

Vapour pressure of  $CCl_4$  at  $25^\circ C$  is  $143\text{ mmHg}$  of  $Hg$   $0.5\text{ gm}$  of a non-volatile solute (mol. wt. = 65) is dissolved in  $100\text{ ml } CCl_4$ . Find the vapour pressure of the solution (Density of  $CCl_4 = 1.58\text{ g/cm}^3$ )

- A)  $141.43\text{ mmHg}$
- B)  $94.39\text{ mmHg}$
- C)  $199.34\text{ mmHg}$
- D)  $143.99\text{ mmHg}$

**Correct Answer:** A

**Solution :**

$$\frac{P^0 - P_s}{P^0} = \frac{w \times M}{m \times W} \quad \left| = 143 - \frac{0.5 \times 154}{65 \times 158} \times 143 \right| \quad = 143 - 1.03 = 141.97\text{ mmHg}$$