**أسئلة متنوعة**

**Q/ Calculate PI for the titration of 50 mL of 0.1 M CaI2 with 0.1 M AgNO3 after Addition of 0, 60, 100 and 110 mL .Ksp (AgI) = 8.3×10-17.**

***Solution:-***

**CaI2 → Ca+2  + 2I-**

**0.1 0 0**

**0 0.1 (0.1× 2)**

**= 0.2 M**

**At 0 mL:-**

**At 60 mL:-**

**At 100 mL: - [ Eq. Poi.]**

**K. S. P**

**8.3×10-17**

**= 0.91 ×10-4 M**

**0.91 ×10-4**

**= 7.04**

**At 110 mL: - After [Eq. Poi.]**

**= 6.25 ×10-3 M**

**=**

**= 1.33 ×10-14 M**

**1.33 ×10-14**

**= 13.9**

**Q/ A weak acid solution with a total concentration (CHA = 0.1 M, Ka= 1× 10-5). Calculate the Equilibrium concentration of species [HA] and [A-], Note that the pH =5 for this solution.**

***Solution:-***

**] = 10-pH = 10-5**

**α0 = = = 0.5**

**[HA]= α0 × C HA = 0.5 × 0.1**

**= 0.05 M**

**α1 = = = 0.5**

**[A-]= α1 × C HA = 0.5 × 0.1**

**= 0.05 M**

**Q/Calculate the molar solubility of silver bromide AgBr in water and in 0.2 M Ammonium solution. = 5×10-13 , ,. Also calculate the equilibrium concentration of [Ag+(NH3)] and [Ag+(NH3)2].**

***Solution:-***

**SH2O  K. S. P 5 ×10-13**

**= 7.07 ×10-7 M**

**𝛃0 =**

**= 9.99**

**KSP = [Ag+] [Br-] = [Ag+] x 𝛃0 x CAg**

**S = = = 7.07 M**

**[Ag(NH3)+] = β1**

**β1 = = = 4.99**

**∴ [Ag(NH3)+] = β1 = 4.99 7.07**

**= 3.50 M**

**[Ag (NH3)2+]= β2**

**Β2 = = = 0.999**

**∴ [Ag (NH3)2+] = 0.999 7.07**

**= 7.066 M**

**Q/ Calculate the pH in the titration of 50mL of 0.1M acetic Acid (Ka=1.75×10-5) with 10, 50, and 60 mL of 0.10M NaOH?**

***Solution:-***

1. **At 10 mL titrant (0.1M NaOH):** before equivalence point
2. **At 50mL titrant (0.1M NaOH):** [**Equivalence Point**]

**All NaOH reacted with all HOAC and converted it to its salt sodium acetate.**

1. **At 60mL titrant (0.1M NaOH): after equivalence point (NaOH solution alone)**

**Q/ Calculate the mass of Drugs (in mg) for a 100 ppm solution if the weight of solution is (50 gm).**

***Solution:-***

**∴ Wt. of Drugs (gm.) = 0.005 gm**

**Wt. of Drugs (mg.) = 0.005 1000 = 5 mg**