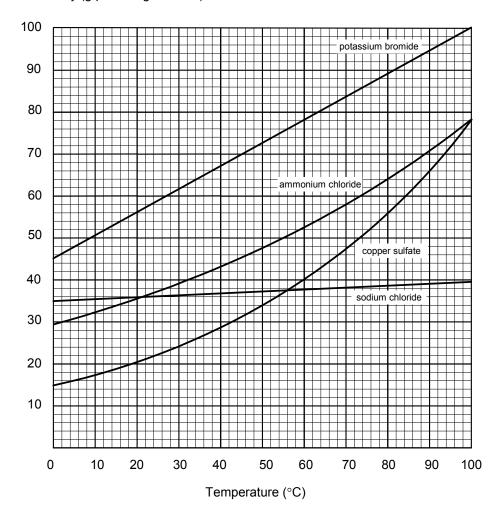
## SOLUBILITY CURVES 3

Use the solubility curves below to answer the following questions.

Solubility (g per 100 g of water)



- 1) a) Which substance is the most soluble at 20°C?
  - b) Which substance is the <u>least</u> soluble at 70°C?

- 2) a) What is a saturated solution?
  - b) Explain why crystals form as a saturated solution is cooled down.
- 3) a) What mass of copper sulfate dissolves in 100 g of water at 90°C?
  - b) What mass of copper sulfate dissolves in 100 g of water at 30°C?
  - c) What mass of copper sulfate will crystallise out of solution if a saturated solution of copper sulphate in 100 g of water was cooled from 90°C to 30°C?
- 4) At what temperature is the solubility of copper sulfate the same as sodium chloride?
- 5) a) What mass of copper sulfate dissolves in 100 g of water at 50°C?
  - b) What is the mass of this solution?
- 6) At what temperature will 60 grams of copper sulphate just dissolve in 100 g of water?
- 7) a) What mass of potassium bromide dissolves in 100 g of water at 60°C?
  - b) What mass of potassium bromide dissolves in 100 g of water at 20°C?
  - c) What mass of potassium bromide will crystallise out of solution if a saturated solution of potassium bromide in 100 g of water was cooled from 60°C to 20°C?
  - d) Why does some potassium bromide crystallise out as the solution cools?
- 8) a) i) If 80 g of potassium bromide was added to 100 g of water at 20°C, how much of it will dissolve?
  - ii) If the mixture was heated to 90°C, how much more would dissolve?
  - b) If 10 g of potassium bromide was added to a saturated solution of potassium bromide in 100 g of water at 60°C, how much of it would dissolve?
- 9) a) What mass of ammonium chloride would dissolve in 1 kg of water at 20°C?
  - b) What mass of sodium chloride would dissolve in 20 g of water at 80°C?
  - c) i) What mass of ammonium chloride dissolves in 500 g of water at 50°C?
    - ii) What is the mass of this solution?
  - d) At what temperature will 7 g of potassium bromide just dissolve in 10 g of water?
  - e) What mass of ammonium chloride would crystallise out if a saturated solution of ammonium chloride in 50 g of water was cooled from 70°C to 20°C?