VERY SHORT QUESTIONS (1X5 =5)

Sub-Topic -Laws of Chemical Combination

1. Write the full form of IUPAC.
2. 'If 100 grams of pure water taken from different sources id decomposed by passing electricity, 11 grams of hydrogen and 89 grams of oxygen are always obtained'. Which chemical law is illustrated by this statement?
3. 'If 100 grams of calcium carbonate (whether in the form of marble or chalk) are decomposed completely, then 56 grams of calcium oxide and 44 grams of carbon dioxide are obtained'. Which law of chemical combination is illustrated by this statement?
4. How is the size of an atom indicated?
5. Name the unit in which the radius of an atom is usually expressed.

Multiple Choice Questions (MCQs) (1X10 =10)

6. The atomicities of ozone, sulphur, phosphorus and argon are respectively:
   (a) 8, 3, 4 and 1 (b) 1, 3, 4 and 8 (c) 4, 1, 8 and 3 (d) 3, 8, 4 and 1
7. The symbol of a metal element which is used in making thermometers is :
   (a) Ag (b) Hg (c) Mg (d) Sg
8. One of the following elements has an atomicity of 'one'. This element is:
   (a) Helium (b) hydrogen (c) sulphur (d) ozone
9. The English name of an element is potassium, its Latin name will be:
   (a) Plumbum (b) cuprum (c) kalium (d) natrium
10. If 1.4 g of calcium oxide is formed by the complete decomposition of calcium carbonate, then the amount of calcium carbonate taken and the amount of carbon dioxide formed will be respectively:
    (a) 2.2 g and 1.1 g (b) 1.1 g and 2.5 g (c) 2.5 g and 1.1 g (d) 5.0 g and 1.1g
11. One nm is equal to :
    (a) 10^{-9} mm (b) 10^{-7} cm (c) 10^{-9} cm (d) 10^{-6} m
12. In hydrogen peroxide (H_2O_2), the proportion of hydrogen and oxygen by mass is:
    (a) 1 : 8 (b) 1 : 16 (c) 8 : 1 (d) 16 : 1
13. The symbols of the elements cobalt, aluminium, helium and sodium respectively written by a student are as follows. Which symbol is the correct one?
    (a) CO (b) AL (c) He (d) So
14. The atomic number of an element X is 13. What will be the number of electrons

in its ion X^{3+}?

(a) 11 (b) 15 (c) 16 (d) 10

15. The anion of an element has:
    a. more electrons than the normal atom
    b. less electrons than the normal atom
    c. more protons than the normal atom
    d. same number of electrons as normal atom
16. A particle X has 17 protons, 18 neutrons and 18 electrons. This particle is most likely to be:

(a) a cation (b) an anion (c) a molecule (b) a compound

Short Questions (2X5=10)

Sub-Topic- Concept of Molecular Mass and Formula

17. What do the symbols, H_2, S and O_4 mean in the formula H_2SO_4 ?
18. What is the significance of the formula of a substance?
19. Calculate the molecular masses of the following compounds:

(a) Methane, CH_4 (b) Ethane, C_2H_6 (c) Ethene, C_2H_4 (d) Ethyne, C_2H_2

(Atomic masses : C = 12 u; H = 1 u)

20. Calculate the molecular masses of the following compounds :

(a) Methanol, CH_3OH (b) Ethanol, C_2H_5OH

21. Calculate the molecular masses of the following compounds:

(a) Hydrogen sulphide, H_2S (b) Carbon disulphide, CS_2

(Atomic masses : H = 1 u S = 32 u ; C = 12 u)

Long Questions (1X5=5)

Sub-Topic – Writing Chemical Formula

22. (a) What is an ion? How is an ion formed? Explain with the help of two examples of different ions.

(b) The valencies (or charges) of some of the ions are given below:

Ion	Valency (Charge)	Ion	Valency (Charge)
Sodium ion	1+	Bromide ion	1 –
Ammonium ion	1+	Hydroxide ion	1 –
Calcium ion	2+	Sulphate ion	2 –
Lead ion	2+	Phosphate ion	3 –

Using this information, write down the formulae of the following compounds:

(i) Sodium phosphate (ii) Ammonium sulphate

(iii) Calcium hydroxide (iv) Lead bromide