

b) Give the name of an indicator that can be used to detect the equivalence point.

12)a) What is a buffer?

b) What is the purpose of a buffer solution?

Answers : 1) It is a weak organic acid or base with different colors for its conjugate acid and base forms, 2) pink, 3)a) H_2SO_4 , b) NaOH , 4)a) OH^- , b) NH_4^+ , 5)a) $[\text{H}^+][\text{OH}^-] = 1.00 \times 10^{-14}$ (at 25°C), b) 1.00×10^{-14} , 6)a) 2.30, b) 11.7, c) 2.00×10^{-12} M, 7)a) 0.0625 M, b) 1.60×10^{-13} M, 8)a) $\frac{[\text{CH}_3\text{COOH}][\text{OH}^-]}{[\text{CH}_3\text{COO}^-]}$, b) 5.6×10^{-10} , 9) basic, any salt that comes from a combination of a strong base (NaOH) and a weak acid, (H_3PO_4) is basic, 10) 0.272 M, 11)a) less, b) any indicator that has a color change in the 5 to 6 pH range, e.g., Methyl red, 12)a) It is a solution of a weak acid and a relatively large amount of a salt of that acid., b) It resists changes in the pH of the solution when small amounts of an acid or a base are added.