Atomic, Molecular and Equivalent masses

1. Which property of an element is always a whole number
   (a) Atomic weight
   (b) Equivalent weight
   (c) Atomic number
   (d) Atomic volume

2. Which one of the following properties of an element is not variable
   (a) Valency
   (b) Atomic weight
   (c) Equivalent weight
   (d) All of these

3. The modern atomic weight scale is based on
   (a) C^{12} (b) O^{16}
   (c) H^{1} (d) C^{13}

4. 1 *amu* is equal to
   (a) $\frac{1}{12}$ of $C-12$
   (b) $\frac{1}{14}$ of O-16
   (c) $1g$ of H_2
   (d) 1.66×10^{-23}kg

5. Sulphur forms the chlorides S_2Cl_2 and SCl_2. The equivalent mass of sulphur in $SCl_2$is
   (a) 8 *g*/mole (b) 16 *g*/mole
   (c) 64.8 *g*/mole (d) 32 *g*/mole

6. The sulphate of a metal M contains 9.87% of *M*. This sulphate is isomorphous with $ZnSO_4.7H_2O$. The atomic weight of *M* is
   (a) 40.3 (b) 36.3
   (c) 24.3 (d) 11.3

7. When 100 *ml* of 1 $MNaOH$ solution and 10 ml of 10NH_2SO_4solution are mixed together, the resulting solution will be
   (a) Alkaline (b) Acidic
   (c) Strongly acidic (d) Neutral

8. In chemical scale, the relative mass of the isotopic mixture of oxygen atoms (O^{16}, O^{17}, O^{18}) is assumed to be equal to
   (a) 16.002 (b) 16.00
   (c) 17.00 (d) 11.00

9. For preparing 0.1 *N* solution of a compound from its impure sample of which the percentage purity is known,

the weight of the substance required will be

(a) More than the theoretical weight

(b) Less than the theoretical weight

(c) Same as the theoretical weight

(d) None of these

10. 1 mol of CH_4 contains

(a) 6.02×10^{23} atoms of *H*

(b) 4 *g* atom of Hydrogen

(c) 1.81×10^{23} molecules of CH_4

(d) 3.0 *g* of carbon

11. In the reaction $2Na_2S_2O_3 + I_2 \rightarrow Na_2S_4O_6 + 2NaI$, the equivalent weight of $Na_2S_2O_3$ (mol. wt. = *M*) is equal to

(a) *M* (b) $M/2$

(c) $M/3$ (d) $M/4$

12. When potassium permanganate is titrated against ferrous ammonium sulphate, the equivalent weight of potassium permanganate is

(a) Molecular weight /10

(b) Molecular weight /5

(c) Molecular weight /2

(d) Molecular weight

13. Boron has two stable isotopes, $10B$ (19%) and $11B$ (81%). The atomic mass that should appear for boron in the periodic table is

(a) 10.8 (b) 10.2

(c) 11.2 (d) 10.0

14. What is the concentration of nitrate ions if equal volumes of 0.1 $MAgNO_3$ and 0.1 $MNaCl$ are mixed together

(a) 0.1 *M* (b) 0.2 *M*

(c) 0.05 *M* (d) 0.25 *M*

15. Total number of atoms represented by the compound $CuSO_4.5H_2O$ is

(a) 27 (b) 21

(c) 5 (d) 8

16. 74.5 *g* of a metallic chloride contain 35.5 g of chlorine. The equivalent weight of the metal is

(a) 19.5 (b) 35.5

(c) 39.0 (d) 78.0

17. 7.5 grams of a gas occupy 5.8 litres of volume at STP the gas is

(a) NO (b) N_2O

(c) CO (d) CO_2

18. The number of atoms in 4.25 *g* of NH_3 is approximately

(a) 1×10^{23} (b) 2×10^{23}

(c) 4×10^{23} (d) 6×10^{23}

19. One litre of a gas at STP weight 1.16 *g* it can possible be

(a) C_2H_2 (b) CO

(c) O_2 (d) CH_4

20. The vapour density of a gas is 11.2. The volume occupied by 11.2 *g* of the gas at ATP will be

(a) 11.2 *L* (b) 22.4 *L*

(c) 1 *L* (d) 44.8 *L*

21. Equivalent weight of crystalline oxalic acid is

(a) 30 (b) 63

(c) 53 (d) 45

22. The equivalent weight of an element is 4. Its chloride has a V.D 59.25. Then the valency of the element is

(a) 4 (b) 3

(c) 2 (d) 1

23. 1.25 *g* of a solid dibasic acid is completely neutralised by 25 *ml* of 0.25 molar $Ba(OH)_2$ solution. Molecular mass of the acid is

(a) 100 (b) 150

(c) 120 (d) 200

24. The oxide of a metal has 32% oxygen. Its equivalent weight would be

(a) 34 (b) 32

(c) 17 (d) 8