Name:_____

Exercise : 6-A Solubility Curves

Use the Solubility Curves handout to solve the following problems. be accurate.

1. How many grams of solute are needed to saturate 100 g of water at 80 oC for each of the following solutions ?

a) $K_2Cr_2O_7$ _____ b) $CuSO_4$ _____

c) KNO_3 _____ d) KCl _____

e) NaCl _____

2. The quantity of solute (per 100 g of water) used in making some solutions is listed below. Is each solution saturated, unsaturated, supersaturated ?

a) 20 g $AgNO_3$ at 20 °C _____

b) 103 g $NaNO_3$ at 60 °C _____

c) 103 g KNO_3 at 60 °C _____

d) 40 g KCl at 40 °C _____

e) 25 g $KClO_3$ at 31 °C _____

3. How many additional grams of $NaNO_3$ are needed to keep each of the following $NaNO_3$ solutions saturated during the temperature changes indicated ? Please show your work.

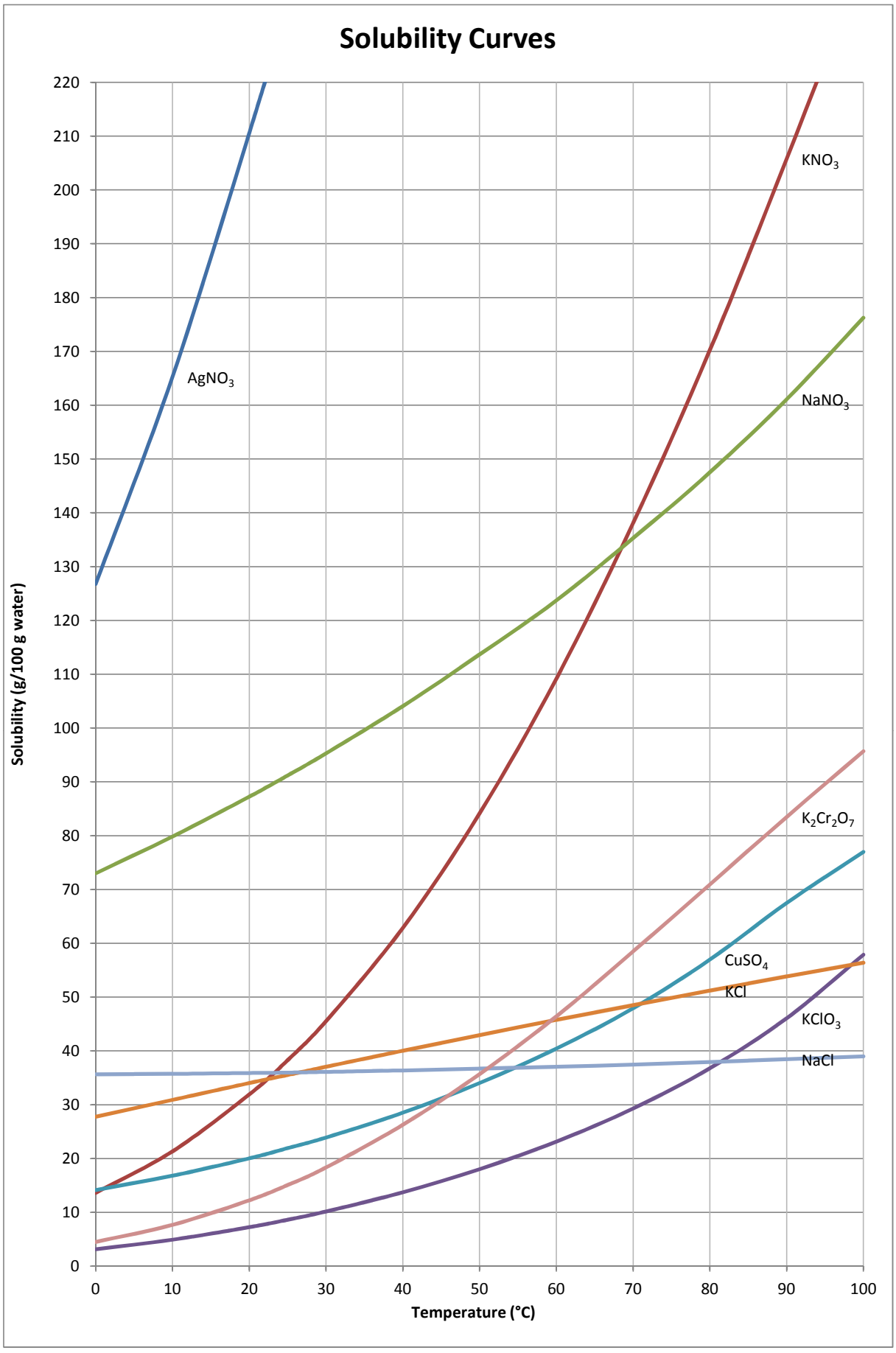
1	Temperature Change	Grams Solute needed for Saturation at Temps.		Extra Solute Needed
2	10 C to 30 C			
3	40 C to 90 C			
4	20 C to 60 C			
5	50 C to 80 C			
6	70 C to 100 C			

4. How many grams of KNO_3 (per 100 g) of water would be crystallized from a saturated solution as the temperature drops from...

1	Temperature Change	Grams Solute needed for Saturation at Temps.		Solute that Would Crystallize
2	100 C to 70 C			
3	50 C to 40 C			
4	80 C to 0 C			
5	60 C to 30 C			
6	90 C to 10 C			

5. At what temperature, and at what solubility, are the following solutes equally soluble water ?

	Temperature	Solubility
a) $NaNO_3$ and KNO_3	_____	_____
b) KNO_3 and NaCl	_____	_____
c) NaCl and KCl	_____	_____
d) $CuSO_4$ and $KClO_3$	_____	_____
e) $K_2Cr_2O_7$ and NaCl	_____	_____


Solubility Curves
Solubility (g/100 g water)
Temperature (°C)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
AgNO3
KNO3
NaNO3
K2Cr2O7
CuSO4
KCl
KClO3
NaCl