1. The molarity of an aqueous solution of NaCl is defined as the

   A) grams of NaCl per liter of water
   B) grams of NaCl per liter of solution
   C) moles of NaCl per liter of water
   D) moles of NaCl per liter of solution

2. 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

3. Which phrase describes the molarity of a solution?

   A) liters of solute per mole of solution
   B) liters of solution per mole of solution
   C) moles of solute per liter of solution
   D) moles of solution per liter of solution

4. Which unit can be used to express solution concentration?

   A) J/mol B) L/mol
   C) mol/L D) mol/s

5. 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

6. A 3.0 M HCl(aq) solution contains a total of

   A) 3.0 grams of HCl per liter of water
   B) 3.0 grams of HCl per mole of solution
   C) 3.0 moles of HCl per liter of solution
   D) 3.0 moles of HCl per mole of water

7. 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

8. 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

9. 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

10. 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

11. Which preparation produces a 2.0 M solution of $C_6H_{12}O_6$? [molecular mass = 180.0]

    A) 90.0 g of $C_6H_{12}O_6$ dissolved in 500.0 mL of solution
    B) 90.0 g of $C_6H_{12}O_6$ dissolved in 1000. mL of solution
    C) 180.0 g of $C_6H_{12}O_6$ dissolved in 500.0 mL of solution
    D) 180.0 g of $C_6H_{12}O_6$ dissolved in 1000. mL of solution

12. 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

13. 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

14. What is the total number of moles of solute in 250 milliliters of a 1.0 M solution of NaCl?

    A) 1.0 mole B) 0.25 mole
    C) 0.50 mole D) 42 moles

15. What is the total number of grams of HI in 0.500 liter of 1.00 M HI?

    A) 1.00 g B) 0.500 g
    C) 64.0 g D) 128 g

16. How many grams of KOH are needed to prepare 250. milliliters of a 2.00 M solution of KOH (formula mass = 56.0)?

    A) 1.00 g B) 2.00 g
    C) 28.0 g D) 112 g

17. What is the total number of moles of H_2SO_4 needed to prepare 5.0 liters of a 2.0 M solution of H_2SO_4?

A) 2.5 B) 5.0 C) 10. D) 20.

18. How many moles of KNO_3 are required to make 0.50 liter of a 2.0 M solution of KNO_3?

A) 1.0 B) 2.0 C) 0.50 D) 4.0

19. How many moles of solute would 3 liters of a 2-molar solution contain?

A) 1 B) 2 C) 3 D) 6

20. What is the concentration of a solution which contains 1 mole of $CaCl_2$ dissolved in 2,000 milliliters of solution?

A) 1 M B) 2 M
C) 0.5 M D) 0.25 M