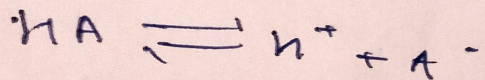


Q Calculate  $[H^+]$  conc. of 0.01N weak monobasic acid. The value of  $K_a$  is  $4.0 \times 10^{-10}$ .

Sol<sup>n</sup>



Ostwald's law:

$$\frac{\alpha \cdot c}{(1-\alpha)c} = K_a$$

as  $K_a$  is very less

$$1 - \alpha \approx 1$$

$$v = \frac{1}{0.01} = 100$$

$$\alpha = \sqrt{K_a \cdot v} = \sqrt{4.0 \times 10^{-10} \times 100} = 2 \times 10^{-4}$$

$$[H^+] = \frac{\alpha}{v} = \frac{2 \times 10^{-4}}{100} = 2 \times 10^{-6} \text{ mol l}^{-1}$$