Name_____

Concentration Problems

____ 1. What is the molarity of 1.5 liters of an aqueous solution that contains 52 grams of lithium fluoride, LiF, (gram-formula mass = 26 grams/mole)?

A) 1.3 M B) 2.0 M
C) 3.0 M D) 0.75 M

____ 2. How many total moles of KNO_3 must be dissolved in water to make 1.5 liters of a 2.0 M solution?

A) 0.50 mol B) 2.0 mol
C) 3.0 mol D) 1.3 mol

____ 3. What is the total number of moles of NaCl(s) needed to make 3.0 liters of a 2.0 M NaCl solution?

A) 6.0 mol B) 8.0 mol
C) 1.0 mol D) 0.70 mol

____ 4. What is the molarity of a solution containing 20 grams of NaOH in 500 milliliters of solution?

A) 1 M B) 2 M
C) 0.04 M D) 0.5 M

____ 5. What is the molarity of a solution of NaOH if 2 liters of the solution contains 4 moles of NaOH?

A) 0.5 M B) 2 M C) 8 M D) 80 M

____ 6. How many moles of solute are contained in 200 milliliters of a 1 M solution?

A) 1 B) 0.2 C) 0.8 D) 200

____ 7. What is the molarity of a solution that contains 0.50 mole of NaOH in 0.50 liter of solution?

A) 1.0 M B) 2.0 M
C) 0.25 M D) 0.50 M

____ 8. What is the total number of moles of solute in 2.0 liters of 3.0 M NaOH?

A) 1.0 mole B) 2.0 moles
C) 3.0 moles D) 6.0 moles

____ 9. What is the molarity of a solution that contains 40. grams of NaOH in 0.50 liter of solution?

A) 1.0 M B) 2.0 M
C) 0.50 M D) 0.25 M

____ 10. A 2400.-gram sample of an aqueous solution contains 0.012 gram of NH_3. What is the concentration of NH_3 in the solution, expressed as parts per million?

A) 5.0 ppm B) 15 ppm
C) 20. ppm D) 50. ppm

____ 11. What is the total mass of solute in 1000. grams of a solution having a concentration of 5 parts per million?

A) 0.005 g B) 0.05g
C) 0.5 g D) 5g

____ 12. What is the concentration of $O_2(g)$, in parts per million, in a solution that contains 0.008 gram of O_2 (g) dissolved in 1000. grams of $H_2O(l)$?

A) 0.8 ppm B) 8 ppm
C) 80 ppm D) 800 ppm

____ 13. If 0.025 gram of $Pb(NO_3)_2$ is dissolved in 100. grams of H_2O, what is the concentration of the resulting solution, in parts per million?

A) 2.5×10^{-4} ppm B) 2.5 ppm
C) 250 ppm D) 4.0×10^{3} ppm

____ 14. What is the concentration of a solution, in parts per million, if 0.02 gram of Na_3PO_4 is dissolved in 1000 grams of water?

A) 20 ppm B) 2 ppm
C) 0.2 ppm D) 0.02 ppm

____ 15. How many grams of KOH should be dissolved in water to make 2000.0 grams of a 10.0 ppm solution?

A) 2.00 g B) 2.0×10^{-1} g
C) 2.0×10^{-2} g D) 2.0×10^{-3} g