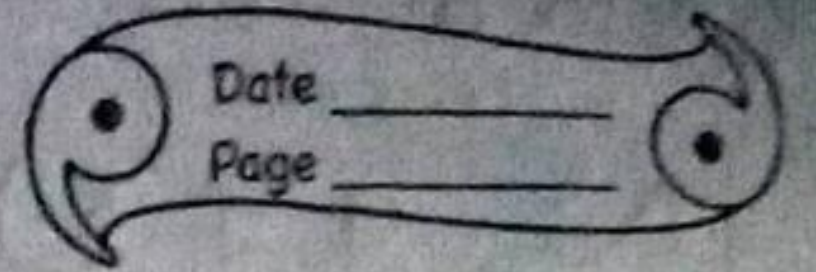


C.W  
6/11/29

# Atoms & molecules Worksheet



1) What are the limitations of Rutherford's model of the atom?

Ans. The limitations of Rutherford's model of the atom are:-

→ Rutherford's model was inadequate to explain the stability of an atom.

→ It did not mention anything about the arrangement of an electron in orbit.

→ As per Rutherford's model, electrons revolve around the nucleus in a circular path. But particles that are in motion on a circular path would undergo acceleration & acceleration causes radiation of energy by charged particles.

2. Determine the formula mass of washing soda ( $\text{Na}_2\text{CO}_3 \times 10\text{H}_2\text{O}$ )?

Formula mass unit of  $\text{Na}_2\text{CO}_3$ :-

2 x atomic mass of Na + 1 x atomic mass of C + 3 x atomic mass of O



$$= 2 \times 22.98 + 1 \times 12.01 + 3 \times 16$$

$$= 105.97 \text{ u}$$

Formula unit mass of  $10 \text{H}_2\text{O} = 10 \times$  atomic mass of  $\text{H}_2\text{O}$

$$= 10 \times 18.02$$

$$\Rightarrow 180.20$$

Formula unit mass of  $\text{Na}_2\text{CO}_3 \times 10 \text{H}_2\text{O}$

$$\Rightarrow 105.97 + 180.20$$

$$\Rightarrow 285.99 \text{ u}$$