

JEE MAIN SOLUTIONS — VAPOUR PRESSURE OF LIQUID-LIQUID SOLUTIONS AND RAOULT'S LAW — PYQS

Max. Marks: 20

Questions: 5

Section A (MCQ) — 4 questions

- Q.1** At T(K), 2 moles of liquid A and 3 moles of liquid B are mixed. The vapour pressure of ideal solution formed is 320 mm Hg. At this stage, one mole of A and one mole of B are added to the solution. The vapour pressure is now measured as 328.6 mm Hg. The vapour pressure (in mm Hg) of A and B are respectively:

[JEE Main 2026 (Online) 28th January Morning Shift]

- (1) 400, 300 (2) 600, 400
(3) 500, 200 (4) 300, 200

Scan or tap for the full solution



- Q.2** Two liquids A and B form an ideal solution at temperature T K. At T K, the vapour pressures of pure A and B are 55 and 15 kN m⁻² respectively. What is the mole fraction of A in solution of A and B in equilibrium with a vapour in which the mole fraction of A is 0.8?

[JEE Main 2026 (Online) 24th January Evening Shift]

- (1) 0.5217 (2) 0.480 (3) 0.340 (4) 0.663

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- Q.3** Liquid A and B form an ideal solution. The vapour pressures of pure liquids A and B are 350 and 750 mm Hg respectively at the same temperature. If x_A and x_B are the mole fraction of A and B in solution while y_A and y_B are the mole fraction of A and B in vapour phase, then,

[JEE Main 2025 (Online) 7th April Evening Shift]

- (1) $(x_A - y_A) < (x_B - y_B)$ (2) $\frac{x_A}{x_B} = \frac{y_A}{y_B}$
(3) $\frac{x_A}{x_B} < \frac{y_A}{y_B}$ (4) $\frac{x_A}{x_B} > \frac{y_A}{y_B}$

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- Q.4** A solution is made by mixing one mole of volatile liquid A with 3 moles of volatile liquid B. The vapour pressure of pure A is 200 mm Hg and that of the solution is 500 mm Hg. The vapour pressure of pure B and the least volatile component of the solution, respectively, are:

[JEE Main 2025 (Online) 2nd April Morning Shift]

- (1) 1400 mm Hg, A (2) 1400 mm Hg, B
(3) 600 mm Hg, A (4) 600 mm Hg, B

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Section B (Numerical) — 1 question

- Q.5** Two liquids A and B form an ideal solution. At 320 K, the vapour pressure of the solution, containing 3 mol of A and 1 mol of B is 500 mm Hg. At the same temperature, if 1 mol of A is further added to this solution, vapour pressure of the solution increases by 20 mm Hg. Vapour pressure (in mm Hg) of B in pure state is _____. (Nearest integer)

[JEE Main 2026 (Online) 23rd January Evening Shift]

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ANSWER KEY

Section A (MCQ) — 4 questions

Ques.	1	2	3	4								
Ans.	3	1	4	3								

Section B (Numerical) — 1 question

Ques.	5							
Ans.	200							