Name: _____

1) Based on the *Solubility Curves* chemistry reference table, which salt solution could contain 42 grams of solute per 100 grams of water at 40°C?

A) an unsaturated solution of NH_4Cl C) an unsaturated solution of $NaCl$

B) a saturated solution of $KClO_3$ D) a saturated solution of KCl

2) A solution containing 90. grams of KNO_3 per 100. grams of H_2O at 50.°C is considered to be

A) concentrated and supersaturated   C) dilute and supersaturated

B) concentrated and unsaturated   D) dilute and unsaturated

3) A solution containing 55 grams of NH_4Cl in 100. grams of water is saturated at a temperature of

A) 67°C   B) 77°C   C) 57°C   D) 47°C

4) What is the total number of grams of potassium chloride needed to saturate exactly 300 grams of water at 10°C?

A) 80 g   B) 60 g   C) 90 g   D) 70 g

5) According to the *Solubility Curves* chemistry reference table, approximately how many grams of $KClO_3$ are needed to saturate 100 grams of H_2O at 40°C?

A) 38 g   B) 47 g   C) 16 g   D) 6 g

6) According to the *Solubility Curves* chemistry reference table, what is the maximum number of grams of NH_4Cl that will dissolve in 200 grams of water at 70°C?

A) 62 g   B) 124 g   C) 100 g   D) 85 g

7) A solution contains 14 grams of KCl in 100. grams of water at 40.°C. What is the minimum amount of KCl that must be added to make this a saturated solution?

A) 44 g   B) 14 g   C) 19 g   D) 25 g

8) At 10°C, 23 grams of a substance saturates 100. grams of water. The substance could be

A) KNO_3 B) $NaNO_3$ C) KCl D) NH_4Cl

9) A solution contains 90 grams of a salt dissolved in 100 grams of water at 10°C. The solution could be an unsaturated solution of

A) $NaCl$ B) KNO_3 C) KI D) KCl

10) According to the *Solubility Guidelines* chemistry reference table, which of these compounds is the *least* soluble in water?

A) $Ca_3(PO_4)_2$ B) $Ca(NO_3)_2$ C) $KC_2H_3O_2$ D) K_2CO_3

11) Which ion, when combined with chloride ions, Cl^-, forms an insoluble substance in water?

A) Pb^{2+} B) Zn^{2+} C) Fe^{2+} D) Mg^{2+}

ANSWERS:
1. A (check each of the answer choices on Table G)

2. A (Find conditions listed on Table G and determine type of solution)

3. C (using Table G - determine the temperature at which 55 g is ON the NH4Cl line)

4. C (Find the amount of KCl needed to saturated 100 g of water at indicated temperature on table G. Then multiply by 3 since there is 300 g water)

5. C (Using Table G find the mass of solute that hits the KClO3 line at 40 degrees)

6. B (Find the amount of NH4Cl needed to saturated 100 g of water at indicated temperature on table G. Then multiply by 2 since there is 200 g water)

7. D (Find the amount of KCl needed to saturate 100 g of water at the indicated temperature on Table G - then subtract the 14 g already dissolved to determine the additional amount needed)

8. A (Find the line that has a point at the indicated mass of solute and temperature).

9. C (Identify the amount of each solute needed to saturate 100 g of water at 10 degrees. If the amount is greater than 90 grams of solute then the solution indicated in the problem is unsaturated)

10. A (Use Table F to determine which is insoluble)

11. A (Use Table F - most chlorides are soluble so check the exceptions and find the ion listed that would make the compound insoluble)