

2 Write a net ionic equation (balanced, all charges, subscripts, arrow(s) correct, correct order etc.) for the *crystallization* of calcium dichromate. (2 marks)

$$\text{Ca}^{2+}(\text{aq}) + \text{Cr}_2\text{O}_7^{2-}(\text{aq}) \rightarrow \text{CaCr}_2\text{O}_7(\text{s})$$

8 Write a net ionic equation (balanced, all charges, subscripts, arrow(s) correct, correct order etc.) for *dissolving* ammonium oxalate. (2 marks)

$$(\text{NH}_4)_2\text{C}_2\text{O}_4(\text{s}) \rightarrow 2\text{NH}_4^+(\text{aq}) + \text{C}_2\text{O}_4^{2-}(\text{aq})$$

9 Write a net ionic equation (balanced, all charges, subscripts, arrow(s) correct, correct order etc.) for the *precipitation* of magnesium sulphate. (2 marks)

$$\text{Mg}^{2+}(\text{aq}) + \text{SO}_4^{2-}(\text{aq}) \rightarrow \text{MgSO}_4(\text{s})$$

10 Write a net ionic equation (balanced, all charges, subscripts, arrow(s) correct, correct order etc.) for the *equilibrium present in a saturated solution* of calcium oxalate. (2 marks)

$$\text{CaC}_2\text{O}_4(\text{s}) \rightleftharpoons \text{Ca}^{2+}(\text{aq}) + \text{C}_2\text{O}_4^{2-}(\text{aq})$$

11. Calcium fluoride has a solubility of 6.87 grams/L at a certain temperature. Express this solubility in moles per Litre. (2 marks) (Show all work. Include units in your answer. Use correct # of S.D.'s)

$$\frac{6.87 \text{ g}}{\text{L}} \times \frac{1 \text{ mol}}{78.1 \text{ g}} = 0.0880 \text{ mol/L} \quad (8.80 \times 10^{-2} \text{ mol/L})$$

Answer 0.0880 mol/L

12. The molar solubility of Ag_2CO_3 at a certain temperature is 8.3×10^{-5} M. Express this solubility in grams per Litre. (2 marks) (Show all work. Include units in your answer. Use correct # of S.D.'s)

$$8.3 \times 10^{-5} \frac{\text{mol}}{\text{L}} \times \frac{275.8 \text{ g}}{1 \text{ mol}} = 0.023 \text{ g/L} \quad (2.3 \times 10^{-2} \text{ g/L})$$

Answer 0.023 g/L

13. 0.0021 grams of MgCO_3 will dissolve in 1.0 L of water at a certain temperature. Express this solubility in grams/100 mL of water. (2 marks) (Show all work. Include units in your answer. Use correct # of S.D.'s)

$$\frac{14}{14}$$

Answer 0.00021 g/100 mL H₂O
($2.1 \times 10^{-4} \text{ g/100 mL H}_2\text{O}$)