Percentage composition & Molecular formula

1. (a) $\because$ 40gm $NaOH$ contains 16gm of oxygen

   $\therefore$ 100gm of $NaOH$ contains $\frac{16}{40} \times 100 = 40\%$ oxygen.

2. (a) Urea- $NH_2 - CO - NH_2$

   $\because$ 60gm of urea contains 28gm of nitrogen

   $\therefore$ 100gm of urea contains $\frac{28}{60} \times 100 = 46.66$.

3. (b) Based on facts.

4. (d) $C = 24gm, H = 4gm, O = 32gm$
   So, Molecular formula $= C_2H_4O_2$
   So, Empirical formula $= CH_2O$
   (Simplest formula).

5. (a) $\because$ 0.0835 mole of compound contains 1gm of hydrogen

   $\therefore$ 1gm mole of compound contain $= \frac{1}{0.0835} = 11.97$

   $= 12gm$ of hydrogen.
   12 gm of H_2 is present in $C_2H_{12}O_6$

6. (b) Empirical formula of an acid is CH_2O_2
   (Empirical formula)$_n$ = Molecular formula
   n = whole no. multiple *i.e.* 1,2,3,4..............
   If $n = 1$ molecular formula CH_2O_2.

7. (b) Glucose - $C_6H_{12}O_6$
   Ratio of C, H and $O = 1:2:1$

In acetic acid $CH_3 - \underset{\overset{\|}{O}}{C} - O - H$

Ratio of C, H and O $1:2:1$.