

Chemistry Practical Class 10 To find the pH of the dilute hydrochloric acid, dilute NaOH solution, dilute ethanoic acid solution, lemon juice, water, and dilute sodium hydrogen carbonate solution samples using a pH paper or a universal indicator Viva Questions with Answers

Q1. What is the pH of a solution?

Answer: pH is the abbreviation of the potential of hydrogen ions. It is a scale used to determine the solution's hydrogen ion (H^+) concentration. It is equivalent to the negative log of hydrogen ion (H^+) concentration.

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

Q2. What is the significance of estimating the pH of the solution?

Answer: The pH of the solution is used to determine the acidity or basicity of a solution.

Q3. What is the pH of an acidic solution?

Answer: An acidic solution has a pH value of less than 7.

Q4. What is the pH of a basic solution?

Answer: A basic solution has a pH value of more than 7.

Q5. What is the pH of a neutral solution?

Answer: A neutral solution has a pH value equivalent to 7.

Q6. What is a pH scale?

Answer: pH scale is used to determine the solution's acidity or basicity. It has values ranging from 0 to 14. If the value is less than 7, the solution is acidic, while the solution will be basic if the value is more than 7. A neutral solution has a value equivalent to 7.

Q7. What is a pH paper?

Answer: A pH paper is a piece of paper used to determine the solution's acidity or basicity.

Q8. What is pH paper made of?

Answer: pH paper is made of wood cellulose.

Q9. What is the primary difference between pH paper and litmus paper?

Answer: The primary difference between a pH paper and a litmus paper is that litmus paper is used to determine the acidity or basicity of a solution. In contrast, a pH paper is used to estimate the pH value of the solution.

Q10. What is a universal indicator?

Answer: A universal indicator is a mixture of pH indicator solutions designed to estimate the pH of solutions over a broad spectrum of pH values.

Q11. Who was the first scientist to discover the concept of pH?

Answer: Soren Peder Lauritz Sorensen, a Danish chemist, was the first scientist to discover the concept of pH.

Q12. What is the effect of dilution on the pH of

- (a) An acidic solution
- (b) A basic solution

Answer: The effect of dilution on the pH of

- (a) pH of an acidic solution increases on dilution
- (b) pH of a basic solution decreases on dilution

Q13. We have two solutions with different pH values. Solution A has a pH value of 4, and solution B has a pH value of 2. Which solution is more acidic?

Answer: Lesser the pH, the more will be acidity. Solution B, whose pH value is equivalent to 2, will be more acidic.

Q14. What is the colour of the solution whose pH value equals 9?

Answer: If the pH value is nine, then the colour of the solution will be light blue.

To find the pH of the dilute Hydrochloric Acid Solution

Q15. What is the chemical formula of hydrochloric acid?

Answer: The chemical formula of hydrochloric acid is HCl.

Q16. What is a strong acid?

Answer: An acid that dissociates completely in an aqueous solution is called a strong acid.

Q17. Give examples of strong acids?

Answer: All mineral acids like sulphuric acid, nitric acid, and hydrochloric acid are strong acids.

Q18. What happens to the pH of the solution if a bit of acid is added to the water?

Answer: If a bit of acid is added to water, the pH of the solution will decrease.

Q19. The pH of the hydrochloric acid solution would be less than seven or more than seven.

Answer: The pH of the hydrochloric acid solution would be less than seven.

To find the pH of the dilute NaOH solution

Q20. What is the chemical name of NaOH?

Answer: The chemical name of NaOH is sodium hydroxide.

Q21. What is the common name of NaOH?

Answer: The common name of NaOH is caustic soda.

Q22. The pH of the NaOH solution would be less than seven or more than seven.

Answer: The pH of the NaOH solution would be more than seven.

Q23. What happens to the pH of the solution if a bit of base is added to the water?

Answer: If a bit of base is added to water, the pH of the solution will increase.

Q24. What is a strong base?

Answer: A base that dissociates completely in an aqueous solution is called a strong base.

Q25. Give examples of strong bases?

Answer: Sodium hydroxide, potassium hydroxide, and lithium hydroxide are a few examples of strong bases.

To find the pH of the dilute Ethanoic Acid solution

Q26. What is the chemical formula of ethanoic acid?

Answer: The chemical formula of ethanoic acid is CH_3COOH .

Q27. What is a weak acid?

Answer: An acid that does not dissociate completely in an aqueous solution is called a weak acid.

Q28. Give examples of weak acids?

Answer: Formic acid, acetic acid, benzoic acid, oxalic acid and hydrofluoric acid are a few examples of weak acids.

Q29. What happens to the pH of the solution if a bit of acid is added to the water?

Answer: If a bit of acid is added to water, the pH of the solution will decrease.

Q30. The pH of the ethanoic acid solution would be less than seven or more than seven.

Answer: The pH of the ethanoic acid solution would be less than seven.

To find the pH of the Lemon Juice

Q31. The pH of the lemon juice would be less than seven or more than seven.

Answer: The pH of the lemon juice would be less than seven.

Q32. Name the acid present in the lemon juice?

Answer: Ascorbic acid is present in lemon juice.

Q33. 10 ml. lemon juice is diluted with an equal volume of water. What effect is likely to be observed on the pH of the solution?

Answer: The pH of the diluted lemon juice would be more than that of pure lemon juice.

Q34. What could be the pH of lemon juice?

Answer: A lemon juice has a pH value of around 2 and 3.

Q35. What happens to the pH of the solution if a bit of lemon juice is added to the water?

Answer: If a bit of lemon juice is added to water, the pH of the solution will decrease.

To find the pH of the Water

Q36. What is the chemical formula of water?

Answer: The chemical formula of water is H_2O .

Q37. Is water an acid or a base?

Answer: Water is neither acidic nor basic but is a neutral solution.

Q38. What is the pH of pure water at $25^\circ C$?

Answer: The pH of pure water at $25^\circ C$ is equal to 7.

Q39. What happens to the pH of the solution if a bit of base is added to the water?

Answer: If a bit of base is added to water, the pH of the solution will increase.

Q40. What happens to the pH of the solution if a bit of acid is added to the water?

Answer: If a bit of acid is added to water, the pH of the solution will decrease.

Q41. What is the pH of distilled water?

Answer: Distilled water is a neutral solution. Thus its pH value is equal to 7.

To find the pH of the dilute Sodium Hydrogen Carbonate solution

Q42. What is the chemical formula of sodium hydrogen carbonate?

Answer: The chemical formula of ethanoic acid is NaHCO_3 .

Q43. What is the common name of sodium hydrogen carbonate?

Answer: The common name of sodium hydrogen carbonate is baking soda or bicarbonate of soda.

Q44. Is sodium hydrogen carbonate an acid or a base?

Answer: Sodium hydrogen carbonate is a salt of a strong base (Sodium Hydroxide) and a weak acid (Carbonic Acid). Thus sodium hydrogen carbonate on getting hydrolyse behaves as a basic solution.

Q45. The pH of the sodium hydrogen carbonate solution would be less than seven or more than seven.

Answer: The pH of the sodium hydrogen carbonate solution would be more than seven.