

5. Which of the following statement(s) is/are correct for water?
- H and O are in 2:1 atomic ratio
  - H and O are in 2:1 mass ratio
  - H and O are in 1:8 mass ratio
  - Hydrogen and Oxygen gases are combined in 2:1 volume ratio
6. The atomic mass of a diatomic gaseous element is 19. Which of the following statement(s) is/are correct regarding the element?
- The mass of one atom of the element is 19 amu
  - The mass of  $N_A$  molecules of the element is 38 g
  - The volume of  $N_A$  atoms of the element is 22.4 L at  $0^\circ\text{C}$  and 1 atm
  - The volume of 2 g-molecules of the element is 44.8 L at  $0^\circ\text{C}$  and 1 atm
7. Three isotopes of an element have mass numbers  $M$ ,  $(M + 1)$  and  $(M + 2)$ . If the mean mass number is  $(M + 0.5)$ , then which of the following ratio(s) may be accepted for  $M$ ,  $(M + 1)$  and  $(M + 2)$  in the order
- 1:1:1
  - 4:1:1
  - 9:6:1
  - 2:1:1
8. Which of the following statement(s) is/are correct about the Avogadro's number?
- It is the number of atoms contained in one mole of atoms of any element.
  - It is the number of electrons required to deposit one mole of atoms of any metallic element from a solution of the metal salt.
  - It is the number of grams of any element which contains  $6.022 \times 10^{23}$  atoms of that element.
  - It is the number of particles (atoms, molecules or ions) required to make one gram of the substance under consideration.
9. The non-stoichiometric compound, titanium monoxide, has a continuous range of composition from  $\text{Ti}_{0.75}\text{O}$  to  $\text{TiO}_{0.69}$ . Which of the following is/are the correct regarding the possible composition of the compound? [Ti = 48]
- The maximum percentage by mass of oxygen in the compound is 30.8
  - The minimum percentage by mass of titanium in the compound is 69.2
  - The minimum percentage by mass of oxygen in the compound is 18.7
  - The minimum percentage by mass of titanium in the compound is 82.3
10. Which of the following(s) is/are correct statement?
- The empirical formula of all alkanes is same.
  - The empirical formula of all alkenes is same.
  - The empirical formula of all the members of any homologous series is same.
  - Two different compounds can have the same molecular formula.
11. Which of the following will have the composition (by mass) as similar as that of acetic acid?
- Methyl formate,  $\text{HCOOCH}_3$
  - Glucose,  $\text{C}_6\text{H}_{12}\text{O}_6$
  - Formaldehyde,  $\text{HCHO}$
  - Formic acid,  $\text{HCOOH}$
12. Four groups of students are studying with different samples of alkali metal halides as given below:
- Group A :  $\text{NaCl}$       Group B :  $\text{NaBr}$   
 Group C :  $\text{KCl}$       Group D :  $\text{KBr}$
- If all the four groups dissolved 0.1 moles of their salt in some water and then treated with the excess of acidified  $\text{AgNO}_3$  solution, then which of the following