Very Short Answer Questions *carrying 1 mark*

1. Define Avogadro's law.
2. What is meant by a.m.u. ?
3. Define significant figure.
4. What is a mole ?
5. Define precision.
6. State the law of definite proportions.
7. Define atomic mass of an element.
8. Does a balanced chemical equation obey the law of conservation of mass ?
9. Define molarity of a solution.
10. Express decimal equivalent of 2/7 to three significant figures.
11. Is the molar volume of NH_3 different from that of CO_2 ?
12. Name a monoatomic gas ? What is its valency ?
13. Define limiting reagent.
14. Write 0.000623 cm in a scientific notation.
15. Define law of multiple proportions.
16. What is gram molecular mass ? Give one example.
17. Give one example each of a molecule in which empirical formula and molecular formula are
    (*i*) same and (*ii*) different.
18. Define mole in terms of number.
19. Balance the equation :
    $CaF_2 + H_2SO_4 + H_3BO_3 \longrightarrow CaSO_4 + BF_3 + H_2O$
20. How many atoms of carbon are present in 0.1 mole of $C_{12}H_{22}O_{11}$?
21. How many hydrogen atoms are present in 60 a.m.u. of ethane ?
22. What is meant by one gram of atom of iron ?
23. What is the S.I. unit of density ?
24. Name the law which deals with the ratios of the volumes of the gaseous reactants and products.
25. Which isotope of C is used for expressing relative atomic masses of elements ?
26. An atom of an element is 13 times heavier than the mass of a carbon atom. What is its mass in a.m.u. ?
27. What is the standard for the molecular weights of molecules ?
28. What is the ratio of molar volumes of SO_2 and SO_3 ?
29. State law of reciprocal proportions.
30. What volume
    (Density of me

Short Answer

1. What do you
   compound and
   case.
2. Explain the
   ammonia rep
3. Give the SI
   (*iii*) force.
4. What do you
   formula and
   related to ea
5. Define molar
   carbonate m
6. Classify the
   mixtures :
   (*i*) Water (*ii*)
   (*vii*) sulphur
   (*x*) gasoline.
7. What are hor
   Which of the
   (*a*) tap water
8. When two su
   a pestel and
   and a new su
   different fro
   or a mixture
9. State the fol
   (*i*) atomic ma
   volume.
10. How would y
    (*i*) iodine fr
    (*ii*) sulphur
11. State Avoga
    given suppor
12. How can you
    the help of A
13. State the foll
    give one exa
    (*i*) Law of c
    (*ii*) Law of m

Short Answer Questions *Carrying 2 or 3 marks*

1. What do you understand by the terms element, compound and mixture ? Give two examples in each case.
2. Explain the term mole. What does one mole of ammonia represent ?
3. Give the SI units for (*i*) volume (*ii*) speed and (*iii*) force.
4. What do you understand by the terms (*i*) empirical formula and (*ii*) molecular formula ? How are they related to each other ? Illustrate with an example.
5. Define molarity. What does 1 M solution of sodium carbonate mean ?
6. Classify the following into elements, compounds or mixtures :

   (*i*) Water (*ii*) milk (*iii*) tea (*iv*) iron (*v*) sugar (*vi*) smoke (*vii*) sulphur (*viii*) 22 carat gold (*ix*) iodised table salt (*x*) gasoline.
7. What are homogeneous and heterogeneous mixtures ? Which of the following are homogeneous ?

   (*a*) tap water (*b*) wood (*c*) soil (*d*) smoke (*e*) cloud.
8. When two substances A and B are mixed together in a pestel and mortar, a large amount of heat is evolved and a new substance C is formed. C has the properties different from A and B. Is C an element, compound or a mixture?
9. State the following :

   (*i*) atomic mass (*ii*) gram atomic mass (*iii*) gram molar volume.
10. How would you recover

    (*i*) iodine from a mixture of iodine and salt?

    (*ii*) sulphur from a mixture of carbon and sulphur ?
11. State Avogadro's hypothesis. In what way, has it given support to Dalton atomic theory ?
12. How can you deduce the atomicity of hydrogen with the help of Avogadro's hypothesis ?
13. State the following laws of chemical combination and give one example in each case

    (*i*) Law of constant composition.

    (*ii*) Law of multiple proportions.

14. What do you understand by a balanced chemical equation ? What quantitative information does a balanced chemical equation convey ? 9

15. Explain (*i*) molarity (*ii*) limiting reagent. 10

16. Write the balanced chemical equations for the following reactions :

(*i*) Manganese dioxide and concentrated hydrochloric acid.

(*ii*) Sodium thiosulphate and iodine.

(*iii*) Copper and dilute nitric acid.

(*iv*) Sulphur dioxide and hydrogen sulphide.

17. Write the empirical formulae of the compounds having the following molecular formulae : 1

(*i*) C_6H_6 (*ii*) C_6H_{12} (*iii*) H_2O_2 (*iv*) H_2O
(*v*) Na_2CO_3 (*vi*) B_2H_6 (*vii*) N_2O_4.

18. Balance the following equations : 2

(*i*) $H_3PO_3 \longrightarrow H_3PO_4 + PH_3$

(*ii*) $Ca + H_2O \longrightarrow Ca(OH)_2 + H_2$

(*iii*) $Fe_2(SO_4)_3 + NH_3 + H_2O \longrightarrow Fe(OH)_3 + (NH_4)_2SO_4$

19. What do you understand by the term formula mass ? How does it differ from molecular mass ? 3

20. Which of the following has (*i*) maximum (*ii*) minimum mass ?

(*a*) 1 gram atom of C

(*b*) 1 a.m.u. of an atom

(*c*) 1 gram mole of sulphur dioxide

(*d*) 6.02×10^{20} atoms of nitrogen.

Long Answer Questions carrying 5 marks