

### Answer on Question#48637 – Chemistry –Physical Chemistry

Molarity of H<sub>2</sub>SO<sub>4</sub> is 18M. Its density is 1.8g/cm<sup>3</sup>, hence the molality is

- (1)18
- (2)100
- (3)26
- (4)500

**Solution:**

$$C = \frac{v}{V}; C - \text{molarity (mol/L)}; v - \text{mole (mol)}; V - \text{volume of the solution (L)};$$

$$\rho = \frac{m}{V}; \rho - \text{density (g/cm}^3\text{)}; m - \text{mass (g)}; V - \text{volume};$$

$$b = \frac{v_{\text{solute}}}{m_{\text{solvent}}}; b - \text{molality (mol/kg)};$$

$$v = \frac{m}{M}; m - \text{mass (g)}; M (Mr) - \text{molar mass (g/mol)};$$

$$v(\text{H}_2\text{SO}_4) = 18 \text{ mol}; m(\text{H}_2\text{SO}_4) = 1,764 \text{ kg}; m(\text{solution}) = 1,8 \text{ kg}; m(\text{H}_2\text{O}) = 0,036 \text{ kg};$$

$$b = 500 \text{ mol/kg}.$$

**Answer:** (4)500