solution's pH value Frist |
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Hard Question:

- Which of the following solutions, each at conc. of 1.0M, has the highest pH value?
  [HCl] [NaCl] [$Cu[NO_3]_2$] [$FeCl_3$]
  Mindset: **Highest pH value → OH^- is increased || H^+ is decreased || No Change**
  | ~~OH^- is increased~~ : No new OH^- formed | → | ~~H^+ is increased~~ : No acidic reaction|
  Analyze: NaCl nothing change → Dissolve in water → **All are mobile ion** → NO CHANGE
  $Cu[NO_3]_2$ → Cu^{2+} formed & OH^- in water → **Form solid $Cu(OH)_2$** → OH^- is decreased & pH decreased
  $FeCl_3$: are the same reason
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