PART 1 - CHEMISTRY

Topic : Solutions

SECTION–B : (Maximum Marks : 8)

- This section contains **ONE** paragraph.
- Based on each paragraph, there are **TWO** questions.
- The answer to each question is a **NUMERICAL VALUE**.
- For each question, enter the correct numerical value of the answer (in decimal notation, truncated / rounded-off to the **SECOND DECIMAL PLACE**; e.g. 6.25, 7.00, −0.33, −.30, 30.27, −127.30) in the place designated to enter the answer.
- Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 If ONLY the correct answer is entered;
Zero Marks : 0 In all other cases.

Paragraph for Questions 1 and 2

Two volatile liquids A and B form an ideal solution. Consider a 5 molal solution of B in A inside a closed container having a total vapour pressure of 100 mm Hg at 300 K. The vapour pressure of pure A at 300K is 105 mm Hg. Assume that A and B behave as ideal gases in the vapour phase.

Given:

The gas constant R = 0.08 L atm K^{-1} mol^{-1}

Molar mass of A is 50 g mol^{-1}

Molar mass of B is 57 g mol^{-1}

Density of liquid B at 300 K is 0.5 g/mL

1 atm = 760 mm Hg

1. At 300 K, the ratio of the molar volume of pure B in vapour phase to its molar volume in liquid phase is ____.

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Scan or tap for the full solution

2. The mole fraction of B in vapour phase which is in equilibrium with this solution is ____.

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Space for Rough Work

JEE ADVANCED SOLUTIONS — VAPOUR PHASE COMPOSITION — PYQS

Test Pattern : **JEE (Advanced)**

ANSWER KEY

SECTION–B											
Ques.	1	2									
Ans.	**1991 to 2053**	**0.16**									

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