

Now,  $i = \frac{\text{No. of moles after association}}{\text{No. of moles for no association}}$

$$\text{or, } i = \frac{c(1 - \alpha + \frac{\alpha}{n})}{c}$$

$$\text{or, } i = 1 - \alpha + \frac{\alpha}{n} = 1 - \alpha(1 - \frac{1}{n})$$

$$\text{or, } i - 1 = -\alpha(1 - \frac{1}{n})$$

$$\text{or, } \alpha = \frac{i - 1}{-(1 - \frac{1}{n})} \quad \text{--- (1)}$$

gf association is complete, i.e.,  $\alpha = 1$ . So from equation (1), we get

$$i = \frac{1}{n} \quad \text{--- (2)}$$

That is the experimental value of a colligative property is  $\frac{1}{n}$ -times the theoretical value.

gf no association occurs, i.e.,  $\alpha = 0$ . So from equation (1), we get

$$i = 1 \quad \text{--- (3)}$$

That is, the experimental and theoretical value of colligative property will be equal.