

Chemistry  
Show ALL WORK on ALL 14 questions

1. Determine the molality of a solution of 560 g of acetone,  $\text{CH}_3\text{COCH}_3$ , in 620 g of water.
2. What is the molality of a solution of 12.9 g of fructose,  $\text{C}_6\text{H}_{12}\text{O}_6$ , in 31.0 g of water?
3. How many moles of 2-butanol,  $\text{CH}_3\text{CHOHCH}_2\text{CH}_3$ , must be dissolved in 125 g of ethanol in order to produce a 12.0 m 2-butanol solution? What mass of 2-butanol is this?

1. Determine the molarity of a solution prepared by dissolving 141.6 g of citric acid,  $\text{C}_3\text{H}_5\text{O}(\text{COOH})_3$ , in water and then diluting the resulting solution to 3500.0 mL.
2. What is the molarity of a salt solution made by dissolving 280.0 mg of NaCl in 2.00 mL of water? Assume the final volume is the same as the volume of the water.
3. What is the molarity of a solution that contains 390.0 g of acetic acid,  $\text{CH}_3\text{COOH}$ , dissolved in enough acetone to make 1000.0 mL of solution?

5. What mass of anhydrous cobalt(II) chloride would be needed in order to make 650.00 mL of a 4.00 M cobalt(II) chloride solution?
6. A student wants to make a 0.150 M aqueous solution of silver nitrate,  $\text{AgNO}_3$  and has a bottle containing 11.27 g of silver nitrate. What should be the final volume of the solution?
7. What mass of urea,  $\text{NH}_2\text{CONH}_2$ , must be dissolved in 2250 g of water in order to prepare a 1.50 m solution?
8. What mass of barium nitrate is dissolved in 21.29 mL of a 3.38 M solution?