

## Chemistry Practical Class 11 Comparing the pH of solutions of strong and weak acids of the same concentration Viva Questions with Answers

**Q1.** What do you understand by the term pH?

**Answer:** pH measures the acidity or alkalinity of a solution. It is a standard used to estimate the concentration of hydrogen ion ( $H^+$ ) concentration. It is equivalent to the negative log of hydrogen ion ( $H^+$ ) concentration.

$$pH = -\log [H^+]$$

**Q2.** What do you understand by the term pOH?

**Answer:** pOH measures the acidity or alkalinity of a solution. It is a standard used to estimate the hydroxide ion ( $OH^-$ ) concentration. It is equivalent to the negative log of hydroxide ion ( $OH^-$ ) concentration.

$$pH = -\log [OH^-]$$

**Q3.** What does the pH of a solution signify?

**Answer:** A pH of solution signifies the concentration of hydrogen ion ( $H^+$ ) in moles per litre.

**Q4.** What is the pH of an acidic solution?

**Answer:** The pH of an acidic solution is less than 7.

**Q5.** What is the pH of an alkaline solution?

**Answer:** The pH of an alkaline solution is more than 7.

**Q6.** What is the pH of a neutral solution?

**Answer:** The pH of a neutral solution is equal to 7.

**Q7.** What is a universal indicator?

**Answer:** A universal indicator is a pH indicators mixture that gives distinct colours at distinct pH values of the entire scale.

**Q8.** What is the effect of dilution on the pH of an acidic solution?

**Answer:** pH of an acidic solution increases on dilution.

**Q9.** What is the effect of dilution on the pH of an alkaline solution?

**Answer:** pH of an alkaline solution decreases on dilution.

**Q10.** What happens to the pH of the solution if a little acid is added to the water?

**Answer:** When an acid is added to the water, the hydrogen ion concentration will increase. Thus, its pH would decrease.

**Q11.** Will the pH of 0.1 M acetic acid be the same as that of 0.1 M hydrochloric acid?

**Answer:** No, the pH of 0.1 M acetic acid will not be the same as that of 0.1 M hydrochloric acid. Acetic acid is a weak acid. It does not ionise completely, i.e. produces lesser hydrogen ions. Thereby its pH will be more.

**Q12.** What is an acid-base indicator?

**Answer:** An acid-base indicator is an organic compound that indicates the change in colour with the change in pH value.

Example: Phenolphthalein, Litmus paper, and Red Cabbage Juice.

**Q13.** Which of the following solutions has lower pH: 0.1 M hydrochloric acid or 0.1 M acetic acid?

**Answer:** The 0.1 M hydrochloric acid pH will be less than the 0.1 M acetic acid. Hydrochloric acid is a strong acid. It ionises completely and produces a large number of hydrogen ions. Thus its pH will be less.

**Q14.** What is the pH indicator chart?

**Answer:** The pH indicator chart is a standard that displays the colours over the entire pH range. It is used to assess the acidity or alkalinity of a solution.

**Q15.** What is the pOH of a solution if its pH is 1?

**Answer:** Given

$$\text{pH} = 1,$$

We know that sum of pH and pOH is equal to 14,

$$\text{pH} + \text{pOH} = 14$$

$$\text{pOH} = 14 - \text{pH}$$

$$\text{pOH} = 14 - 1$$

$$\text{pH} = 13.$$