

# CREST Science Olympiad (CSO) Worksheet *for*

**Class 7**



**Topic**

**Acids, Bases and Salts**

## Worksheet on Acids, Bases and Salts

- 1. A student wants to test the pH of different household substances using litmus paper. Which of the following substances would turn red litmus paper blue?**
  - a. Vinegar
  - b. Lemon juice
  - c. Soap solution
  - d. Orange juice
- 2. Consider the following statements and choose the correct option:**

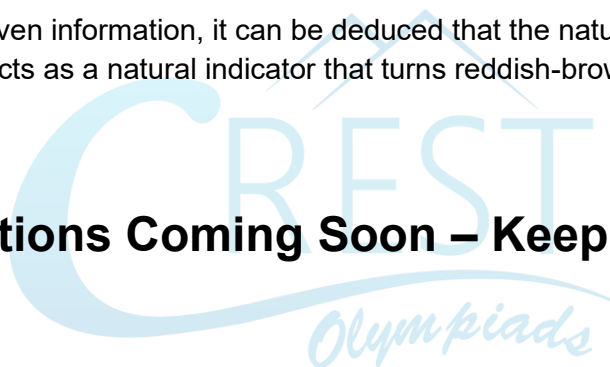
**Statement I: Sodium hydroxide is an example of a strong base.**  
**Statement II: Weak acids completely dissociate in water to produce hydrogen ions.**

  - a. Statement I is correct but Statement II is incorrect.
  - b. Statement II is correct but Statement I is incorrect.
  - c. Both statements are correct.
  - d. Both statements are incorrect.
- 3. What are the products of the neutralisation reaction between hydrochloric acid (HCl) and magnesium oxide (MgO)?**
  - a. Magnesium chloride ( $\text{MgCl}_2$ ) and water ( $\text{H}_2\text{O}$ )
  - b. Magnesium chloride ( $\text{MgCl}_2$ ) and hydrogen gas ( $\text{H}_2$ )
  - c. Magnesium hydroxide ( $\text{Mg}(\text{OH})_2$ ) and water ( $\text{H}_2\text{O}$ )
  - d. Magnesium hydroxide ( $\text{Mg}(\text{OH})_2$ ) and hydrogen gas ( $\text{H}_2$ )
- 4. Olivia wants to compare the neutralising abilities of different household substances. She plans to add each substance to a fixed volume of hydrochloric acid and measure the change in pH of the solution. Which range of pH values would indicate a complete neutralisation?**
  - a. pH 1-3
  - b. pH 4-6
  - c. pH 7-9
  - d. pH 10-12
- 5. In an experiment, a few drops of turmeric solution are added to a test tube containing a colourless liquid. The liquid turned reddish-brown. What can be deduced about the nature of the liquid?**
  - a. The liquid is acidic
  - b. The liquid is basic
  - c. The liquid is neutral
  - d. The liquid is a salt solution

## Answer Key

1. c - The substance that would turn red litmus paper blue is soap solution (option c). Soap is a base and bases turn red litmus paper blue. This is because bases have a higher pH value than acids and can neutralise the acidic nature of red litmus paper, causing it to change colour.
2. a - Statement I is correct but Statement II is incorrect. Sodium hydroxide is indeed an example of a strong base that dissociates completely in water to produce hydroxide ions. Weak acids do not completely dissociate in water to produce hydrogen ions.
3. b - The products of the neutralisation reaction between hydrochloric acid (HCl) and magnesium oxide (MgO) are magnesium chloride (MgCl<sub>2</sub>) and water (H<sub>2</sub>O). This is because the acid (HCl) reacts with the base (MgO) to form a salt (MgCl<sub>2</sub>) and water (H<sub>2</sub>O) as a result of the neutralisation process.
4. c - The range of pH values that would indicate a complete neutralisation is pH 7-9. A pH value within this range indicates a nearly equal concentration of hydrogen ions (H<sup>+</sup>) and hydroxide ions (OH<sup>-</sup>) in the solution, resulting in a neutral pH.
5. a - Based on the given information, it can be deduced that the nature of the liquid is acidic. Turmeric solution acts as a natural indicator that turns reddish-brown in the presence of an acidic substance.

**More Questions Coming Soon – Keep Learning!**





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