

Electrochemistry

NEET previous year questions · Chemistry

6 questions from the official papers: NEET 2026 (2), Re-NEET 2026 (2), NEET 2020 (2). Each is followed by its answer and a worked solution written by BrainIt. Generated on 23 October 2026.



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1. NEET 2026 · Q73

A solution of copper sulphate is electrolysed for 10 minutes with a current of 1.5 amperes. The mass of copper deposited at cathode is: (Given: Molar mass of Cu = 63 g mol⁻¹; 1 F = 96487 C mol⁻¹)

- (1) 1.7018 g (2) 0.2938 g
(3) 2.4036 g (4) 0.5876 g

Answer (2)

Sol. Charge passed $Q = it = 1.5 \times (10 \times 60) = 900$ C. Deposition follows $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$, so mass = $\frac{Eit}{F} = \frac{63 \times 1.5 \times 600}{2 \times 96487} \approx 0.294$ g, i.e. 0.2938 g. The other values arise from using the wrong n-factor or the wrong time.

2. NEET 2026 · Q79

Calculate emf of the half cell given below:

$\text{Pt(s)}|\text{H}_2(\text{g}, 2\text{atm})|\text{HCl(aq}, 0.02\text{M})$

$E^\circ_{\text{H}_2/\text{H}^+} = 0$ V

(Given: $\frac{2.303RT}{F} = 0.059$, $\log 2 = 0.3010$)

- (1) -0.109 V (2) 0.035 V
(3) -0.035 V (4) 0.109 V

Answer (4)

Sol. For $\text{H}_2 \rightarrow 2\text{H}^+ + 2\text{e}^-$, the Nernst equation gives

$$E = E^\circ - \frac{0.059}{2} \log \frac{[\text{H}^+]^2}{p_{\text{H}_2}}, \text{ with } [\text{H}^+] = 0.02 \text{ M and}$$

$$p(\text{H}_2) = 2 \text{ atm. So } E = 0 - 0.0295 \log \frac{(0.02)^2}{2} = -0.0295 \log(2 \times 10^{-4}) = -0.0295(0.301 - 4) \approx +0.109 \text{ V.}$$

3. Re-NEET 2026 · Q56

The standard electrode potential (E°) for the half-cell reaction $\text{Fe}^{3+} + \text{e}^- \rightarrow \text{Fe}^{2+}$ at 298 K is (Given : $E^\circ(\text{Fe}^{3+}/\text{Fe}) = -0.04$ V and $E^\circ(\text{Fe}^{2+}/\text{Fe}) = -0.44$ V at 298 K)

- (1) +0.40 V (2) +0.76 V (3) -0.48 V (4) +0.92 V

Answer (2)

Sol. Electrode potentials are NOT additive when the electron counts differ; the additive quantity is $\Delta G^\circ = -nFE^\circ$. For $\text{Fe}^{3+} + 3\text{e}^- \rightarrow \text{Fe}$, $\Delta G_1^\circ = -3F(-0.04) = 0.12F$; for $\text{Fe}^{2+} + 2\text{e}^- \rightarrow \text{Fe}$, $\Delta G_2^\circ = -2F(-0.44) = 0.88F$. Subtracting, $\Delta G_3^\circ = 0.12F - 0.88F = -0.76F$, and since $n = 1$, $E^\circ = +0.76$ V. NCERT Class 12, Electrochemistry (electrode potential and Gibbs energy).

4. Re-NEET 2026 · Q62

For a salt **XY**, which is a strong electrolyte, the plot of Λ_m versus $\sqrt{c}$ has a slope of -90.0 S cm²mol^{-3/2}L^{1/2} at 298 K. At 0.01 M concentration of **XY**, the value of Λ_m is 145.0 S cm²mol⁻¹. The limiting molar conductivity of **Y**⁻ ion ($\lambda_{Y^-}^\circ$, in S cm²mol⁻¹) at 298 K will be (Given : $\lambda_{X^+}^\circ = 74.0$ S cm²mol⁻¹)

- (1) 80.0 (2) 100.0 (3) 90.0 (4) 76.0

Answer (1)

Sol. For a strong electrolyte the Debye-Huckel-Onsager relation is $\Lambda_m = \Lambda_m^\circ - A\sqrt{c}$, where the plot's slope is $-A$. At $c = 0.01$ M, $\sqrt{c} = 0.1$, so $\Lambda_m^\circ = 145.0 + (90.0)(0.1) = 154.0$. Kohlrausch's law then gives $\lambda_{Y^-}^\circ = 154.0 - 74.0 = 80.0$ S cm²mol⁻¹. NCERT Class 12, Electrochemistry (variation of conductivity with concentration).

5. NEET 2020 · Q93

The number of Faradays (F) required to produce 20 g of calcium from molten CaCl_2 (atomic mass of Ca = 40 g mol⁻¹) is

- (1) 2 (2) 3 (3) 4 (4) 1

Answer (4)

Sol. The reaction for the production of calcium is $\text{Ca}^{2+} + 2\text{e}^- \rightarrow \text{Ca}$. The number of moles of calcium

produced is $\frac{20\text{ g}}{40\text{ g mol}^{-1}} = 0.5\text{ mol}$. Since 2 moles of electrons are required to produce 1 mole of calcium, the number of Faradays required is $0.5 \times 2 = 1\text{ F}$.
Chapter: Electrochemistry.

6. NEET 2020 · Q130

On electrolysis of dil. sulphuric acid using Platinum (Pt) electrode, the product obtained at anode will be

- | | |
|-------------------------|--------------------------|
| (1) Oxygen gas | (2) H ₂ S gas |
| (3) SO ₂ gas | (4) Hydrogen gas |

Answer (1)

Sol. On electrolysis of dilute sulfuric acid with platinum electrodes, oxygen gas is evolved at the anode due to the oxidation of water. The reaction is $2\text{H}_2\text{O} \rightarrow \text{O}_2 + 4\text{H}^+ + 4\text{e}^-$. Chapter: Electrochemistry.

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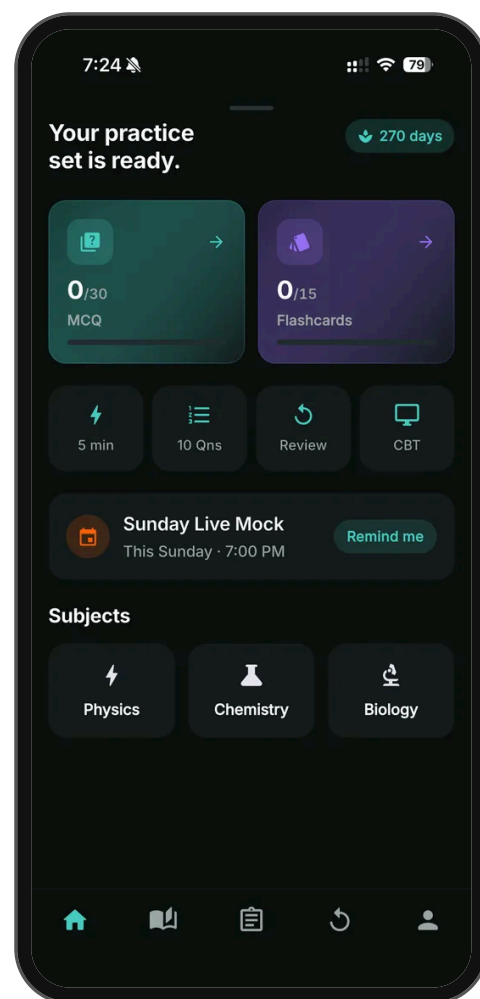
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