Science | Test | Grade XI
Some Basic Concepts of Chemistry

Time: 1 hr   M.M: 35

1. Choose the correct option   1 x 5 = 5

i. What will be the molarity of a solution, which contains 5.85 g of NaCl(s) per 500 mL?
   (a) 4 mol L^{-1}
   (b) 20 mol L^{-1}
   (c) 0.2 mol L^{-1}
   (d) 2 mol L^{-1}

ii. What will be the molality of the solution containing 18.25 g of HCl gas in 500 g of water?
   (a) 0.1 m
   (b) 1 M
   (c) 0.5 m
   (d) 1 m

iii. Which of the following terms are unitless?
   (a) Molality
   (b) Molarity
   (c) Mole fraction
   (d) Mass per cent

iv. If 500 mL of a 5 M solution is diluted to 1500 mL, what will be the molarity of the solution obtained?
   (a) 1.5 M
   (b) 1.6 M
   (c) 0.017 M
   (d) 1.59 M

v. The number of atoms present in one mole of an element is equal to Avogadro number. Which of the following elements contains the greatest number of atoms?
   (a) 4gHe
   (b) 46gNa
   (c) 0.40 gCa
   (d) 12 g He

2. Fill in the blanks: 1 x 7 = 7
   a. The quantitative study of the reactants required or the products formed is called
      _____.
   b. the reactant, which gets consumed first, limits the amount of product formed and is,
      therefore, called the _____.
   c. The mass of one mole of a substance in grams is called its _____.
   d. _____ refers to the closeness of various measurements for the same quantity.
   e. _____ is the agreement of a particular value to the true value of the result.
   f. _____ are meaningful digits which are known with certainty.
   g. If the density of a solution is 3.12 g mL^1, the mass of 1.5 mL solution in significant
      figures is_____

3. Match the following prefixes with their multiples: 1 x 5 = 5

   Prefixes   Multiples
   (i) micro 10^6
   (ii) deca 10^9
   (iii) mega 10^{-6}
   (iv) giga 10^{-15}
   (v) femto   10

4. What will be the molarity of a solution, which contains 5.85 g of NaCl(s) per 500 mL?   2

5. In three moles of ethane (C_2H_6), calculate the following: 1 x 3 = 3
   (i) Number of moles of carbon atoms.
   (ii) Number of moles of hydrogen atoms.
   (iii) Number of molecules of ethane.

6. Round up the following upto three significant figures: 1 x 3 = 3
   (i) 34.216
   (ii) 10.4107
   (iii) 0.04597

7. Express the following in the scientific notation: 1 x 3 = 3
   (i) 0.0048
   (ii) 234,000
   (iii) 500.0

8. How many significant figures should be present in the answer of the 0.0125 + 0.7864 +
   0.0215 ?   1

9. If the concentration of glucose ($C_6H_{12}O_6$) in blood is 0.9 g L^{-1}, what will be the molarity of
   glucose in blood?   2

10. What is the mass per cent of carbon in carbon dioxide? 2

11. The empirical formula and molecular mass of a compound are CH_2O and 180g respectively. What will be the molecular formula of the compound? 2