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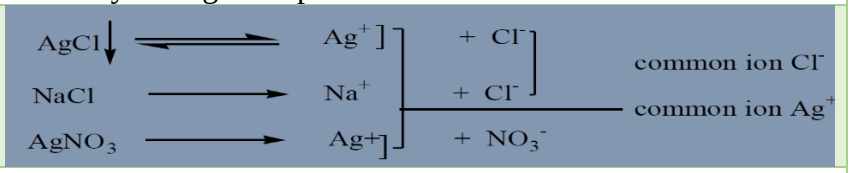
ملخص المحاضرة الأولى (الجزء الثاني)

QUESTION	ANSWER
Ex.3	**Calculate the Ksp of Pb3(PO4)2 if the solubility equals 0.00014 g/L. (811.7 is M. W.)** **a.** Molar solubility = Solubility/M. Wt. 0.00014/811.7 = 1.7x10-7 g. mol/L **b.** If we consider we have **A** mol/L. Pb3(PO4)2 ⇄ 3Pb+2 **+** 2PO4-3 (لازم نوزن المعادلة) **A** mole ⇄ **3A** **+** **2A** KSP of Pb3(PO4)2 = [3A]3 [2A]2 = [3(1.7x10-7)]3 [2(1.7x10-7)]2 = 1.5 x 10-32
Factors affecting solubility?	**1.** Effect of a common ion **2.** Effect of diverse ions **3.** Effect of temperature **4.** Effect of complex formation **5.** Effect of solvent **6.** Effect of the pH
Effect of a common ion according to.....	Le Chatelier's principle
What is the effect of a common ion in the solubility?	Causes a **depression** of solubility, enhancing precipitation. **In some cases**, the presence of common ions in large excess can **increase** solubility through complex formation.
Example of the effect?	
What is meaning of (A diverse ion)?	An ion that is not common to the precipitate ions.

PART TWO OF THE LECTURE

What happen when diverse ions are present in the solution?	Many precipitates show **increased** solubility.
What is the theory of interionic attraction?	the presence of the diverse ion stabilizes the precipitate ions in their ionic.
How does the temperature do in the solubility?	The solubility of most inorganic salts slightly increases with increasing temperature.
What happen when we add more than 10.0% excess of precipitant?	precipitant may tend to redissolve in a large excess of reagent, forming a complex ion. + large excess may be undesirable. So, the supernatant liquid or the filtrate **should be tested** for completeness of precipitation.
Which of them is soluble in NH3? (AgCl/ AgBr/ AgI)	✓ **AgCl** is soluble. ✓ **AgBr** is slightly soluble. ✓ **AgI** is insoluble, it is soluble in **KCN**.
Which of them is more soluble in water?(Inorganic salts / organic solvents)	Most inorganic salts are more soluble in water than in organic solvents.
What are organic solvents used for? And why?	to separate two substances that are quite soluble in water. Because it has a low solubility.
What is fractional precipitation?	type of successive precipitation using the same precipitating agent.

Summarize the effect of the factors.

Common ion	diverse ion	temperature	complex formation	Solvent
solubility ↓	solubility ↑	solubility ↑	solubility ↑	solubility ↓ (unlike) Solubility ↑ (like)

PART TWO OF THE LECTURE