

26. The vapour pressures of pure benzene and toluene are 41.04 and 16.37 kPa respectively at 60°C. What is the mole fraction of toluene in the vapour above a mixture of these miscible liquids containing 50% by mass of benzene?
- (a) 0.25
- (b) 0.46
- (c) 0.50
- (d) 0.54
- (e) 0.75
27. Which one of the following aqueous solutions has the **LOWEST** boiling point elevation?
- (a) 0.15 M sodium chloride
- (b) 0.10 M calcium carbonate
- (c) 0.15 M caesium chloride
- (d) 0.20 M sodium hydrogen sulphate
- (e) 0.10 M aluminium oxide
28. What is the osmotic pressure exerted by an 0.01 mol dm^{-3} solution of a sugar in water at 25°C?
- (a) $2.5 \times 10^1 \text{ N m}^{-2}$
- (b) $2.5 \times 10^2 \text{ N m}^{-2}$
- (c) $2.5 \times 10^3 \text{ atmospheres}$
- (d) $2.5 \times 10^4 \text{ N m}^{-2}$
- (e) $2.5 \times 10^5 \text{ N m}^{-2}$