# Worksheet

1. Silver nitrate reacts with sodium chloride to form sodium nitrate and silver chloride. It is found that 6.8 g of silver nitrate reacts with 2.4 g of sodium chloride and forms 3.4 g of sodium nitrate. Applying law of conservation of mass, calculate the weight of silver chloride formed.

2. When 4.2g of sodium bicarbonate, $Na(HCO_3)_2$ is added to a solution of acetic acid $(CH_3COOH)$ weighing 10.0g, it is observed that 2.2g of $CO_2$ is released to the atmosphere. The residue left is found to weigh 12.0g. Show that the observations are in agreement with the law of conservation of mass.

3. 1.2 g of copper powder on heating gave 6.0 g of copper oxide. In another experiment copper oxide contained 20% oxygen. Show that these results illustrate the law of constant composition.

4. 2.0g of a metal burnt in oxygen gave 3.2 of its oxide. 1.42g of the same metal heated in steam gave 2.27g of its oxide. Which law is shown by this data?

5. Write the formula and names of the compounds formed between :
   (i) Potassium and carbonate ions
   (ii) Sodium and sulphide ions
   (iii) Ammonium and phosphate ions

6. Write the formulae of the following molecular compounds :
   (i) Sulphur trioxide
   (ii) Dinitrogen trioxide
   (iii) Ammonia
   (iv) Carbon tetrachloride

7. Write the formulae of the following compounds :
   (i) Copper carbonate
   (ii) Calcium phosphate
   (iii) Ammonium carbonate
   (iv) Barium sulphate

8. Write the names of the following compounds
   (i) $Cr_2(SO_4)_2$
   (ii) $K_2SO_4$
   (iii) $Mg(NO_3)_2$
   (iv) NiS

9. Pick up the correct formulae :
   (i) $Ag_2S$
   (ii) $Cr(NO_3)_2$
   (iii) $K_2PO_4$
   (iv) $Na_2SO_4$
   (v) $CdI_2$
   (vi) $(NH_4)_2PO_4$
   (vii) $Ag_2CO_3$

10. Write the formulae of the compounds formed by
   (i) $Cr^{3+}$ and $F^-$
   (ii) $Hg^{2+}$ and $S^{2-}$
   (iii) $Pb^{2+}$ and $(PO_4)^{3-}$

11. The formula of carbonate of a metal M is $M_2CO_3$ What will be the formula of its (i) chloride and (ii) sulphate ?

12. An element Z has a valency of 4. Write the formula for its
    (i) chloride
    (ii) sulphate
    (iii) oxide
    (iv) carbonate
    (v) nitrate.

13. If calcium salt of anion has formula $Ca_3X_2$, what is the valency of X ? Write the formula of (i) sodium salt of X and (ii) aluminium salt of X.

14. What is the valency of nitrogen in $Mg_3N_2$?

15. Iron forms two ions, $Fe^{2+}$ and $Fe^{3+}$. Write the formulae of two oxides formed by these ions.

16. Mercury forms two ions, $Hg^+$ and $Hg^{2+}$. Write the formulae of two nitrates formed by these ions.

17. An element X forms oxide XO. Write the formulae of its chloride and carbonate.

18. Copper forms two ions $Cu^+$ and $Cu^{2+}$. Write the formulae of two chlorides formed by these ions.

19. Write the valency of cations in the following compounds :
    (i) Mercuric chloride
    (ii) Copper (II) sulphate
    (iii) Ferric sulphate
    (iv) Ferrous chloride.

20. Point out the mistakes in the following and correct them:
    (i) $baCl_2$
    (ii) $AL(NO_3)_3$
    (iii) PB $(MNO_4)_2$
    (iv) $NaCl_2$
    (v) $CUSO_4$
    (vi) $Mg_2(SO_4)_3$
    (vii) $CaNO_3$
    (viii) Ag S

## MOLECULAR MASS AND MOLE CONCEPT

### Molecular Mass

Just like atoms, the actual masses of molecules are very small and cannot be measured by actual weighing. Like atomic masses, the molecular masses