

## Questions with Answer Keys

MathonGo

## Q1: 16 March (Shift 1) - Numerical

$AB_2$  is 10% dissociated in water to  $A^{2+}$  and  $B^-$ . The boiling point of a 10.0 molal aqueous solution of  $AB_2$  is \_\_\_\_\_ °C. (Round off to the Nearest Integer). [Given : Molal elevation constant of water  $K_b = 0.5 \text{ K kg mol}^{-1}$  boiling point of pure water = 100°C]

## Q2: 16 March (Shift 2) - Numerical

At 363 K, the vapour pressure of A is 21kPa and that of B is 18kPa. One mole of A and 2 moles of B are mixed. Assuming that this solution is ideal, the vapour pressure of the mixture is \_\_\_\_\_ kPa. (Round of to the Nearest Integer).

## Q3: 17 March (Shift 1) - Numerical

The oxygen dissolved in water exerts a partial pressure of 20kPa in the vapour above water. The molar solubility of oxygen in water is \_\_\_\_\_  $\times 10^{-5} \text{ mol dm}^{-3}$  (Round off to the Nearest Integer). [Given : Henry's law constant =  $K_H = 8.0 \times 10^4 \text{ kPa}$  for  $O_2$

Density of water with dissolved oxygen =  $1.0 \text{ kg dm}^{-3}$  ]

## Q4: 17 March (Shift 2) - Numerical

A 1 molal  $K_4Fe(CN)_6$  solution has a degree of dissociation of 0.4. Its boiling point is equal to that of another solution which contains 18.1 weight percent of a non electrolytic solute A.

The molar mass of A is \_\_\_\_\_ u. (Round off to the Nearest Integer).

[Density of water =  $1.0 \text{ g cm}^{-3}$ ]

## Questions with Answer Keys

MathonGo

## Q5: 18 March (Shift 1) - Numerical

2 molal solution of a weak acid HA has a freezing point of  $3.885^{\circ}\text{C}$ . The degree of dissociation of this acid is  $\_\_\_ \times 10^{-3}$ . (Round off to the Nearest Integer).

[Given : Molal depression constant of water =  $1.85 \text{ K kg mol}^{-1}$   
Freezing point of pure water =  $0^{\circ}\text{C}$ ]

## Q6: 18 March (Shift 2) - Numerical

A solute dimerizes in water. The boiling point of a 2 molar solution of A is  $100.52^{\circ}\text{C}$ . The percentage association of A is  $\_\_\_\_\_\_$

(Round off to the Nearest integer)

[Use :  $K_b$  for water =  $0.52 \text{ K kg mol}^{-1}$

Boiling point of water =  $100^{\circ}\text{C}$ ]

Questions with Answer Keys

MathonGo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

# Answer Key

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

**Q1** (106)

**Q2** (19)

**Q3** (25)

**Q4** (85)

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

**Q5** (50)

**Q6** (100)

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo

// mathongo // mathongo // mathongo // mathongo // mathongo // mathongo