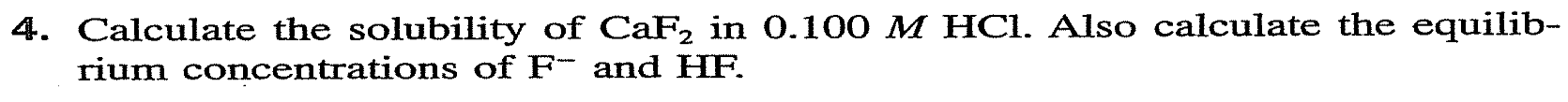
**السؤال الرابع Q4 صفحة 13**



**احسسب الذوبانية للملح CaF2 (شحيح الذوبان) في محلول محمض بحامض HCl بتركيز 0.1 M . كذلك احسب تراكيز الاصناف**

**[F-], [HF] في حالة التوازن.**

**Ksp(CaF2( = 3.9×10-11 , Ka (HF) = 6.8×10-4 ,**

**CaF2 ↔ [Ca+2] + 2[F-], Ksp(CaF2 = ([Ca+2] [F-] [F-] = [Ca+2] [F-]2**

**HCl → H+ + Cl- , H+ + F- ↔ HF , CHF = [HF] + [F-]**

**Ksp(CaF2 (= [Ca+2] [F-]2 [F-]=α1 CHF**

**Ksp(CaF2 (= [Ca+2] [α1 CHF ]2 , Ksp(CaF2 (= [Ca+2] [α12 C2HF ] ,**

**[Ca+2] [C2HF ] , CHF = 2S S = solubility , [Ca+2] = S**

**[S] [2S]2 → 4S3 ,**

**α1= =**

**8.559 × 10-7 , [S] [2S]2 → 4S3**

**S, S=**

**CHF = 2S = 5.98 ×10-3 × 2 = 0.01196 M**

**[F-]eq.= α1 CHF = 6.75 ×10-3 × 0.01196 = 8.073 ×10-5 M**

**[HF]eq.= CHF - [F-] = 0.01196 - 8.073 ×10-5 = 1.1879 ×10-2 M ,**

**OR**

**[HF]eq. = α0 CHF = (1-α1 ) CHF = (1- 6.75 ×10-3) × 0.01196 = 1.1879 ×10-2 M**