

Colligative properties of solution of electrolyte

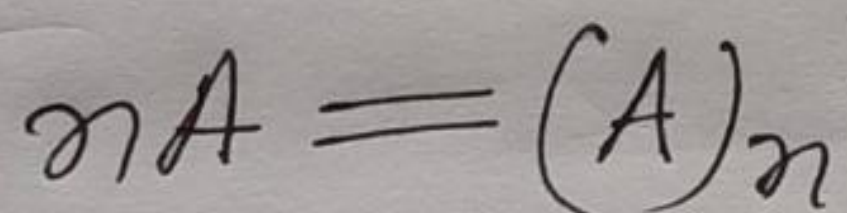
Some solutes which associate or dissociate in the solvent and yield abnormal results. In order to account for all abnormal cases, van't Hoff factor (i) is used.

$$\text{Now, } i = \frac{\text{No. of moles after dissociation/association}}{\text{No. of moles initially present}}$$

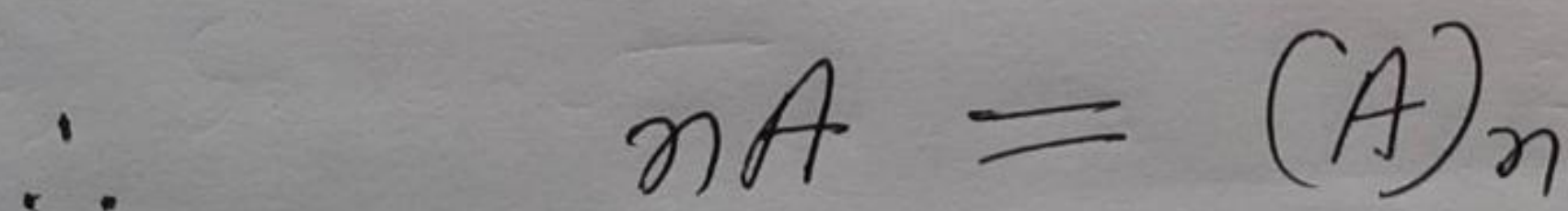
$$= \frac{\text{Exp(Colligative property)}}{\text{Theoretical (Colligative property)}}$$

o For association of solute:

Consider the association of a solute A into its associated form $(A)_n$, according to the reaction-



where n is the number of molecules of solute, which combine to form an associated species.



At initially	C	0
moles:		
At equilibrium		
moles:	$C - C\alpha$	$\frac{C\alpha}{n}$

$$\therefore \text{Total moles at equilibrium} = C - C\alpha + \frac{C\alpha}{n}$$
$$= C\left(1 - \alpha + \frac{\alpha}{n}\right)$$