

SEMESTER—ONE**CHEMISTRY**

Class X

Student Name:

Date:

Period—I : Topic 1**INTRODUCTION TO CHEMISTRY****Multiple Choice Questions**

Select and write one most appropriate option out of the four options given for each of the questions 1–5.

- Which of the following is incorrect about SI units?
 - Density in kg m^{-3}
 - Force in Newton's
 - Pressure in Pascals
 - Amount of substance in mol L^{-1}
- A sample of compound contains 20.45% of chlorine. The chemical analysis of the sample by two methods A and B gave a mean value of 20.60% and 20.54% respectively. The percentage accuracy of
 - A is less than B hence B is more accurate
 - A is greater than B but B is more accurate
 - A is less than B hence A is more accurate
 - Both the results are accurate.
- The mass of 3.0 mL of a liquid having density 3.15 g mL^{-1} is correctly expressed in terms of significant figures as
 - 9.45 g
 - 9.40 g
 - 9.4 g
 - 9.5 g
- The number of significant figures in 0.0256 is
 - 5
 - 3
 - 4
 - 2

5. Two elements X (atomic mass = 50) and Y (atomic mass = 16) combine to give a compound having 32% Y. The simplest formula of the compound is
- (a) X_2Y_3 (b) XY
(c) XY_2 (d) X_3Y_4

Fill in the Blanks

Fill in the blanks with a suitable word for each of the questions 1–5.

1. A systematic error which makes all the measurements wrong by a certain amount is known as _____ .
2. If joule is the unit of energy than the unit of power is _____ .
3. Hydrogen and oxygen are present in water in the ratio _____ by mass.
4. A chemical compound always contains same elements combined together in same proportion by mass. This law is known as _____ .
5. Empirical formula of fructose ($C_6H_{12}O_6$) is _____ .

True or False

State whether the following statements are true or false for each of the questions 1–5.

1. J. L. Proust wrote atomic theory of matter.
2. Standard laboratory balances can determine the mass of an object to a minimum of three significant figures.
3. Symbol of an element may be defined as the abbreviation used for the name of the element.
4. Smaller is the difference between the mean value and the true value more is the accuracy.
5. The branch of chemistry deals with the explanation of fundamental principles governing various chemical phenomena is known as inorganic chemistry.

Theoretical Questions

Answer each of the questions 1–5.

1. Round off each of the following to three significant figures
 - (i) 6.625×10^{-34} Js
 - (ii) 8.314×10^7 ergs $K^{-1} mol^{-1}$
 - (iii) 6.326 m
 - (iv) 5.635 kg.

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2. Can different compounds have same empirical formula? Explain.

3. Convert the following into basic SI unit of length:

- (i) 7 nm (diameter of small virus)
- (ii) 40 Em (thickness of milky way galaxy)
- (iii) 1.4 Gm (diameter of sun)
- (iv) 41 Pm (distance of nearest star).

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4. Define precision and accuracy.

5. Express the result of the following calculation to the appropriate number of significant digits.

$$816 \times 0.02456 + 215.67.$$

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