



SmartSteps Academy

College Masjid Road, Near College Masjid, Hailakandi Town W/N-3, Hailakandi

Solution

DPP 3

- The vapor pressure of pure benzene at 25°C is 100 torr. If 2 moles of a non-volatile solute are added to 5 moles of benzene, the vapour pressure of the solution is found to be 80 torr. What is the mole fraction of the solute in the vapor phase?
A. 0.25
B. 0.20
C. 0.16
D. 0.80
- A solution is made by mixing 2 moles of liquid A and 3 moles of liquid B. The vapour pressure of pure liquid A is 200 torr and that of pure liquid B is 100 torr. Assuming ideal solution behavior, what is the total vapor pressure of the solution?
A. 140 torr
B. 160 torr
C. 150 torr
D. 120 torr
- The vapour pressures of pure liquids A and B are 400 mmHg and 600 mmHg, respectively. If a solution of A and B has a total vapor pressure of 500 mmHg, what is the mole fraction of A in the solution?
A. 0.25
B. 0.50
C. 0.75
D. 0.33
- The vapour pressures of benzene and toluene at 300 K are 120 mm Hg and 50 mm Hg, respectively. A solution is prepared by mixing 39 g of benzene and 92 g of toluene. Calculate the total vapour pressure of the solution at 300 K.
(Given: Molar mass of benzene = 78 g/mol, toluene = 92 g/mol)
A. 70.5 mm Hg
B. 74.2 mm Hg
C. 65.7 mm Hg
D. 82.1 mm Hg
- The vapour pressures of acetone and ethanol at 298 K are 231 mm Hg and 44 mm Hg respectively. A solution is prepared by mixing 30 g of acetone with 46 g of ethanol. Calculate the total vapour pressure of the solution at 298 K.
(Given: Molar mass of acetone = 58 g/mol, ethanol = 46 g/mol)
A. 82.2 mm Hg
B. 95.7 mm Hg
C. 110.3 mm Hg
D. 120.4 mm Hg

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