

JEE MAIN SOME BASIC CONCEPTS OF CHEMISTRY — CONCENTRATION TERMS — PYQS

Max. Marks: 24
Questions: 6

Section A (MCQ) — 4 questions

- Q.1** At T(K), 100 g of 98% H_2SO_4 (w/w) aqueous solution is mixed with 100 g of 49% H_2SO_4 (w/w) aqueous solution. What is the mole fraction of H_2SO_4 in the resultant solution?
 (Given : Atomic mass H = 1 u; S = 32 u; O = 16 u).
 (Assume that temperature after mixing remains constant)

[JEE Main 2026 (Online) 22nd January Evening Shift]

- (1) 0.9 (2) 0.663 (3) 0.1 (4) 0.337

Scan or tap for the full solution



- Q.2** 10 mL of 2 M NaOH solution is added to 20 mL of 1 M HCl solution kept in a beaker. Now, 10 mL of this mixture is poured into a volumetric flask of 100 mL containing 2 moles of HCl and made the volume up to the mark with distilled water. The solution in this flask is :

[JEE Main 2025 (Online) 3rd April Evening Shift]

- (1) 0.2 M NaCl solution (2) 20 M HCl solution
-
- (3) Neutral solution (4) 10 M HCl solution

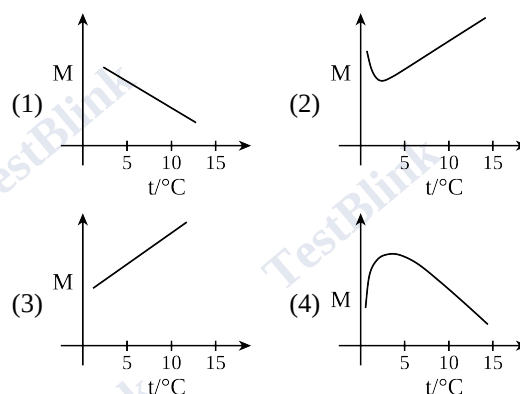
Scan or tap for the full solution



- Q.3** 'x' g of NaCl is added to water in a beaker with a lid. The temperature of the system is raised from 1°C to 25°C . Which out of the following plots, is best suited for the change in the molarity (M) of the solution with respect to temperature?

[Consider the solubility of NaCl remains unchanged over the temperature range]

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



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- Q.4** Concentrated nitric acid is labelled as 75% by mass. The volume in mL of the solution which contains 30 g of nitric acid is _____.
 Given : Density of nitric acid solution is 1.25 g/mL .

[JEE Main 2025 (Online) 28th January Evening Shift]

- (1) 32 (2) 40 (3) 55 (4) 45

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Section B (Numerical) — 2 questions

- Q.5** Fortification of food with iron is done using $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$. The mass in grams of the $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ required to achieve 12 ppm of iron in 150 kg of wheat is ____ (Nearest integer)
 [Given: Molar mass of Fe, S and O respectively are 56, 32 and 16 g mol^{-1}]

[JEE Main 2025 (Online) 4th April Morning Shift]

Scan or tap for the full solution



- Q.6** The molarity of a 70% (mass/mass) aqueous solution of a monobasic acid (X) is _____ $\times 10^{-1} \text{ M}$ (Nearest integer)
 [Given: Density of aqueous solution of (X) is 1.25 g mL^{-1}
 Molar mass of the acid is 70 g mol^{-1}]

[JEE Main 2025 (Online) 28th January Morning Shift]

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ANSWER KEY**Section A (MCQ) — 4 questions**

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

Section B (Numerical) — 2 questions

Ques.	5	6						
Ans.	9	125						