

1. D) X₂Y₃
2. The mass of one twelfth (1/12) of the mass of one atom of carbon taken as 12u. It is represented as 1u.
3. A) 2 atoms of hydrogen + 1 atom of sulphur = 3 atoms. Hence 3 atoms are present in an H₂S molecule.
B). 1 atom of phosphorus + 4 atoms of oxygen = 5 atoms. Hence 5 atoms are present in an ion. PO_4^{3-}
4. H:S = 2 × 1 : 32 = 2 : 32 = 1 : 16
5. H₂ represents one molecule of H₂ (hydrogen gas) whereas 2H represents two separate atoms of hydrogen.

6. molar mass of C₂H₅OH

$$\begin{array}{ccccccc} \times & & \times & & \times & & \\ \times & = & \{24 + 6 + 16\} & = & 46\text{u} & & \times \end{array}$$

7. MgCl₂

CaO

Cu(NO₃)₂

AlCl₃

CaCO₃

8. It states that a pure chemical compound always contains same elements combined together in the same fixed proportion by mass.
This law was put forth by A Lavoisier and Joseph Proust in 1799.