

Name: \_\_\_\_\_

Teacher: Ms. Campbell

## Review Solutions and Solubility

1. According to Reference Table *F*, which of these salts is *least* soluble in water?

1. LiCl
2. RbCl
3. FeCl<sub>2</sub>
4. PbCl<sub>2</sub>

2. A saturated solution of NaNO<sub>3</sub> is prepared at 60°C using 100. grams of water. As this solution is cooled to 10°C, NaNO<sub>3</sub> precipitates (settles) out of the solution. The resulting solution is saturated. Approximately how many grams of NaNO<sub>3</sub> settled out of the original solution?

1. 46 g
2. 61 g
3. 85 g
4. 126 g

3. According to Reference Table *G*, how many grams of KNO<sub>3</sub> would be needed to saturate 200 grams of water at 70°C?

1. 43 g
2. 86 g
3. 134 g
4. 268 g

4. How many grams of NaNO<sub>3</sub> would have to be added to 100. grams of water at 45°C to make a saturated solution of this salt?

1. 100.
2. 110.
3. 120.
4. 130.

5. According to Reference Table *G*, which compound's solubility decreases most rapidly when the temperature increases from 50°C to 70° C?

1. NH<sub>3</sub>
2. HCl
3. SO<sub>2</sub>
4. KNO<sub>3</sub>

6. An unsaturated aqueous solution of NH<sub>3</sub> is at 90°C in 100 grams of water. According to Reference Table *G*, how many grams of NH<sub>3</sub> could this unsaturated solution contain?

1. 5 g
2. 10. g
3. 15 g
4. 20. g

7. Based on Reference Table *G*, which salt solution could contain 42 grams of solute per 100 grams of water at 40°C?

1. a saturated solution of KClO<sub>3</sub>
2. a saturated solution of KCl
3. an unsaturated solution of NaCl
4. an unsaturated solution of NH<sub>4</sub>Cl

8. What is the total mass of KNO<sub>3</sub> that must be dissolved in 50. grams of H<sub>2</sub>O at 60.°C to make a saturated solution?

1. 32 g
2. 53 g
3. 64 g
4. 106 g

9. Which of the following compounds is *least* soluble in water?

1. copper (II) chloride
2. aluminum acetate
3. iron (III) hydroxide
4. potassium sulfate

10. According to Reference Table *G*, which of these substances is most soluble at 60°C?

1. NaCl
2. KCl
3. KClO<sub>3</sub>
4. NH<sub>4</sub>Cl

11. According to Reference Table *G*, which solution is saturated at 30°C?

1. 12 grams of KClO<sub>3</sub> in 100 grams of water
2. 12 grams of KClO<sub>3</sub> in 200 grams of water
3. 30 grams of NaCl in 100 grams of water
4. 30 grams of NaCl in 200 grams of water

12. What is the mass of NH<sub>4</sub>Cl that must dissolve in 200 grams of water at 50.°C to make a saturated solution?

1. 26 g
2. 42 g
3. 84 g
4. 104 g

13. Based on Reference Table *F*, which of these saturated solutions has the *lowest* concentration of dissolved ions?

1.  $\text{NaCl}(aq)$
2.  $\text{MgCl}_2(aq)$
3.  $\text{NiCl}_2(aq)$
4.  $\text{AgCl}(aq)$

14. A 1-gram sample of a compound is added to 100 grams of  $\text{H}_2\text{O}(\ell)$  and the resulting mixture is then thoroughly stirred. Some of the compound is then separated from the mixture by filtration. Based on Table *F*, the compound could be

1.  $\text{AgCl}$
2.  $\text{CaCl}_2$
3.  $\text{NaCl}$
4.  $\text{NiCl}_2$

15. Which compound is insoluble in water?

1.  $\text{KOH}$
2.  $\text{NH}_4\text{Cl}$
3.  $\text{Na}_3\text{PO}_4$
4.  $\text{PbSO}_4$

16. Based on Table *G*, what is the approximate mass of  $\text{NH}_3$  that must be dissolved in 200 grams of water to produce a saturated solution at  $20.^\circ\text{C}$ ?

1. 28 g
2. 56 g
3. 100 g
4. 112 g

17. Which compound is *least* soluble in water at  $60.^\circ\text{C}$ ?

1.  $\text{KClO}_3$
2.  $\text{KNO}_3$
3.  $\text{NaCl}$
4.  $\text{NH}_4\text{Cl}$

18. Which barium salt is *insoluble* in water?

1.  $\text{BaCO}_3$
2.  $\text{BaCl}_2$
3.  $\text{Ba}(\text{ClO}_4)_2$
4.  $\text{Ba}(\text{NO}_3)_2$

19. An unsaturated solution is formed when 80. grams of a salt is dissolved in 100. grams of water at  $40.^\circ\text{C}$ .

This salt could be

1.  $\text{KCl}$
2.  $\text{KNO}_3$
3.  $\text{NaCl}$
4.  $\text{NaNO}_3$

20. Which compound is insoluble in water?

1.  $\text{BaSO}_4$
2.  $\text{CaCrO}_4$
3.  $\text{KClO}_3$
4.  $\text{Na}_2\text{S}$

**Answer Key for Review Solutions and Solubility**

1. 4	8. 2	15. 4
2. 1	9. 3	16. 4
3. 4	10. 4	17. 1
4. 2	11. 1	18. 1
5. 1	12. 4	19. 4
6. 1	13. 4	20. 1
7. 4	14. 1	