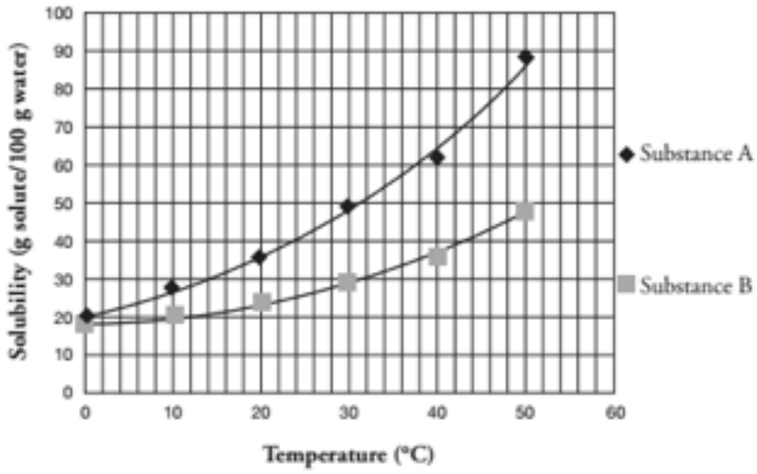
Question 1: Solubility Review



12. According to the graph in Model 2, what is the solubility of Substance A at 30 °C?

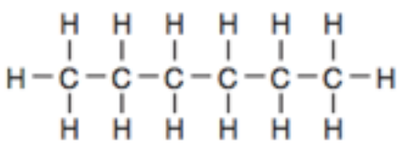
13. Describe the trend in solubility for Substances A and B in Model 2 as temperature increases.

14. If a saturated solution of Substance A in 100.0 g of water is cooled from 30 °C to 10 °C, what mass of solid solute would crystallize out? Show your work.

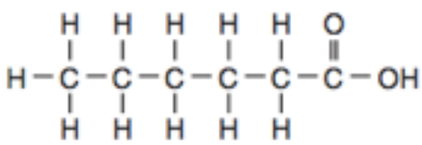
15. If a saturated solution of Substance B in 50.0 g of water at 30 °C is warmed to 50 °C, what mass of solute would need to be added to make the solution saturated again?

Question 2: Organic Chemistry Review

The formulas for two compounds are shown below.



Compound A



Compound B

60 Explain, in terms of bonding, why compound *A* is saturated. [1]

61 Explain, in terms of molecular structure, why the chemical properties of compound *A* are different from the chemical properties of compound *B*. [1]

62. Write the name, condensed formula, and chemical formula for compound A.

63. What is the class of compound B?

Question 3: Acid Base Review

1. $NaOH(s) + H_2O(l) \rightarrow Na^+(aq) + OH^-(aq)$
2. $HCl(aq) + H_2O(l) \rightarrow H_3O^+(aq) + Cl^-(aq)$
3. $NH_3(g) + H_2O(l) \rightarrow NH_4^+(aq) + OH^-(aq)$
4. $H_2CO_3(g) + H_2O(l) \rightarrow H_3O^+(aq) + HCO_3^-(aq)$
5. $HCl(aq) + NH_3(aq) \rightarrow NH_4^+(aq) + Cl^-(aq)$

Key Questions

1. In equation 1, is NaOH(s) an acid or a base? Explain.

2. In equation 2, is HCl(aq) an acid or a base? Explain.

3. In equation 3, is $NH_3(g)$ an acid or a base? Explain.

4. In equation 3, is $H_2O(l)$ and acid or a base? Explain.

5. In equation 4, is $H_2O(l)$ and acid or a base? Explain.

6. Is $H_2CO_3(g)$ in equation 4 an acid or a base? Explain.

Closing Conversation: Fill in the boxes below with things that you need to know about solubility, organic chemistry, and acid base chemistry.

Solubility	Organic Chemistry	Acid Base Chemistry