

Solutions Hand-In Assignment

1. Why don't oil and vinegar mix? You should discuss this in terms of what happens at a molecular level. (2 points)
2. How many grams of KNO_3 will dissolve in 100g of water at:
 - (a) 10 C? (1 point)
 - (b) 25 C? (1 point)
 - (c) 65 C? (1 point)
3. At what temperature will 20g of KClO_3 dissolve in 70g of water to form a saturated solution? (2 points)
4. How many grams of solute will settle out if 150 mL of saturated solution of NaNO_3 at 60°C is allowed to cool to 10°C ? (3 points)
5. How can you make a supersaturated solution from a saturated solution? (2 point)
6. Explain how you would make 450 mL of a 0.25 mol/L calcium chloride solution. (3 points)
7. What is the concentration (mol/L) of a solution in which 0.45 grams of sodium nitrate are dissolved in 265 mL of water? (2 points)
8. 100 mL of a 2.4 mol/L KCl solution is added to 75 mL of a 5.0 mol/L KCL solution. What is the new concentration? (3 points)
9. Explain why the following experimental procedure is incorrect.
To make 1.00 L of a 1.00 mol/L NaCl solution, I will dissolve 58.5 grams of sodium chloride in 1.00 L of water.
(2 points)
10. Why does increasing the solute concentration decrease the melting point? (3 points)