Atoms and Molecules:

1. Which of the following correctly represents 360g of water?
(i) 2 moles of water
(ii) 20 moles of water
(iii) 6.022×10^{23} molecules of water
(iv) 1.2044×10^{25} molecules of water
(a) (i)
(b) (i) and (iv)
(c) (ii) and (iii)
(d) (ii) and (iv)
Answer. (d) (ii) and (iv)
2. Which of the following statements is not true about an atom?
(a) Atoms are not able to exist independently.
(b) Atoms are the basic units from which molecules and ions are formed.
(c) Atoms are always neutral in nature.
(d) Atoms aggregate in large numbers to form the matter that we can see, feel or touch.
3. 1 u or 1 amu means
(a) 1/12th mass of C-12 atoms
(b) Mass of C-12 atom
(c) Mass of O-16 atom
(d) Mass of Hydrogen molecule
4. Which of the following contains maximum number of molecules?
(a) 19 CO_2
(b) 1 g N_2
(c) 1 g H_2
(d) 1 g CH_4
5. A sample of NH_3 molecule irrespective of source contains 82.35% Nitrogen and 17.65% of Hydrogen by mass. This data supports:
(a) Law of Conservation of Mass
(b) Las of Multiple Proportions
(c) Law of Definite Proportions
(d) Avogadro's Law
6. An element X is divalent and another element Y is tetravalent. The compound formed by these two elements will be:
(a) XY
(b) XY_2
(c) X_2Y
(d) XY_4
7. The molecular formula of potassium nitrate is _____.
(a) KNO_3
(b) KNO
(c) KNO_2
(d) KON
8. 3.42 g of sucrose are dissolved in 18 g of water in a beaker. The numbers of oxygen atoms in the solution are:
(a) 6.68×10^{23}
(b) 6.09×10^{22}
(c) 6.022×10^{23}
(d) 6.022×10^{21}
9. Molecular mass is defined as the:
(a) Mass of one molecule of any substance compared with the mass of one atom of C – 12
(b) Mass of one atom compared with the mass of one atom of hydrogen
(c) Mass of one atom compared with the mass of one molecule
(d) None of the above
10. A change in the physical state can be brought about
(a) only when energy is given to the system
(b) only when energy is taken out from the system
(c) When energy is either given to, or taken out from the system
(d) Without any energy change
11. The atomic mass of sodium is 23. The number of moles in 46g of sodium is _____.
(a) 4
(b) 2
(c) 0
(d) ½
12. Which of the following represents a correct chemical formula?
(a) CaCl
(b) $BiPO_4$
(c) $NaSO_4$
(d) NaS
13. What is the formula mass unit of ZnO?
(a) 18 u
(b) 81 u
(c) 88 u
(d) 188 u
14. How many atoms of oxygen are present in 300 grams of $CaCO_3$?
(a) 54.207×10^{23}
(b) 6.207×10^{23}
(c) 12.207×10^{23}
(d) 22.2×10^{23}
15. Which of the following represents the correct relation between Avogadro's number (N_o), number of particles (N) and moles (n)?
(a) $n = N / N_o$
(b) $n = N_o / N$
(c) $n = N N_o$
(d) all are correct