Key Questions

Amount of solute that dissolves in 100g (100mL) of H_2O by Temp. 1. What information is provided by the data in Table 1?

↑T ↑solubility 2. What is the relationship between temperature and solubility for this solute?

Solid 3. Is this a solid or gaseous solute? (Gases decrease in solubility - low particle can escape w/ extra energy)

It will dissolve 4. What will happen to this solute when 12g is added to 100.g of water at 20°C?

Unsaturated 5. What type of solution is obtained when 12g of this solute is added to 100.g of water at 20 °C (unsaturated, saturated, or supersaturated)?

≈37 grams 6. At 20 °C, what is the maximum amount of this solute that can be dissolved in 100.g of water?

Saturated 7. What type of solution is obtained when the maximum amount of a solute is dissolved in water (unsaturated, saturated, or supersaturated)?

It will sit on the bottom + not dissolve 8. At 20 °C, 50.g of this solute is added to 100.g of water. What will happen to the extra solute? 50.0 - 37 = 13g on bottom of the beaker

Saturated 9. What type of solution is obtained under the conditions in Question #7 (unsaturated, saturated, or supersaturated)?

52 grams 10. A solution is made by dissolving 60.g of this solute in 100.g of water at 80°C. This solution is allowed to cool to 50°C and all of the 60.g of solute remains dissolved in the solution. At 50°C, what is the maximum amount of this solute that can be dissolved in 100.g of water?

52 grams is max at 50°C but it has dissolved 60g ⇒ Supersaturated by 8 grams

Supersaturated 11. What type of solution is obtained under the conditions in Question #9 (unsaturated, saturated, or supersaturated)?

Supersaturated 12. Rock candy is made by dissolving large amounts of sugar in water at very high temperatures. The candy solution is then allowed to cool. What type of solution is rock candy (unsaturated, saturated, or supersaturated)?

62g 13. How many grams of this solute can be dissolve in **100 g** of water at 70 °C?

2x the H_2O

3x62 = 124g 14. How many grams of this solute can be dissolve in **200 g** of water at 70 °C?

3x the H_2O

15. How many grams of this solute can be dissolve in **300 g** of water at 70 °C?

3x62g = 186g