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EdLoop EAPCET

CHEMISTRY · EAPCET (EAMCET)

Electrochemistry

Previous Year Questions with answers

182 questions · **144** papers · **2010–2026** · newest paper first

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What is in this PDF: every Electrochemistry question we hold from past AP and TS EAPCET (called EAMCET until 2020 in Andhra Pradesh and 2023 in Telangana) papers, with its options and answer. Where an answer comes from a source other than the official final key, it says so next to the answer.

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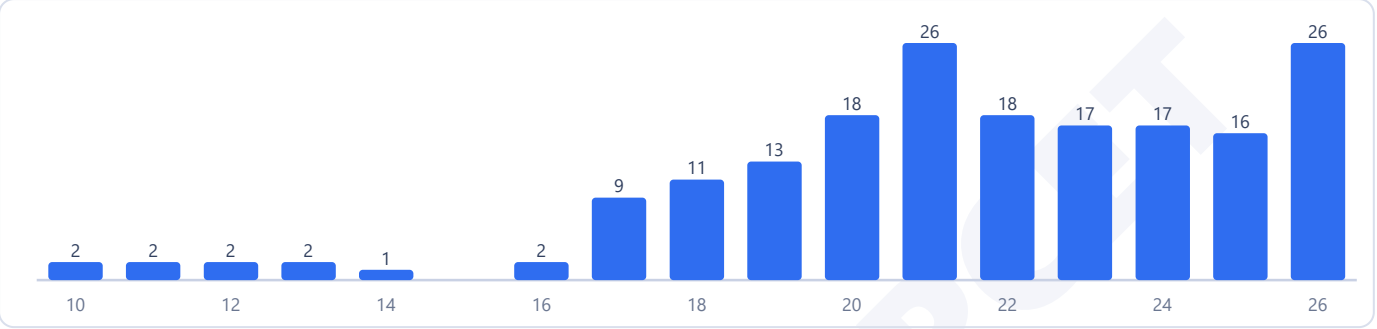
Chapter at a glance

3.1%	182	77 of 77	182 / 0
of Chemistry questions, 2022–2026	questions, 2010–2026	papers asked it, 2022–2026	MCQ / numerical, 2010–2026

Trend. Steady: 1.3 questions per paper in 2024–2026 against 1.1 in 2022–2023.

Questions per year



Counts are the questions we hold: 182 in 144 papers. No question in this chapter was found repeated across papers.

Most-asked topics in this chapter (2010–2026)

Electrochemical Cells	84
Electrolysis	50
Conductance	38
Batteries & Corrosion	10

How often it comes up

Electrochemistry occupies position 13 among the 31 chemistry chapters in the modern 2022 to 2026 examination window. Across the full 2010 through 2026 historical archive, the chapter accounted for 182 questions across 149 papers, appearing in 144 of those examinations to claim 3.1 percent of the total chemistry questions with 1.2 questions per paper. In the five-year recent period from 2022 to 2026, it provided 94 questions across 77 sittings, sustaining 1.2 questions per paper and a 3.1 percent subject share.

The chapter maintains a steady presence across the board, appearing in every paper between 2022 and 2026. Looking at the two state streams during this recent period, AP papers assembled 63 questions across 48 sittings (1.3 questions per paper, 3.3 percent share), while TS papers gathered 31 questions over 29 sittings (1.1 questions per paper, 2.7 percent share).

In earlier testing between 2010 and 2021, papers included 88 questions across 72 sittings (appearing in 67 tests), delivering 1.2 questions per paper and a 3.1 percent subject share. Across the last three testing cycles from 2024 to 2026, question banks featured 59 questions across 46 sittings, providing 1.3 questions per test and 3.2 percent share. Comparing the early era with the last three years shows the share is about the same, and comparing the recent five-year window with the last three years shows the share is about the same. Every candidate encounters at least one electrochemistry problem on test day.

Most-asked topics

Questions in this branch divide across four core electrical domains:

- **Electrochemical Cells** represents the biggest focus with 84 questions overall and 42 during the recent period through 2026. Problems assess standard reduction potentials, Nernst equation calculations for non-standard half-

cells and full galvanic pairs, cell notation, and connections to equilibrium constants and standard Gibbs energy changes.

- **Electrolysis** contributed 50 questions across the archive, with 23 appearing from 2022 to 2026. This area centers on Faradays first and second laws, calculating masses or gas volumes liberated at electrodes, current efficiency, and preferential discharge in aqueous electrolyte solutions.
- **Conductance** accounts for 38 questions in total and 23 in the recent timeframe through 2026. Questions explore specific conductivity, molar conductivity variations with dilution, Kohlrauschs law of independent ion migration, cell constant determinations, and degree of dissociation for weak electrolytes.
- **Batteries & Corrosion** provides 10 questions across the archive, with 6 occurring between 2022 and 2026. Themes include primary cells like the dry cell and mercury battery, secondary cells like the lead-acid storage battery and nickel-cadmium accumulator, fuel cells, and electrochemical prevention of rusting.

What the questions look like

Electrochemical calculations usually involve either potential evaluation or charge deposition. In galvanic cell problems, you will evaluate the cell potential at specified ion concentrations using the Nernst equation, taking care to raise concentrations to their correct stoichiometric powers in the reaction quotient Q. Another standard style asks you to calculate the standard Gibbs energy change using standard reduction potentials and Faraday constant.

In electrolysis, a typical problem specifies an electric current running for a designated time through a molten or aqueous salt and asks for the mass of metal deposited on the cathode. Conductance questions frequently present Kohlrausch law data, requiring you to combine limiting molar conductivities of strong electrolytes to deduce the limiting molar conductivity or ionization constant of a weak acid.

How to practise it

Master standard electrode reduction conventions. The electrode with higher standard reduction potential acts as the cathode (reduction half-cell), while the electrode with lower standard reduction potential serves as the anode (oxidation half-cell). Standard cell electromotive force always equals cathode potential minus anode potential.

Become fluent with Nernst equation calculations at twenty-five degrees Celsius using zero point zero five nine divided by n times log Q. Track the number of exchanged electrons n meticulously when combining half-reactions with differing coefficients, such as chromium three plus and cadmium two plus where n equals six. For electrolysis, remember that ninety-six thousand five hundred coulombs corresponds to one mole of electrons, liberating one gram equivalent of any substance.

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Q1 AP EAPCET 2026 · 18 May · Shift 1 MCQ

Observe the following cell

$$M(s)\,|\,M^{2+}(xM)\,||\,H^{+}(0.02M)\,|\,\underset{(1\ bar)}{H_2(g)},Pt(s)$$

What is the value of x?

Given: $\frac{2.303RT}{F}=0.06V$; $E_{Cell}=0.077\ V$;

$E^{o}_{M^{2+}|M}=-0.14V$; $E^{o}_{H^{+}|H_2}=0.0\ V$; $\log 4=0.602$;

$(antilog(\bar{2}.7)=0.05;\ antilog(\bar{2}.60)=0.04)$

(A) 0.05

(B) 0.04

(C) 0.002

(D) 0.001

Answer: (A) 0.05 · The council's preliminary key

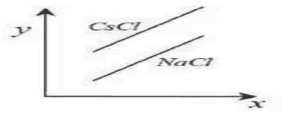
Q2 AP EAPCET 2026 · 18 May · Shift 1 MCQ

The Λ_m (on y - axis) of $NaCl$ and $CsCl$ was plotted against $\sqrt{c}$ (c = concentration on x – axis). Identify the correct figure for these electrolytes
(λ^0 of Na^+ and Cs^+ is 50 and 77 S cm^2 mol^{-1} respectively)

The Λ_m (on y - axis) of $NaCl$ and $CsCl$ was plotted against $\sqrt{c}$ (c = concentration on x – axis). Identify the correct figure for these electrolytes
(λ^0 of Na^+ and Cs^+ is 50 and 77 S cm^2 mol^{-1} respectively)

$NaCl$ మరియు $CsCl$ ల Λ_m ని (y – అక్షం పై), $\sqrt{c}$ (c = గాఢత, x – అక్షం పై) కి వ్యతిరేకంగా గ్రాఫ్ గీసారు. ఈ విద్యుత్ విశ్లేష్యాల సరియైన గ్రాఫ్ ని గుర్తించండి
(Na^+ మరియు Cs^+ ల λ^0 విలువ వరుసగా 50 మరియు 77 S cm^2 mol^{-1})

Options :

1. 

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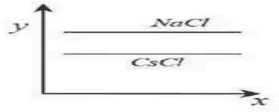
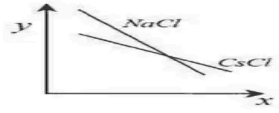
3. 

4. 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · The council's preliminary key

Q3 AP EAPCET 2026 · 18 May · Shift 2 MCQ

The value of $\log K_c$ for the given cell reaction at $298\ K$ is

$Cu(s) + 2Ag^{+}(aq) \rightarrow Cu^{2+}(aq) + 2Ag(s)$

(Given: $E^{\circ}_{Cu^{2+}/Cu} = 0.34V$, $E^{\circ}_{Ag^{+}/Ag} = 0.80V$; $\frac{2.303RT}{F} = 0.06$)

(A) 45.33
(B) 20.33
(C) 15.33
(D) 30.66

Answer: (C) 15.33 · The council's preliminary key

Q4 AP EAPCET 2026 · 18 May · Shift 2 MCQ

The number of moles of H_2 gas liberated at cathode, when 10 milli-ampere current is passed through dilute aqueous solution of NaCl for about 19.3×10^4 seconds is
$(F = 96500\ C\ mol^{-1})$

(A) 0.50
(B) 0.02
(C) 0.01
(D) 0.15

Answer: (C) 0.01 · The council's preliminary key

Q5 AP EAPCET 2026 · 15 May · Shift 1 MCQ

E_{cell}, for the cell given below is 0.82 V. What is its E° value?

$\text{Fe} \,|\, \text{Fe}^{2+}\ (0.001\ \text{M}) \,||\, \text{Cu}^{2+}\ (0.1\ \text{M}) \,|\, \text{Cu}$

(Given: $\frac{2.303\,RT}{F} = 0.06$ V)

(A) 0.63 V
(B) 0.69 V
(C) 0.76 V
(D) 0.87 V

Answer: (C) 0.76 V · The council's preliminary key

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Q6 AP EAPCET 2026 · 15 May · Shift 1 MCQ

The resistance of a conductivity cell filled with 0.02 M KCl solution is 85 Ω at 25°C. Conductivity of this solution is 0.3 S m^{-1}. Resistance of 0.0025 M K_2SO_4 solution taken in the same cell is 300 Ω. The molar conductivity of 0.0025 M K_2SO_4 solution (in S m^2 mol^{-1}) is

(A) 6.8×10^{-3}
(B) 2.4×10^{-2}
(C) 3.4×10^{-2}
(D) 3.4×10^{-3}

Answer: (C) 3.4×10^{-2} · The council's preliminary key

Q7 AP EAPCET 2026 · 15 May · Shift 1 MCQ

Which of the following reactions is non-spontaneous?

(A) $2F_2 + 2H_2O \rightarrow 4HF + O_2$
(B) $Cl_2 + H_2O \rightarrow HCl + HOCl$
(C) $Br_2 + H_2O \rightarrow HBr + HOBr$
(D) $2I_2 + 2H_2O \rightarrow 4HI + O_2$

Answer: (D) $2I_2 + 2H_2O \rightarrow 4HI + O_2$ · The council's preliminary key

Q8 AP EAPCET 2026 · 15 May · Shift 2 MCQ

Which of the following statements are correct about a dry cell?

(I) It is also known as leclanche cell
(II) Electrolyte is a moist paste of NH_4Cl and $ZnCl_2$
(III) Reaction of cathode is $MnO_2 + NH_4^+ + e^- \rightarrow MnO(OH) + NH_3$
(IV) It can be charged

The correct answer is

(A) I , II , III only
(B) II , III , IV only
(C) I , III , IV only
(D) I , II , IV only

Answer: (A) I , II , III only · The council's preliminary key

Q9 AP EAPCET 2026 · 15 May · Shift 2 MCQ

E_1, E_2 and E_3 are the emf values of three galvanic cells I , II , III respectively. The correct order of E_1, E_2 and E_3 is

(I) $Zn|Zn^{2+}(1M)||Cu^{2+}(0.1M)|Cu$

(II) $Zn|Zn^{2+}(1M)||Cu^{2+}(1M)|Cu$

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(III) $Zn|Zn^{2+}(0.1M)||Cu^{2+}(1M)|Cu$

(A) $E_3 > E_2 > E_1$

(B) $E_1 > E_2 > E_3$

(C) $E_2 > E_3 > E_1$

(D) $E_1 > E_3 > E_2$

Answer: (A) $E_3 > E_2 > E_1$ · The council's preliminary key

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Q10 AP EAPCET 2026 · 14 May · Shift 1 MCQ

ΔG° (in $\mathrm{kJ\ mol^{-1}}$) for the cell reaction given below is

$$2\,\mathrm{Al}(s) + 3\,\mathrm{Cu}^{2+}(aq) \rightarrow 2\mathrm{Al}^{3+}(aq) + 3\,\mathrm{Cu}(s)$$

(Given: $E^\circ_{\mathrm{Al^{3+}|Al}} = -1.66\ \mathrm{V}$; $E^\circ_{\mathrm{Cu^{2+}|Cu}} = +0.34\ \mathrm{V}$; $F = 96500\ \mathrm{C\ mol^{-1}}$)

(A) -1158

(B) -579

(C) -386

(D) -772

Answer: (A) -1158 · The council's preliminary key

Q11 AP EAPCET 2026 · 14 May · Shift 1 MCQ

Molten $\mathrm{Al_2O_3}$ was electrolyzed between carbon electrodes. The mass (in g) of aluminium produced at cathode when 965 amperes current is passed through it for 1000 seconds is
(F=96500 C $\mathrm{mol^{-1}}$)

(A) 30

(B) 90

(C) 60

(D) 45

Answer: (B) 90 · The council's preliminary key

Q12 AP EAPCET 2026 · 14 May · Shift 2 MCQ

Which of the following are the correct statements about lead storage battery?

I) It is a secondary battery

II) In this lead is cathode and a grid of lead packed with $\mathrm{PbO_2}$ is anode

III) In this 98% $\mathrm{H_2SO_4}$ acts as electrolyte

IV) During use of battery, concentration of $\mathrm{H_2SO_4}$ decreases

The correct answer is

(A) I & II only
(B) I & IV only
(C) II & III only
(D) II & IV only

Answer: (B) I & IV only · The council's preliminary key

Q13 AP EAPCET 2026 · 14 May · Shift 2 MCQ

The conductivity of 0.001 M acetic acid is 5×10^{-5} S cm^{-1}. If the molar conductivity of acetic acid solution at infinite dilution is 390 S cm^2 mol^{-1}. What is its degree of dissociation?

(A) 0.218
(B) 0.128
(C) 0.138
(D) 0.238

Answer: (B) 0.128 · The council's preliminary key

Q14 AP EAPCET 2026 · 13 May · Shift 1 MCQ

X, Y and Z represent three electrodes $\mathrm{Al}^{3+}/\mathrm{Al}$, $\mathrm{Cu}^{2+}/\mathrm{Cu}$ and $\mathrm{Ag}^{+}/\mathrm{Ag}$ with E° values -1.66, 0.34 and $0.80\ V$ respectively. The correct order of oxidising power of these three electrodes is

(A) $X > Y > Z$
(B) $Z > Y > X$
(C) $X = Y = Z$
(D) $Y > Z > X$

Answer: (B) $Z > Y > X$ · The council's preliminary key

Q15 AP EAPCET 2026 · 13 May · Shift 1 MCQ

Given below are two statements

Statement I: The electrical conductivity of a solution decreases with dilution

Statement II: The overall reaction in $H_2 - O_2$ fuel cell is,

$$2H_2O(l) \longrightarrow 2H_2(g) + O_2(g)$$

The correct answer is

(A) Both statements I and statement II are correct
(B) Both statements I and statement II are not correct
(C) Statement I is correct but statement II is not correct
(D) Statement I is not correct but statement II is correct

Answer: (C) Statement I is correct but statement II is not correct · The council's preliminary key

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Q16 AP EAPCET 2026 · 13 May · Shift 2 MCQ

At 298 K, the following reaction takes place in a cell

$2\,M^{3+}(aq) + 2I^{-}(aq) \rightarrow 2M^{2+}(aq) + I_2(s)$. The value of $\log K_c$ for this reaction is 7.98. What is E^0_{cell} (in V) ?

$(F = 96500\ C\ mol^{-1}, R = 8.3\ J\ mol^{-1}K^{-1})$

(A) 0.455

(B) 0.135

(C) 0.235

(D) 0.938

Answer: (C) 0.235 · The council's preliminary key

Q17 AP EAPCET 2026 · 13 May · Shift 2 MCQ

The molar conductivity of three electrolytes, $NaCl$, KCl and $CsCl$, was plotted against $\sqrt{c}$ (c = concentration) and the obtained figure is shown below.

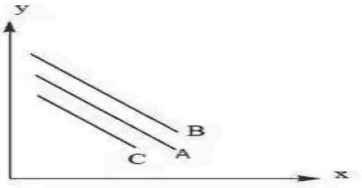
The λ^0 of Na^+, K^+ and Cs^+ is 50 , 73 and 77 $S\ cm^2mol^{-1}$ respectively. Identify the electrolytes

(see the figure above)

y – axis = Λ_m(in $S^2cm^2mol^{-1}$)

x – axis = $\sqrt{c}$

The molar conductivity of three electrolytes, NaCl, KCl and CsCl, was plotted against $\sqrt{c}$ (c = concentration) and the obtained figure is shown below.
The λ^0 of Na^+, K^+ and Cs^+ is 50 , 73 and 77 $S\ cm^2mol^{-1}$ respectively. Identify the electrolytes



మూడు విద్యుద్విశ్లేష్యాలు NaCl, KCl మరియు CsCl ల మోలార్ వాహకత్వం ను $\sqrt{c}$ (c = గాఢత) కు వ్యతిరేకంగా గ్రాఫ్ గీయగా క్రింది పటం లభించింది. Na^+, K^+ మరియు Cs^+ ల λ^0 విలువ వరుసగా 50 , 73 మరియు 77 $S\ cm^2mol^{-1}$. విద్యుద్విశ్లేష్యాలను గుర్తించండి

$y - axis = \Lambda_m(in\ S^2cm^2mol^{-1})$

$x - axis = \sqrt{c}$

Options :

1. A = KCl ; B = CsCl ; C = NaCl
2. A = KCl ; B = NaCl ; C = CsCl
3. A = CsCl ; B = NaCl ; C = KCl
4. A = NaCl ; B = KCl ; C = CsCl

(A) A = KCl ; B = CsCl ; C = NaCl
(B) A = KCl ; B = NaCl ; C = CsCl
(C) A = CsCl ; B = NaCl ; C = KCl
(D) A = NaCl ; B = KCl ; C = CsCl

Answer: (A) A = KCl ; B = CsCl ; C = NaCl · The council's preliminary key

Q18 AP EAPCET 2026 · 12 May · Shift 1 MCQ

Consider the following cell containing two hydrogen electrodes at 298 K

$Pt, H_2(g)|H^+(10^{-8}\ M)\ ||\ H^+(0.01\ M)|H_2(g), Pt$

What is its cell potential (in V)?

$\left(Given: \frac{2.303\ RT}{F} = 0.06\right)$

(A) $+0.36$
(B) -0.30
(C) -0.60
(D) $+0.60$

Answer: (A) $+0.36$ · The council's preliminary key

Q19 AP EAPCET 2026 · 12 May · Shift 1 MCQ

The conductivity of 0.01 M KCl solution is 'p' $ohm^{-1}cm^{-1}$. When conductivity cell is filled with the above solution, the observed conductance is 'q' ohm^{-1}. When the same cell is filled with 0.01 M H_2SO_4, the observed conductance is 'r' ohm^{-1}. The conductivity of 0.01 M H_2SO_4 in $ohm^{-1}cm^{-1}$ is

(A) pq
(B) qr
(C) $\frac{r}{pq}$
(D) $\frac{pr}{q}$

Answer: (D) $\frac{pr}{q}$ · The council's preliminary key

Q20 AP EAPCET 2026 · 12 May · Shift 2 MCQ

Given below are two statements.

Statement I: The correct relationship between $\Delta_r G^\ominus$ and K_c is, $\Delta_r G^\ominus = -RT\ ln\ K_c$

Statement II: At 298 K, the correct relationship between $E^\ominus_{cell}$ and K_c is, $E^\ominus_{cell} = \frac{0.059}{n} ln\ K_c$

The correct answer is

(A) Both statement I and statement II are correct
(B) Both statement I and statement II are not correct
(C) Statement I is correct but statement II is not correct
(D) Statement I is not correct but statement II is correct

Answer: (C) Statement I is correct but statement II is not correct · The council's preliminary key

Q21 TS EAPCET 2026 · 11 May · Shift 1 MCQ

At infinite dilution, the molar conductivity of aluminum sulphate is $858\ \mathrm{S\,cm^2\,mol^{-1}}$.

If $\lambda^{\circ}_{SO_4^{2-}}$ is $160\ \mathrm{S\,cm^2\,mol^{-1}}$, what is the molar conductivity of Al^{3+} ion (in $\mathrm{S\,cm^2\,mol^{-1}}$)?

(A) 198
(B) 918
(C) 189
(D) 378

Answer: (C) 189 · The council's preliminary key

Q22 TS EAPCET 2026 · 11 May · Shift 2 MCQ

The following reaction takes place in a galvanic cell at 298 K

$Fe^{2+}(aq) + Ag^{+}(aq) \rightarrow Fe^{3+}(aq) + Ag(s)$

The $\Delta_r G^{\ominus}$ (in $\mathrm{kJ\,mol^{-1}}$) and $\log K_c$ values are respectively

($\mathrm{F = 96500\ C\,mol^{-1}}$, $E^{\circ}_{Ag^+/Ag} = 0.8\ \mathrm{V}$, $E^{\circ}_{Fe^{3+}/Fe^{2+}} = 0.77\ \mathrm{V}$, $\mathrm{R = 8.3\ J\,mol^{-1}K^{-1}}$)

(A) -0.508 ; 2.895
(B) 2.895 ; 5.08
(C) -2.895 ; 0.508
(D) 2.895; 0.508

Answer: (C) -2.895 ; 0.508 · The council's preliminary key

Q23 TS EAPCET 2026 · 10 May · Shift 1 MCQ

How many grams of metallic mercury could be produced approximately by electrolysing a $1.0M$ $Hg(NO_3)_2$ solution with a current of 2.0 amp for 3.0 h?

(Molar mass of $\mathrm{Hg = 200\ g\,mol^{-1}}$, $F = 96500\ \mathrm{C\,mol^{-1}}$)

(A) 22.4 g
(B) 20.1 g
(C) 11.2 g
(D) 40.2 g

Answer: (A) 22.4 g · The council's preliminary key

Q24 TS EAPCET 2026 · 10 May · Shift 2 MCQ

Observe the given cell

$\mathrm{Cr} \mid \mathrm{Cr}^{3+}(0.1\mathrm{M}) \parallel \mathrm{Fe}^{2+}(0.01\mathrm{M}) \mid \mathrm{Fe}$

What is the cell potential (in V) for the above cell?

(Given: $E^{\circ}_{\mathrm{Cr}^{3+}\mid\mathrm{Cr}} = -0.74\,\mathrm{V}$; $E^{\circ}_{\mathrm{Fe}^{2+}\mid\mathrm{Fe}} = -0.44\,\mathrm{V}$; $\frac{2.303\,RT}{F} = 0.06\,\mathrm{V}$)

(A) 0.52
(B) 0.26
(C) 0.13
(D) 0.39

Answer: (B) 0.26 · The council's preliminary key

Q25 TS EAPCET 2026 · 9 May · Shift 1 MCQ

A student builds a galvanic cell utilizing the given reaction

$\mathrm{Ni(s)} + 2\mathrm{Ag}^{+}\mathrm{(aq)} \rightarrow \mathrm{Ni}^{2+}\mathrm{(aq)} + 2\mathrm{Ag(s)}$; $\mathrm{E}^{\circ} = 1.05\ \mathrm{V}$

At $25\ ^{\circ}\mathrm{C}$, what could the student do for the cell to generate a potential greater than that of the initial standard cell?

(A) Increase the concentration of $\mathrm{Ag}^{+}\mathrm{(aq)}$
(B) Increase the size of the Ni (s) electrode
(C) Decrease the size of the Ag(s) electrode
(D) Increase the pressure

Answer: (A) Increase the concentration of $\mathrm{Ag}^{+}\mathrm{(aq)}$ · The council's preliminary key

Q26 TS EAPCET 2026 · 9 May · Shift 2 MCQ

The following reaction takes place in a galvanic cell

$$2\mathrm{Cr(s)} + 3\mathrm{Cd}^{2+}\mathrm{(aq)} \rightarrow 2\mathrm{Cr}^{3+}\mathrm{(aq)} + 3\mathrm{Cd(s)}$$

What is $\Delta_r G^{\ominus}$ of this cell (in $\mathrm{kJ\,mol^{-1}}$)?

($\mathrm{F} = 96500\ \mathrm{C\,mol^{-1}}$; $E^{\circ}_{\mathrm{Cd}^{2+}\mid\mathrm{Cd}} = -0.4\,\mathrm{V}$, $E^{\circ}_{\mathrm{Cr}^{3+}\mid\mathrm{Cr}} = -0.74\,\mathrm{V}$)

(A) -196.86
(B) -1968.6
(C) -32.81
(D) -19.686

Answer: (A) -196.86 · The council's preliminary key

Q27 AP EAPCET 2025 · 27 May · Shift 1 MCQ

Observe the following statements about dry cell

I. It is a primary battery.

II. Zinc vessel acts as cathode.

III. A paste of moist NH_4Cl, MnO_2 and $ZnCl_2$ is present between two electrodes.

IV. The potential of this cell is 1.5 V.

The correct statements are (only)

(A) I, II, III, IV

(B) I, II, III only

(C) I, III, IV only

(D) II, III, IV only

Answer: (C) I, III, IV only · The council's preliminary key

Q28 AP EAPCET 2025 · 26 May · Shift 1 MCQ

In a cell, a copper electrode was used as a cathode. What is the elecrode potential (in V) of the copper electrode dipped in 0.1 M Cu^{2+} solution at 298 K ?

($E^{\ominus}_{Cu^{2+}/Cu} = 0.34\ V$; $\frac{2.303\ RT}{F} = 0.06\ V$)

(A) 0.34

(B) 0.31

(C) 0.37

(D) 0.40

Answer: (B) 0.31 · The council's preliminary key

Q29 AP EAPCET 2025 · 26 May · Shift 2 MCQ

Match the following

List-I (symbol of electrical property)	List-II (units)
A) $\wedge_m$	I) $S\ cm^{-1}$
B) G	II) m^{-1}
C) κ	III) $S\ cm^2\ mol^{-1}$
D) G^*	IV) S

The correct answer is

(A) A-IV, B-III, C-I, D-II

(B) A-III, B-IV, C-I, D-II

(C) A-III, B-IV, C-II, D-I

(D) A-II, B-I, C-IV, D-III

Answer: (B) A-III, B-IV, C-I, D-II · The council's preliminary key

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Q30 AP EAPCET 2025 · 24 May · Shift 1 MCQ

Consider the following cell reaction

$$2Fe^{3+}(aq) + 2I^{-}(aq) \rightleftharpoons 2Fe^{2+}(aq) + I_2(s).$$

At 298 K, the cell emf is 0.237 V. The equilibrium constant for the reaction is 10^x. The value of x is

(F = 96500 C mol^{-1}; R = 8.3 J K^{-1} mol^{-1}).

(A) 8
(B) 7
(C) 6
(D) 9

Answer: (A) 8 · The council's preliminary key

Q31 AP EAPCET 2025 · 23 May · Shift 1 MCQ

At 298 K, the following reaction takes place for a cell at the hydrogen electrode

$$H^{+}(aq) + e^{-} \longrightarrow \frac{1}{2}H_2\,(1\ bar)$$

The solution pH is 10.0. What is the hydrogen electrode potential in volts ?

$\left(\frac{2.303\ RT}{F} = 0.06\ V\right)$

(A) -0.6
(B) -0.06
(C) $+0.6$
(D) $+0.06$

Answer: (A) -0.6 · The council's preliminary key

Q32 AP EAPCET 2025 · 23 May · Shift 2 MCQ

When the lead storage battery is in use (during discharge) the reaction that occurs at the anode is

(A) $PbSO_4(s) + 2H_2O(\ell) \longrightarrow PbO_2(s) + SO_4^{2-}(aq) + 4H^{+}(aq) + 2e^{-}$
(B) $Pb(s) + PbO_2(s) + 2H_2SO_4(aq) \longrightarrow 2PbSO_4(s) + 2H_2O(l)$
(C) $Pb(s) + SO_4^{2-}(aq) \longrightarrow PbSO_4(s) + 2e^{-}$
(D) $PbO_2(s) + SO_4^{2-}(aq) + 4H^{+}(aq) + 2e^{-} \longrightarrow PbSO_4(s) + 2H_2O(l)$

Answer: (C) $Pb(s) + SO_4^{2-}(aq) \longrightarrow PbSO_4(s) + 2e^{-}$ · The council's preliminary key

Q33 AP EAPCET 2025 · 22 May · Shift 1 MCQ

If $E^{\circ}_{Fe^{2+}/Fe} = -0.441\ V$ and $E^{\circ}_{Fe^{3+}/Fe^{2+}} = 0.771\ V$, the standard emf of the cell reaction $Fe(s) + 2Fe^{3+}(aq) \longrightarrow 3Fe^{2+}(aq)$ is

(A) $-1.212\ \mathrm{V}$
(B) $+1.212\ \mathrm{V}$
(C) $-2.424\ \mathrm{V}$
(D) $+2.424\ \mathrm{V}$

Answer: (B) $+1.212\ \mathrm{V}$ · The council's preliminary key

Q34 AP EAPCET 2025 · 22 May · Shift 2 MCQ

The resistance of a conductivity cell filled with 0.1 M $\mathrm{KC}\ell$ solution is $100\,\Omega$. If the resistance of the same cell when filled with 0.2 M $\mathrm{KC}\ell$ solution is $520\,\Omega$, the molar conductivity of 0.02 M solution (in $\mathrm{S\ cm^2\ mol^{-1}}$) is
(Given : conductivity of 0.1 M KCl solution = $1.29\ \mathrm{Sm^{-1}}$)

(A) 124
(B) 186
(C) 248
(D) 104

Answer: (A) 124 · The council's preliminary key

Q35 AP EAPCET 2025 · 21 May · Shift 1 MCQ

What is $\mathrm{E_{cell}}$ (in V) of the following cell at 298 K ?

$(\mathrm{E^{\ominus}_{Zn^{2+}/Zn}} = -0.76\ \mathrm{V};\ \mathrm{E^{\ominus}_{Ni^{2+}/Ni}} = -0.25\ \mathrm{V};\ \dfrac{2.303\,RT}{F} = 0.06\ \mathrm{V})$

$\mathrm{Zn(s)\,|\,Zn^{2+}(0.01\,M)\,||\,Ni^{2+}(0.1\,M)\,|\,Ni(s)}$

(A) 0.51
(B) 0.48
(C) 0.57
(D) 0.54

Answer: (D) 0.54 · The council's preliminary key

Q36 AP EAPCET 2025 · 21 May · Shift 2 MCQ

The specific conductance of $0.05\ \mathrm{M\ NaOH}$ solution is $0.0115\ \mathrm{S\ cm^{-1}}$. What is its molar conductance $(\wedge_m)$ in $\mathrm{S\ cm^2\ mol^{-1}}$?

(A) 23
(B) 5.75×10^{-7}
(C) 2300
(D) 230

Answer: (D) 230 · The council's preliminary key

Q37 TS EAPCET 2025 · 4 May · Shift 1 MCQ

A current of 0.5 ampere is passed through molten $AlCl_3$ for 96.5 seconds. The mass of aluminium deposited at cathode is x mg and volume of chlorine liberated (at STP) at anode is y mL. x and y are respectively

(A) 18.0, 22.4
(B) 13.5, 16.8
(C) 9.0, 11.2
(D) 4.5, 5.6

Answer: (D) 4.5, 5.6 · The council's preliminary key

Q38 TS EAPCET 2025 · 4 May · Shift 2 MCQ

At 298 K the equilibrium constant for the reaction

$M(s) + 2Ag^+(aq) \rightarrow M^{2+}(aq) + 2Ag(s)$ is 10^{15}. What is the $E^{\ominus}_{cell}$(in V) for this reaction?

$\left(\frac{2.303\,RT}{F}\right) = 0.06\ V$

(A) 0.45
(B) 0.90
(C) 0.225
(D) 1.10

Answer: (A) 0.45 · The council's preliminary key

Q39 TS EAPCET 2025 · 3 May · Shift 1 MCQ

The Gibbs energy change of the reaction (in $kJ\ mol^{-1}$) corresponding to the following cell

$$Cr|Cr^{3+}(0.1M)\,||\,Fe^{2+}(0.01\,M)\,|\,Fe$$

(Given: $E^{\circ}_{Cr^{3+}|Cr} = -0.75V$; $E^{\circ}_{Fe^{2+}|Fe} = -0.45V$, $1F = 96{,}500\ C\ mol^{-1}$)

(A) -150.9
(B) $+150.9$
(C) -173.7
(D) $+173.7$

Answer: (A) -150.9 · The council's preliminary key

Q40 TS EAPCET 2025 · 3 May · Shift 2 MCQ

The molar conductivity of acetic acid solution at infinite dilution is $390\ S\ cm^2\ mol^{-1}$. What is the molar conductivity of $0.01\ M$ acetic acid solution (in $S\ cm^2\ mol^{-1}$)?

(Given: $K_a(CH_3COOH) = 1.8 \times 10^{-5}$, assume $1 - \alpha = 1$)

(A) 10.64
(B) 16.54
(C) 51.64
(D) 15.64

Answer: (B) 16.54 · The council's preliminary key

Q41 TS EAPCET 2025 · 2 May · Shift 1 MCQ

At 298 K, if emf of the cell corresponding to the reaction,

$Zn(s) + 2H^+(aq) \rightarrow Zn^{2+}(0.01\ M) + H_2(g)$ (1 atm) is 0.28 V, then the pH of the solution at the hydrogen electrode is

$\left(\frac{2.303\ RT}{F} = 0.06\ V\right), \left(E^o_{Zn^{2+}|Zn} = -0.76\ V\right)$

(A) 8
(B) 7
(C) 9
(D) 10

Answer: (C) 9 · The council's preliminary key

Q42 TS EAPCET 2025 · 2 May · Shift 2 MCQ

Electrolysis of aqueous copper (II) sulphate between Pt electrodes gives 'X' at anode and 'Y' at cathode. X and Y are respectively

(A) Cu, O_2
(B) O_2, Cu
(C) SO_2, H_2
(D) O_2, H_2

Answer: (B) O_2, Cu · The council's preliminary key

Q43 AP EAPCET 2024 · 23 May · Shift 1 MCQ

At 300 K, the $E^{\ominus}_{cell}$ of

$$A(s) + B^{2+}(aq) \rightleftharpoons A^{2+}(aq) + B(s)$$

is 1.0 V. If $\Delta_r S^{\ominus}$ of this reaction is 100 J K^{-1}, what is $\Delta_r H^{\ominus}$ (in kJ mol^{-1}) of this reaction?

(F=96500 C mol^{-1})

(A) -163
(B) -223
(C) -193
(D) -163000

Answer: (A) -163 · The council's preliminary key

Q44 AP EAPCET 2024 · 22 May · Shift 1 MCQ

In which of the following Galvanic cells emf is maximum?

(Given: $E^{o}_{Mg^{2+}|Mg}$ = -2.36 V and $E^{o}_{Cl_2|2Cl^-}$ = $+1.36$ V)

(A) $Mg|Mg^{2+}(1\ M)\,||\,2Cl^-(1\ M)|Cl_2\ (1\ atm), Pt$
(B) $Mg|Mg^{2+}(0.01\ M)\,||\,2Cl^-(1\ M)|Cl_2\ (1\ atm), Pt$
(C) $Mg|Mg^{2+}(1\ M)\,||\,2Cl^-(0.01\ M)|Cl_2\ (1\ atm), Pt$
(D) $Mg|Mg^{2+}(0.01\ M)\,||\,2Cl^-(0.01\ M)|Cl_2\ (1\ atm), Pt$

Answer: (D) $Mg|Mg^{2+}(0.01\ M)\,||\,2Cl^-(0.01\ M)|Cl_2\ (1\ atm), Pt$ · The council's preliminary key

Q45 AP EAPCET 2024 · 22 May · Shift 2 MCQ

Consider the cell reaction, at 300 K.

$A(s) + B^{2+}(aq) \rightleftharpoons A^{2+}(aq) + B(s)$

Its $E^{\ominus}$ is 1.0 V. The $\Delta_r H^{\ominus}$ of the reaction is -163 kJ mol^{-1}. What is $\Delta_r S^{\ominus}$ (in J K^{-1}) of the reaction?

(F= 96500 C mol^{-1})

(A) 10
(B) 100
(C) 1000
(D) 10000

Answer: (B) 100 · The council's preliminary key

Q46 AP EAPCET 2024 · 21 May · Shift 1 MCQ

As per standard reduction potential values, which is the strongest reducing agent among the given elements?

(A) Rb
(B) Sr
(C) Na
(D) Mg

Answer: (A) Rb · The council's preliminary key

Q47 AP EAPCET 2024 · 21 May · Shift 1 MCQ

The standard free energy change (ΔG°) for the following reaction (in kJ) at $25^\circ C$ is

$3Ca(s) + 2\,Au^{3+}(aq,\ 1M) \rightarrow 3Ca^{2+}(aq,\ 1M) + 2Au(s)$

(given: $E^\circ_{Au^{3+}/Au} = +1.50$ V, $E^\circ_{Ca^{2+}/Ca} = -2.87$ V, 1 F $= 96500$ C mol^{-1})

(A) -2.53×10^3

(B) $+2.53 \times 10^3$

(C) -2.53×10^4

(D) $+2.53 \times 10^4$

Answer: (A) -2.53×10^3 · The council's preliminary key

Q48 AP EAPCET 2024 · 21 May · Shift 2 MCQ

The standard reduction potentials of $2H^+/H_2$, Cu^{2+}/Cu, Zn^{2+}/Zn and $NO_3^-, H^+/NO$ are 0.0, 0.34, -0.76 and 0.97 V respectively. Identify the correct statements from the following

I. H^+ does not oxidize Cu to Cu^{2+}

II. Zn reduces Cu^{2+} to Cu

III. NO_3^- oxidizes Cu to Cu^{2+}

(A) I, II, only

(B) I, II, III

(C) I, III only

(D) II, III only

Answer: (B) I, II, III · The council's preliminary key

Q49 AP EAPCET 2024 · 20 May · Shift 1 MCQ

Aqueous $CuSO_4$ solution was electrolysed by passing 2 amp of current for 10 min. What is the weight (in g) of copper deposited at cathode? (Cu = 63 u; F = 96500 C mol^{-1})

(A) 0.195

(B) 0.39

(C) 0.78

(D) 1.56

Answer: (B) 0.39 · The council's preliminary key

Q50 AP EAPCET 2024 · 20 May · Shift 2 MCQ

The standard reduction potentials of $2H^+/H_2$, Cu^{2+}/Cu, Zn^{2+}/Zn and $NO_3^-, H^+/NO$ are 0.0, +0.34, -0.76 and 0.97 V respectively. Observe the following reactions

I. $Zn + HCl \rightarrow$

II. $Cu + HCl \rightarrow$

III. $Cu + HNO_3 \rightarrow$

Which reactions does not liberate H_2 (g)?

(A) II, III only
(B) I, II only
(C) I, III only
(D) I, II, III

Answer: (A) II, III only · The council's preliminary key

Q51 AP EAPCET 2024 · 19 May · Shift 2 MCQ

2.644 g of metal (M) was deposited when 8040 coulombs of electricity was passed through molten MF_2 salt. What is the atomic mass of M? ($F = 96500\ C\ mol^{-1}$)

(A) 63.47 u
(B) 65.54 u
(C) 31.74 u
(D) 61.48 u

Answer: (A) 63.47 u · The council's preliminary key

Q52 AP EAPCET 2024 · 19 May · Shift 2 MCQ

The anode and cathode used in electrolytic refining of copper respectively are

(A) Pure copper, impure copper
(B) Impure copper, pure copper
(C) Pure copper, pure zinc
(D) Impure copper, pure zinc

Answer: (B) Impure copper, pure copper · The council's preliminary key

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Q53 AP EAPCET 2024 · 18 May · Shift 1 MCQ

The $E^{\ominus}$ of $M|M^{2+}||Cu^{2+}|Cu$ is 0.3 V. At what concentration of Cu^{2+} (in $mol\ L^{-1}$), the E_{cell} value becomes zero? $\left(\frac{2.303\ RT}{F} = 0.06\right)$ (Conc. of M^{2+} = 0.1 M)

(A) 10^{-9}
(B) 10^{-8}
(C) 10^{-11}
(D) 10^{-10}

Answer: (C) 10^{-11} · The council's preliminary key

Q54 TS EAPCET 2024 · 11 May · Shift 1 MCQ

0.592 g of copper is deposited in 60 minutes by passing 0.5 amperes current through a solution of copper (II) sulphate. The electro chemical equivalent of copper (II) (in $\mathrm{g\,C^{-1}}$) is

(F = 96500 C $\mathrm{mol^{-1}}$)

(A) 3.3×10^{-3}

(B) 3.3×10^{-4}

(C) 6.6×10^{-3}

(D) 6.6×10^{-4}

Answer: (B) 3.3×10^{-4} · The council's preliminary key

Q55 TS EAPCET 2024 · 10 May · Shift 1 MCQ

The molar conductivity of 0.02 M solution of an electrolyte is $124 \times 10^{-4}\ \mathrm{S\ m^2\ mol^{-1}}$. What is the resistance of the same solution (in ohms), kept in a cell of cell constant $129\ \mathrm{m^{-1}}$?

(A) 390

(B) 130

(C) 260

(D) 520

Answer: (D) 520 · The council's preliminary key

Q56 TS EAPCET 2024 · 10 May · Shift 2 MCQ

The standard electrode potentials E°(V) for $\mathrm{Li^+/Li}$, $\mathrm{Na^+/Na}$ respectively are

(A) -3.04, -2.714

(B) -2.714, -3.04

(C) -3.04, -3.04

(D) -2.714, -2.714

Answer: (A) -3.04, -2.714 · The council's preliminary key

Q57 TS EAPCET 2024 · 10 May · Shift 2 MCQ

Two statements are given below

Statement I: Molten NaCl is electrolysed using Pt electrodes. $\mathrm{Cl_2}$ is liberated at anode

Statement II: Aqueous $\mathrm{CuSO_4}$ is electrolysed using Pt electrodes. $\mathrm{O_2}$ is liberated at cathode

The correct answer is

(A) Both statement I and II are correct
(B) Both statement I and II are not correct
(C) Statement I is correct but statement II is not correct
(D) Statement I is not correct but statement II is correct

Answer: (C) Statement I is correct but statement II is not correct · The council's preliminary key

Q58 TS EAPCET 2024 · 9 May · Shift 1 MCQ

Identify the correct statements from the following

A) At 298 K, the potential of hydrogen electrode placed in a solution of pH = 10, is -0.59 V

B) The limiting molar conductivity of $\mathrm{Ca^{2+}}$ and $\mathrm{Cl^-}$ is 119 and 76 $\mathrm{S\ cm^2\ mol^{-1}}$ respectively. The limiting molar conductivity of $\mathrm{CaCl_2}$ is 195 $\mathrm{S\ cm^2\ mol^{-1}}$

C) The correct relationship between $\mathrm{K_c}$ and $E^{\ominus}_{\mathrm{cell}}$ is $E^{\ominus}_{\mathrm{cell}} = \frac{2.303RT}{nF}\log \mathrm{K_c}$

(A) A, B, C
(B) A, B only
(C) A, C only
(D) B, C only

Answer: (C) A, C only · The council's preliminary key

Q59 TS EAPCET 2024 · 9 May · Shift 2 MCQ

If the degree of dissociation of formic acid is 11.0%, the molar conductivity of 0.02 M solution of it is (Given, $\lambda^\circ(\mathrm{H^+}) = 349.6\ \mathrm{S\,cm^2\,mol^{-1}}$, $\lambda^\circ(\mathrm{HCOO^-}) = 54.6\ \mathrm{S\,cm^2\,mol^{-1}}$)

(A) $44.46\ \mathrm{S\,m^2\,mol^{-1}}$
(B) $44.46\ \mathrm{S\,cm^2\,mol^{-1}}$
(C) $22.23\ \mathrm{S\,m^2\,mol^{-1}}$
(D) $22.23\ \mathrm{S\,cm^2\,mol^{-1}}$

Answer: (B) $44.46\ \mathrm{S\,cm^2\,mol^{-1}}$ · The council's preliminary key

Q60 AP EAPCET 2023 · 19 May · Shift 1 MCQ

At 298K, the conductivity of KCl solutions of molarity 0.1, 0.01 and 1.0 M are recorded as X, Y and Z, $\mathrm{Scm^{-1}}$ respectively. The correct relation between X, Y and Z is

(A) $X > Y > Z$
(B) $Z > X > Y$
(C) $Y > X > Z$
(D) $X > Z > Y$

Answer: (B) $Z > X > Y$ · The council's preliminary key

Q61 AP EAPCET 2023 · 18 May · Shift 1 MCQ

Some statements about Lechlanche cell are

(I) Anode is zinc metal

(II) Cathode is graphite rod surrounded by powdered MnO_2 and carbon

(III) Electrolyte is a moist paste of ZnO and KOH

(IV) Oxidation product is ZnO

The correct statements are

(A) I & II only
(B) II & III only
(C) I & IV only
(D) I, II & III only

Answer: (A) I & II only · The council's preliminary key

Q62 AP EAPCET 2023 · 18 May · Shift 2 MCQ

The standard electrode potential (in V) values for Al^{3+}/Al, Tl^{3+}/Tl are respectively

(A) -1.66, -1.26
(B) +1.66, +1.26
(C) -1.66, +1.26
(D) +1.66, -1.26

Answer: (C) -1.66, +1.26 · The council's preliminary key

Q63 AP EAPCET 2023 · 18 May · Shift 2 MCQ

The minimum voltage (in V) required to bring about the electrolysis of 1M copper (II) sulphate solution at 298 K is

$\left(\text{Given } E^{\circ}_{Cu^{2+}/Cu} = 0.34\,V \text{ and } E^{\circ}_{H_2O/H^+} = -1.23\,V\right)$

(A) +1.57
(B) +0.89
(C) -0.89
(D) -1.57

Answer: (B) +0.89 · The council's preliminary key

Q64 AP EAPCET 2023 · 17 May · Shift 1 MCQ

The molar conductivity of 0.027 M methanoic acid is $40.42\ S\,cm^2\,mol^{-1}$. The value of dissociation constant of this acid is

(Given $\lambda^{\circ}_{H^+} = 349.6\ S\,cm^2\,mol^{-1}$ and $\lambda^{\circ}_{HCOO^-} = 54.6\ S\,cm^2\,mol^{-1}$)

(A) 1.5×10^{-5}
(B) 6.0×10^{-5}
(C) 4.5×10^{-4}
(D) 3.0×10^{-4}

Answer: (D) 3.0×10^{-4} · The council's preliminary key

Q65 AP EAPCET 2023 · 17 May · Shift 2 MCQ

The electrolyte used in mercury cell is

(A) Moist paste of NH_4Cl and $ZnCl_2$
(B) 38% solution of H_2SO_4
(C) Paste of KOH and ZnO
(D) Paste of $MgCl_2$ and HgO

Answer: (C) Paste of KOH and ZnO · The council's preliminary key

Q66 AP EAPCET 2023 · 16 May · Shift 1 MCQ

Molar conductivities at infinite dilution Λ_m° for $Ba(OH)_2$, $BaCl_2$ and NH_4Cl are 457.0, 240.6 and 2130 $Scm^2\,mol^{-1}$ respectively. The Λ_m° for ammonium hydroxide (in $Scm^2\,mol^{-1}$) is

(A) 1683.2
(B) 1080.2
(C) 2130.0
(D) 2238.2

Answer: (D) 2238.2 · The council's preliminary key

Q67 AP EAPCET 2023 · 16 May · Shift 1 MCQ

The time required (in hours) to reduce 3 mol of Fe^{3+} ions to Fe^{2+} ions with 2.0 amperes of current is (1 F=96500 C mol^{-1})

(A) 30.2
(B) 40.2
(C) 10.2
(D) 15.2

Answer: (B) 40.2 · The council's preliminary key

Q68 AP EAPCET 2023 · 16 May · Shift 2 MCQ

Given below are two statements

Assertion (A): Conductivity of an electrolyte decreases on dilution

Reason (R): On dilution number of ions per unit volume increases

The correct answer is

(A) Both (A) and (R) are correct and (R) is the correct explanation of (A)

(B) Both (A) and (R) are correct and (R) is not the correct explanation of (A)

(C) (A) is correct but (R) is not correct

(D) (A) is not correct but (R) is correct

Answer: (C) (A) is correct but (R) is not correct · The council's preliminary key

Q69 AP EAPCET 2023 · 15 May · Shift 1 MCQ

The conductivity of a solution containing 2.08 g of anhydrous barium chloride in 200 mL solution is $6 \times 10^{-3}\ \text{ohm}^{-1}\,\text{cm}^{-1}$. The molar conductivity of the solution (in $\text{ohm}^{-1}\,\text{cm}^2\,\text{mol}^{-1}$) is $\underline{x} \times 10^2$. The value of $\underline{x}$ is

(Atomic mass of Ba = 137, Cl = 35.5)

(A) 1.2

(B) 2.4

(C) 3.6

(D) 3.0

Answer: (A) 1.2 · The council's preliminary key

Q70 AP EAPCET 2023 · 15 May · Shift 2 MCQ

The number of Faradays required to completely deposit magnesium from 1 L of 0.1 M MgCl_2 aq. solution is

(A) 0.2

(B) 2

(C) 0.1

(D) 0.4

Answer: (A) 0.2 · The council's preliminary key

Q71 TS EAMCET 2023 · 14 May · Shift 1 MCQ

A current of 15.0 amperes is passed through a solution of CrCl_2 for 45 minutes. The volume of Cl_2 (in L) obtained at the anode at 1 atm and 273 K is around

(1F = 96500 C mol^{-1}, At. wt. of Cl = 35.5, R = 0.082 L-atm K^{-1} mol^{-1})

(A) 4.7

(B) 3.7

(C) 2.7

(D) 5.7

Answer: (A) 4.7 · The council's preliminary key

Q72 TS EAMCET 2023 · 14 May · Shift 2 MCQ

The reduction potential of a half cell consisting of a Pt electrode immersed in 2.0 M Fe^{2+} and 0.02 M Fe^{3+} solution (in V) is

Given: $\left(\frac{2.303RT}{F} = 0.059,\ E^0_{Fe^{3+}|Fe^{2+}} = 0.771\,V\right)$

(A) 0.543
(B) 0.653
(C) 0.733
(D) 0.822

Answer: (B) 0.653 · The council's preliminary key

Q73 TS EAMCET 2023 · 13 May · Shift 1 MCQ

The conductivity of a solution of concentration $0.1\ mol\,L^{-1}$ of a weak monobasic acid (HA) (in Scm^{-1}) is

(Given $\Lambda^\circ_{HA} = 400\,S\,cm^2\,mol^{-1}$ and degree of dissociation (α) of HA = 0.02)

(A) 32×10^{-4}
(B) 16×10^{-4}
(C) 4×10^{-4}
(D) 8×10^{-4}

Answer: (D) 8×10^{-4} · The council's preliminary key

Q74 TS EAMCET 2023 · 13 May · Shift 2 MCQ

A and B are two metals. The standard reduction potential of $A^+(aq)/A(s)$ and $B^+(aq)/B(s)$ are -0.5V and +0.5V respectively. What is the $\log K_c$ value for the following reaction at 298 K?

$$A(s) + B^+(aq) \rightleftharpoons A^+(aq) + B(s),$$

$\left(\text{Given}: \frac{2.303RT}{F} = 0.06\ V\right)$

(A) $\frac{6}{100}$
(B) $\frac{100}{6}$
(C) $\frac{6}{200}$
(D) $\frac{200}{6}$

Answer: (B) $\frac{100}{6}$ · The council's preliminary key

Q75 TS EAMCET 2023 · 12 May · Shift 1 MCQ

The electrode potential of chlorine electrode is maximum, when the concentration of chloride ion in the solution (in mol L^{-1}) is X. what is the value of X?

(A) 2.5×10^{-3}
(B) 7.5×10^{-3}
(C) 7.5×10^{-2}
(D) 2.5×10^{-2}

Answer: (A) 2.5×10^{-3} · The council's preliminary key

Q76 TS EAMCET 2023 · 12 May · Shift 2 MCQ

At 300 K, the conductivity of $0.01\ \mathrm{mol\ dm^{-3}}$ aqueous solution of acetic acid is $19.5 \times 10^{-5}\ \mathrm{mho\ cm^{-1}}$ and limiting molar conductivity of acetic acid at the same temperature is $390\ \mathrm{mho\ cm^2\ mol^{-1}}$. The degree of dissociation of acetic acid is

(A) 5.0×10^{-5}
(B) 5.0×10^{-2}
(C) 2.5×10^{-5}
(D) 7.5×10^{-2}

Answer: (B) 5.0×10^{-2} · The council's preliminary key

Q77 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

Electrolysis of aqueous $\mathrm{Na_2SO_4}$ was carried out by passing a current of 3 ampere for 10 min. The volume of the gas (L) at STP at the anode of the cell is approximately

(A) 0 .19
(B) 2.1
(C) 0.10
(D) 0.15

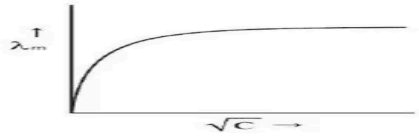
Answer: (C) 0.10 · The council's preliminary key

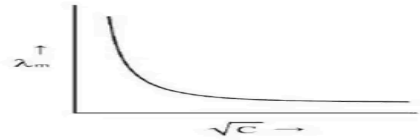
Q78 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

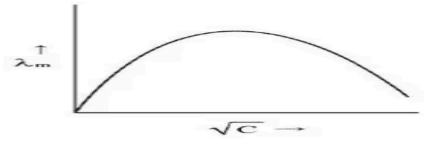
The variation of λ_m of acetic acid with concentration is correctly represented as

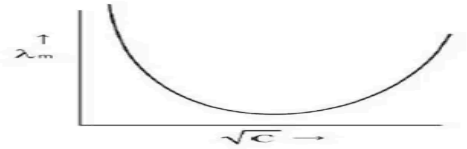
The variation of λ_m of acetic acid with concentration is correctly represented as

Options :

1. 

2. 

3. 

4. 

(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (B) · The council's preliminary key

Q79 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

The E° of $Ce^{4+}/Ce^{3+} = 1.6$ V

$Fe^{3+}/Fe^{2+} = 0.76$ V

the E° of Fe^{3+} oxidising Ce^{3+} is

(A) + 0.84 V

(B) – 0.84 V

(C) – 2.32 V

(D) + 1.5 V

Answer: (B) – 0.84 V · The council's preliminary key

Q80 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

Given $E^\circ_{Mn^{7+}/Mn^{2+}} = 1.51\,V$, $E^\circ_{Mn^{4+}/Mn^{2+}} = 1.23\,V$

Calculate the $E^\circ_{Mn^{7+}/Mn^{4+}}$

(A) 0.28 V
(B) -0.28 V
(C) 1.7 V
(D) 0.48 V

Answer: (C) 1.7 V · The council's preliminary key

Q81 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

In two separate experiments, the same quantity of electricity was passed through silver and gold solutions [Assume 't' constant] The amounts of Ag and Au deposited are 2.15 and 1.31g, respectively. The valency of gold is
[Atomic mass of Ag=107.9; Au=197]

(A) 1
(B) 2
(C) 3
(D) 4

Answer: (C) 3 · The council's preliminary key

Q82 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

The electric charge for electrode deposition of one equivalent of a substance is equal to

(A) $1\ \mathrm{A/s}$
(B) 193000 coulombs
(C) $\frac{96500}{(\text{Atomic weight of the substance})}$
(D) Charge on 1 mole of electrons

Answer: (D) Charge on 1 mole of electrons · The council's preliminary key

Q83 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

On passing a current of 1.2 A through a solution of salt of copper for 40 min, 0.96 g of copper was deposited. The equivalent weight of copper in g is

(A) 21.2
(B) 31.75
(C) 63.5
(D) 15.9

Answer: (B) 31.75 · The council's preliminary key

Q84 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

If 5 ampers of current is passed for 193 seconds through a solution containing Copper salt, 0.32 g of copper is deposited. What is the oxidation state of the Cu in the salt?

(A) $+2$
(B) $+1$
(C) $+3$
(D) $+\frac{3}{2}$

Answer: (A) $+2$ · The council's preliminary key

Q85 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

The cell potential for the following cell notation is approximately
$\mathrm{M(s)\,|M^{3+}(aq, 0.01M)||N^{2+}(aq, 0.1M)|N(s)}$
$E^0_{M^{3+}/M} = 0.6$ V and $E^0_{N^{2+}/N} = 0.1$ V

(A) 0.51 V
(B) 1.5 V
(C) 2.0 V
(D) 2.5 V

Answer: (A) 0.51 V · The council's preliminary key

Q86 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

What is the total charge of one mole of electrons?

(A) $9.65\mathrm{X}10^4$ C
(B) $9.65\mathrm{X}10^3$ C
(C) 1.93 X 10^5C
(D) 1.602 X 10^{-19} C

Answer: (A) $9.65\mathrm{X}10^4$ C · The council's preliminary key

Q87 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

The energy conversion involved in a galvanic cell is

(A) Chemical energy to mechanical energy
(B) Chemical energy to electrical energy
(C) Electrical energy to chemical energy
(D) Electrical energy to thermal energy

Answer: (B) Chemical energy to electrical energy · The council's preliminary key

Q88 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

If the total electricity required to deposit 1 mole of a metal M is equal to that of 10.7 amperes of current for 10 hours. The equivalent weight of the metal is (atomic weight = M u)

(A) M
(B) M/2
(C) M/3
(D) M/4

Answer: (D) M/4 · The council's preliminary key

Q89 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

What is the molar conductivity of CH_3CO_2H at infinite dilution?
Given that,
$\Lambda_m^o(CH_3CO_2)_2Ba = x_1\ S\,cm^2\,mol^{-1}$
$\Lambda_m^o(BaCl_2) = x_2\ S\,cm^2\,mol^{-1}$
$\Lambda_m^o(HCl) = x_3\ S\,cm^2\,mol^{-1}$

(A) $\frac{x_1-x_2}{2} + x_3$
(B) $\frac{x_1-x_3}{2} + x_2$
(C) $\frac{x_2-x_3}{2} + x_1$
(D) $x_1 + x_3 - x_2$

Answer: (A) $\frac{x_1-x_2}{2} + x_3$ · The council's preliminary key

Q90 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

The standard Gibbs energy change for Daniel cell reaction is
Zn (s) + Cu^{2+} (aq) $\rightarrow$ Zn^{2+} (aq) + Cu (s)
E°_{Cell} = 1.1 V

(A) -212.3 kJ
(B) 106.15 kJ
(C) $+212.3$ kJ
(D) 100 kJ

Answer: (A) -212.3 kJ · The council's preliminary key

Q91 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

96.5 amperes current is passed through the molten $AlCl_3$ for 100 seconds. The mass of aluminum deposited at the cathode is (Atomic weight of Al = 27 u)

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(A) 0.90 g
(B) 0.45 g
(C) 1.35 g
(D) 1.8 g

Answer: (A) 0.90 g · The council's preliminary key

Q92 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

Resistance of a conductivity cell filled with $0.1\ \text{mol}\,\text{L}^{-1}$ NaCl is 100 Ohm. If the resistance of the same cell when filled with $0.02\ \text{mol}\,\text{L}^{-1}$ NaCl solution is 258 ohm, the conductivity of $0.02\ \text{mol}\,\text{L}^{-1}$ NaCl solution is (Conductivity of $0.1\ \text{mol}\,\text{L}^{-1}$ NaCl is $1.29\ \text{S}\,\text{m}^{-1}$)

(A) $1.0\ \text{S}\,\text{m}^{-1}$
(B) $0.2\ \text{S}\,\text{m}^{-1}$
(C) $2.0\ \text{S}\,\text{m}^{-1}$
(D) $0.5\ \text{S}\,\text{m}^{-1}$

Answer: (D) $0.5\ \text{S}\,\text{m}^{-1}$ · The council's preliminary key

Q93 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

The reduction potential of hydrogen electrode at 25°C in a neutral solution is (p_{H_2} = = 1 bar)

(A) 0.059V
(B) -0.059V
(C) -0.413V
(D) 0.0V

Answer: (C) -0.413V · The council's preliminary key

Q94 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

38.6 amperes of current is passed for 100 seconds through an aqueous CuSO_4 solution using platinum electrodes. The mass of copper consumed from the solution and volume of gas liberated at STP are respectively (molar mass of Cu = 63.54 $\text{g}\,\text{mol}^{-1}$).

(A) 6.37 g, 0.448 L
(B) 0.63g, 0.224 L
(C) 1.27g, 0.224 L
(D) 4g, 0.448 L

Answer: (C) 1.27g, 0.224 L · The council's preliminary key

Q95 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

Which products among the following are formed during the electrolysis of concentrated solution of $NaCl$?

(i) $Cl_{2(g)}$ at anode
(ii) $NaOH$ as electrolyte
(iii) $H_{2(g)}$ at cathode

(A) (i) only
(B) (i) and (ii) only
(C) (i) and (iii) only
(D) (i), (ii) and (iii)

Answer: (D) (i), (ii) and (iii) · The council's preliminary key

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Q96 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

An electrochemical cell is represented as $X \mid X^{+}\,(x\ M) \mid\mid Y^{+}\,(y\ M) \mid Y$. The e.m.f measured is +0.5 V. Identify the corresponding cell reaction.

(A) $X^{+} + Y \longrightarrow X + Y^{+}$
(B) $X + Y \longrightarrow XY$
(C) $X + Y^{+} \longrightarrow X^{+} + Y$
(D) $X^{+} + Y^{-} \longrightarrow X^{-} + Y^{+}$

Answer: (C) $X + Y^{+} \longrightarrow X^{+} + Y$ · The council's preliminary key

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Q97 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

Calculate the mass of copper deposited when a current of 1 A was passed through a solution of $CuSO_4$ for one hour. Given 1 F = 96500 C and electrochemical equivalent of Cu = 3.29×10^{-4} g.C^{-1}

(A) 0.595
(B) 2.45
(C) 5.9
(D) 1.18

Answer: (D) 1.18 · The council's preliminary key

Q98 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

A hydrogen electrode is made by dipping platinum wire in a solution of nitric acid of pH= 9 and passing hydrogen gas around the platinum wire at 1.2 atm pressure. The oxidation potential of such an electrode equals _____ V.

(A) $+0.059$
(B) -0.0531
(C) -0.059
(D) $+0.0531$

Answer: (D) $+0.0531$ · The council's preliminary key

Q99 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

Salts of A, B and C were electrolyzed under identical conditions using the same quantity of electricity. It was found that when 2.1 g of A was deposited. The weights of B and C deposited were 2.7 g and 9.6 g respectively. If the atomic mass of A, B and C respectively are 7, 27 and 64, then the valancies of A, B and C respectively are _____

(A) $3, 1, 2$
(B) $1, 3, 2$
(C) $3, 1, 3$
(D) $2, 3, 2$

Answer: (B) $1, 3, 2$ · The council's preliminary key

Q100 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

Which of the following represents the correct order for oxidizing power of the given species - ClO_4^-, BrO_4^- and IO_4^- _____

(A) $ClO_4^- > BrO_4^- > IO_4^-$
(B) $BrO_4^- > IO_4^- > ClO_4^-$
(C) $IO_4^- > BrO_4^- > ClO_4^-$
(D) $BrO_4^- > ClO_4^- > IO_4^-$

Answer: (B) $BrO_4^- > IO_4^- > ClO_4^-$ · The council's preliminary key

Q101 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

Which of the following solution produces H_2O_2 on electrolysis?

(A) $0.2N$ $NaOH$
(B) 50% H_2SO_4
(C) 2% H_2SO_4
(D) 5% $NaCl$

Answer: (B) 50% H_2SO_4 · The council's preliminary key

Q102 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

The molar conductivities of KCl, $NaCl$ and KNO_3 are 100, 120 and 90 $cm^2.mol^{-1}$, respectively. The molar conductivity of $NaNO_3$ would be _____ $cm^2.mol^{-1}$.

(A) 110
(B) 290
(C) 310
(D) 120

Answer: (A) 110 · The council's preliminary key

Q103 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

If the conductivity of a $0.5\ M$ KCl solution at $298\ K$ is $0.024\ \mathrm{S.cm^{-1}}$, then the molar conductivity of the solution would be _____ $\mathrm{S.cm^2.mol^{-1}}$

(A) 150
(B) 48
(C) 24
(D) 121.4

Answer: (B) 48 · The council's preliminary key

Q104 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

Same quantity of electricity was passed through solutions of salts of elements X, Y and Z with atomic masses 7, 27 and 48 respectively. The masses of X, Y and Z deposited were $2.1\ \mathrm{g}$, $2.7\ \mathrm{g}$ and $7.2\ \mathrm{g}$ respectively. The valence's of X, Y and Z respectively are

(A) 3, 2 and 1
(B) 1, 2 and 3
(C) 1, 3 and 2
(D) 2, 3 and 1

Answer: (C) 1, 3 and 2 · The council's preliminary key

Q105 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

$100\ ml$ of $0.2\ M$ acetic acid is completely neutralized using a standard solution of NaOH. The volume of ethane obtained at STP after complete electrolysis of the resulting solution is _____

(A) $11.2\ L$
(B) $2.24\ L$
(C) $0.224\ L$
(D) $22.4\ L$

Answer: (C) $0.224\ L$ · The council's preliminary key

Q106 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

If the resistance of $0.1\ M\ KCl$ solution in a conductance cell is $300\ \Omega$ and conductivity is $0.013\ \mathrm{S.cm^{-1}}$, then the value of cell constant is _____

(A) $3.9\ \mathrm{cm}^{-1}$
(B) $39\ \mathrm{m}^{-1}$
(C) $3.9\ \mathrm{m}^{-1}$
(D) $0.39\ \mathrm{cm}^{-1}$

Answer: (A) $3.9\ \mathrm{cm}^{-1}$ · The council's preliminary key

Q107 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

A saturated solution of KNO_3 with agar-agar is used to make a 'salt-bridge' because:

(A) Size of K^+ is greater than that of NO_3^-
(B) Velocity of NO_3^- is greater than that of K^+
(C) Velocities of K^+ and NO_3^- are nearly the same
(D) Both velocities and sizes of K^+ and NO_3^- are nearly the same

Answer: (C) Velocities of K^+ and NO_3^- are nearly the same · The council's preliminary key

Q108 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

If hydrogen electrons (sic) dipped in two solutions of pH= 3 and pH = 6 are connected by a salt bridge, the emf of the resulting cell is

(A) $0.177\ V$
(B) $0.3\ V$
(C) $0.052\ V$
(D) $0.104\ V$

Answer: (A) $0.177\ V$ · The council's preliminary key

Q109 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

In the electrolysis of a $CuSO_4$ solution, how many grams of Cu are plated out on the cathode, in the time that is required to liberate 5.6 L of $O_{2(g)}$, measured at 1 atm and 273 K, at the anode?

(A) $31.75\ g$
(B) $14.2\ g$
(C) $4.32\ g$
(D) $3.175\ g$

Answer: (A) $31.75\ g$ · The council's preliminary key

Q110 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

When a current of 10 A is passes through molten $AlCl_3$ for 1.608 minutes. The mass of Al deposited will be _____ [Atomic mass of $Al = 27g$]

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(A) $0.09\ g$
(B) $0.81\ g$
(C) $1.35\ g$
(D) $0.27\ g$

Answer: (A) $0.09\ g$ · The council's preliminary key

Q111 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

The molar conductivities (λ_m^o) at infinite dilution of KBr, HBr and KNH_2 are 120.5, 420.6 and 90.48 $S\ cm^2\ mol^{-1}$ respectively. Find the value of λ_m^o for NH_3.

(A) $511.0\ S\ cm^2\ mol^{-1}$
(B) $390.5\ S\ cm^2\ mol^{-1}$
(C) $256.2\ S\ cm^2\ mol^{-1}$
(D) $240.9\ S\ cm^2\ mol^{-1}$

Answer: (B) $390.5\ S\ cm^2\ mol^{-1}$ · The council's preliminary key

Q112 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

At 291 K, saturated solution of $BaSO_4$ was found to have a specific conductivity of $3.648 \times 10^{-6}\ \text{ohm}^{-1}\ \text{cm}^{-1}$ and that of water being used is $1.25 \times 10^{-6}\ \text{ohm}^{-1}\ \text{cm}^{-1}$. If the ionic conductance's of Ba^{2+} and SO_4^{2-} are 110 and 136.6 $\text{ohm}^{-1}\ \text{cm}^2\ \text{mol}^{-1}$ respectively, the solubility of $BaSO_4$ at 291 K will be [Atomic masses of Ba – 137, S – 32, O – 16]

(A) $1.435 \times 10^{-3}\ \text{g L}^{-1}$
(B) $2.266 \times 10^{-3}\ \text{g L}^{-1}$
(C) $2.843 \times 10^{-3}\ \text{g L}^{-1}$
(D) $1.768 \times 10^{-3}\ \text{g L}^{-1}$

Answer: (B) $2.266 \times 10^{-3}\ \text{g L}^{-1}$ · The council's preliminary key

Q113 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

Find the emf of the following cell reaction, given $E^\circ_{Cr^{3+}/Cr^{2+}} = -0.72\ \text{V}$ and $E^\circ_{Fe^{2+}/Fe} = -0.42\ \text{V}$ at 25°C is $\text{Cr}\,|\,\text{Cr}^{3+}\,(0.1\ \text{M})\,||\,\text{Fe}^{2+}\,(0.1\ \text{M})\,|\,\text{Fe}$

(A) 0.30 V
(B) 0.25 V
(C) 1.14 V
(D) 1.56 V

Answer: (A) 0.30 V · The council's preliminary key

Q114 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

For $Cr_2O_7^{2-} + 14H^+ + 6e^- \xrightarrow{yields} 2Cr^{3+} + 7H_2O$, $E^\circ = 1.33$ V at $[Cr_2O_7^{2-}] = 4.5$ millimole, $[Cr^{3+}] = 1.5$ millimole and $E = 1.067$ V, then calculate the pH of the solution.

(A) 2
(B) 3
(C) 2.5
(D) 1.5

Answer: (A) 2 · The council's preliminary key

Q115 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

A metal plate of dimension of $(1 \times 2\,cm^2)$ has to be coated on both the sides by Cu metal. How long does it take to deposit Cu of 0.01cm thickness, if 1.5A current is used? [Electrochemical equivalence of Cu is 0.0003 g/c and the density of Cu is 9 g/cm^3]

(A) 400s
(B) 800s
(C) 120s
(D) 160s

Answer: (B) 800s · The council's preliminary key

Q116 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

For the cell reaction $Cu/Cu^{2+}(0.1M) \parallel Cu^{2+}(1.0M)/Cu$; the emf of the cell at $25^\circ C$ is $\left[E^\circ_{Cu^{2+}/Cu} = 0.34\text{ V}\right]$

(A) 0.059 V
(B) 0.311 V
(C) 0.369 V
(D) 0.029 V

Answer: (D) 0.029 V · The council's preliminary key

Q117 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

When the same quantity of electricity is passed through the aqueous solutions of the given electrolytes for the same amount of time, which metal will be deposited in maximum amount on the cathode?

(A) $ZnSO_4$
(B) $FeCl_3$
(C) $AgNO_3$
(D) $NiCl_2$

Answer: (C) $AgNO_3$ · The council's preliminary key

Q118 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

Given $\lambda^{\circ}_{Mg^{2+}} = 106$ S cm^2 mole^{-1}, $\lambda^{\circ}_{SO_4^{2-}} = 160$ S cm^2 mole^{-1}. The value of $\lambda^{\circ}_{MgSO_4}$ (in S cm^2 mole^{-1}) is

(A) 271.6
(B) 266
(C) 390
(D) 126

Answer: (B) 266 · The council's preliminary key

Q119 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

Salts of A (atomic weight 8), B (atomic weight 18) and C (atomic weight 50) were electrolysed under identical conditions using the same quantity of electricity. It was found that 2.4 g of A was deposited, the weight of B and C deposited are 1.8 g and 7.5 g respectively. The valences of A, B and C are, respectively,

(A) 3, 1 and 2
(B) 1, 2 and 3
(C) 1, 3 and 2
(D) 3, 2 and 1

Answer: (C) 1, 3 and 2 · The council's preliminary key

Q120 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

The value of the reactant quotient ($\varnothing$) for the cell is
$Zn(s) / Zn^{2+}(0.01\ M) \parallel Cu^{2+}(1.25\ M) / Cu(s)$

(A) 1
(B) 2×10^{-2}
(C) 8×10^{-3}
(D) 1.25

Answer: (C) 8×10^{-3} · The council's preliminary key

Q121 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

Calculate the equilibrium constant of the reaction $Cu_{(s)} + 2\,Ag^{+}_{(aq)} \rightarrow Cu^{2+}_{(aq)} + 2Ag_{(s)}$, given that for the reaction, $E_{cell} = 0.46V$.

(A) 4.2×10^{8}
(B) 6.23×10^{9}
(C) 3.92×10^{15}
(D) 4.54×10^{20}

Answer: (C) 3.92×10^{15} · The council's preliminary key

Q122 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

A solution containing 4.5 mM of $\mathrm{MnO_4^-}$ and 15 mM of $\mathrm{Mn^{2+}}$ shows pH of 2. The potential of half-cell reaction is _____.
Given log 15 = 1.76 & log 45 = 1.653 & (standard potential of $\mathrm{MnO_4^-} \rightarrow \mathrm{Mn^{2+}}$ is 1.51 V)

(A) $1.51\ V$
(B) $1.31\ V$
(C) $1.71\ V$
(D) $1.04\ V$

Answer: (B) $1.31\ V$ · The council's preliminary key

Q123 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

In the Daniel cell, $\mathrm{Zn} \mid \mathrm{Zn^{2+}} \parallel \mathrm{Cu^{2+}} \mid \mathrm{Cu}$, when an external voltage is applied such that $E_{external} > E_{cell}$, current flows from _____

(A) Zn to Cu
(B) Cu to Zn
(C) No current flows
(D) Data insufficient

Answer: (A) Zn to Cu · The council's preliminary key

Q124 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

Which factor makes Li the strongest reducing agent in aqueous solution?

(A) Sublimation enthalpy
(B) Ionisation enthalpy
(C) Hydration Enthalpy
(D) Electron-gain enthalpy

Answer: (C) Hydration Enthalpy · The council's preliminary key

Q125 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

How much current is required to produce $\mathrm{H_2}$ gas at the rate of 1 cc/sec under STP?

(A) 2.33 A
(B) 6.0 A
(C) 7.9 A
(D) 8.61 A

Answer: (D) 8.61 A · The council's preliminary key

Q126 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

Which of the following statements is correct for the cell $\mathrm{Zn}\,|\,\mathrm{Zn}^{+2}\,||\,\mathrm{Cu}^{+2}\,|\,\mathrm{Cu}$

(A) Zn is reducing agent
(B) Cu is anode
(C) Cu is oxidizing agent
(D) The cell reaction is $\mathrm{Zn} + \mathrm{Cu}^{+2} \longrightarrow \mathrm{Zn}^{+2} + \mathrm{Cu}$

Options (1) or (4) were accepted. More than one answer was accepted. · The council's preliminary key

Q127 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

A 200 W, 100 V bulb is connected in series with an electrolytic cell. If an aqueous solution of an Sn-salt is electrolyzed for 5 hrs, 11.1 g of Sn gets deposited. The chemical formula of the compound is ____ (Given atomic weight of Sn is 118.7 g mol^{-1}

(A) SnO
(B) $SnCl_2$
(C) $SnCl_4$
(D) SnO_2

Answer: (C) $SnCl_4$ · The council's preliminary key

Q128 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

When a current of 0.5 A is passed for 2 hours through a molten metal salt, 3.88 g of the metal was deposited. If atomic mass of the metal is 208 $units$, the oxidation state of the metal in the salt is _____

(A) $+1$
(B) $+2$
(C) $+3$
(D) $+4$

Answer: (B) $+2$ · The council's preliminary key

Q129 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

Match the entries from column I and Column II and choose the correct order.
Column I: i. Leclanche cell; ii. Fuel cell; iii. $Ni - Cd$ Cell

Column II: a) Converts energy of combustion into electrical energy; b) Rechargeable cell; c) At Anode $Zn \rightarrow Zn^{+2} + Ze^{-}$

(A) (i - c), (ii - b), (iii - a)
(B) (i - a), (ii - b), (iii - c)
(C) (i - c), (ii - a), (iii - b)
(D) (i - b), (ii - a), (iii - c)

Answer: (C) (i - c), (ii - a), (iii - b) · The council's preliminary key

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Q130 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

Find the observed EMF of the cell $Cd\,|\,Cd^{2+}(0.01\ M)\,||\,Cd^{2+}(0.01\ M)\,|\,Cd$ under conditions, internal resistance = 4 Ω and producing a current of 0.15A. (Given $E^{0}_{Cu^{2+}/Cu}$ = 0.35 V and $E^{0}_{Cd^{2+}/Cd}$ = $-0.4\ V$)

(A) 0.75 V
(B) 0.15 V
(C) 0.6 V
(D) 0.9 V

Answer: (B) 0.15 V · The council's preliminary key

Q131 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

For the cell reaction $3Sn^{4+} + 2Cr \rightarrow 3Sn^{2+} + 2Cr^{3+}$, E^{o}_{cell} is 0.89 V. Then ΔG^{o} for the reaction is _____

(A) -515.31 kJ/mol
(B) -125.41 kJ/mol
(C) -457.41 kJ/mol
(D) -347.40 kJ/mol

Answer: (A) -515.31 kJ/mol · The council's preliminary key

Q132 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

Copper is to be electrodeposited on a Nickel block of $(20 \times 5)\ \mathrm{cm}^2$ area by using $\mathrm{CuSO_4}$ as electrolyte. How much quantity of electricity is needed to deposit a 3.6 μm layer of copper?
Atomic weight of Cu = 63.5 g mol^{-1}
Density of $\mathrm{CuSO_4}$ = 8.9 g/cc

(A) 974 Coulombs
(B) 580 Coulombs
(C) 1080 Coulombs
(D) 365 Coulombs

Answer: (A) 974 Coulombs · Official TGCHE final key

Q133 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

Mg^{2+} displaces hydrogen from acids but copper does not. A galvanic cell prepared by combining Cu/Cu^{2+} and Mg/Mg^{2+} has an EMF of $2.71\ V$ at $298\ K$. If the potential of copper electrode is $0.34V$, what is the reduction potential of Mg electrode?

(A) $+3.05\ V$
(B) $-2.37\ V$
(C) $+2.37\ V$
(D) $2\ V$

Answer: (B) $-2.37\ V$ · Official TGCHE final key

Q134 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

What is the standard cell potential for the reaction with K=1 (equilibrium constant)

(A) One
(B) Zero
(C) 2.303
(D) Infinity

Answer: (B) Zero · Official TGCHE final key

Q135 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

A solution of Fe^{2+} is titrated potentiometrically using Ce^{4+} solution. When 80 % Fe^{2+} is titrated, the EMF of the system in V is
(Given $E^0_{Fe^{3+}/Fe^{2+}} = 0.77$ V and $Fe^{2+} + Ce^{4+} \longrightarrow Fe^{3+} + Ce^{3+}$)
$(\log 2 = 0.3, \log 3 = 0.5, \log 4 = 0.6)$

(A) 0.806
(B) 0.532
(C) 0.734
(D) 0.756

Answer: (A) 0.806 · Official TGCHE final key

Q136 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

The standard electrode potentials of Ag^+/Ag is +0.80 V and Cu^+/Cu is +0.34 V. If these electrodes are connected through a salt bridge, which of the following statements is correct?

(A) Silver electrode acts as anode and E^0 cell is -0.34 V
(B) Copper electrode acts as anode and E^0 cell is +0.46 V
(C) Silver electrode acts as a cathode and E^0 cell is -0.34 V
(D) Copper electrode acts as cathode and E^0 cell is +0.46 V

Answer: (B) Copper electrode acts as anode and E^0 cell is +0.46 V · Official TGCHE final key

Q137 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

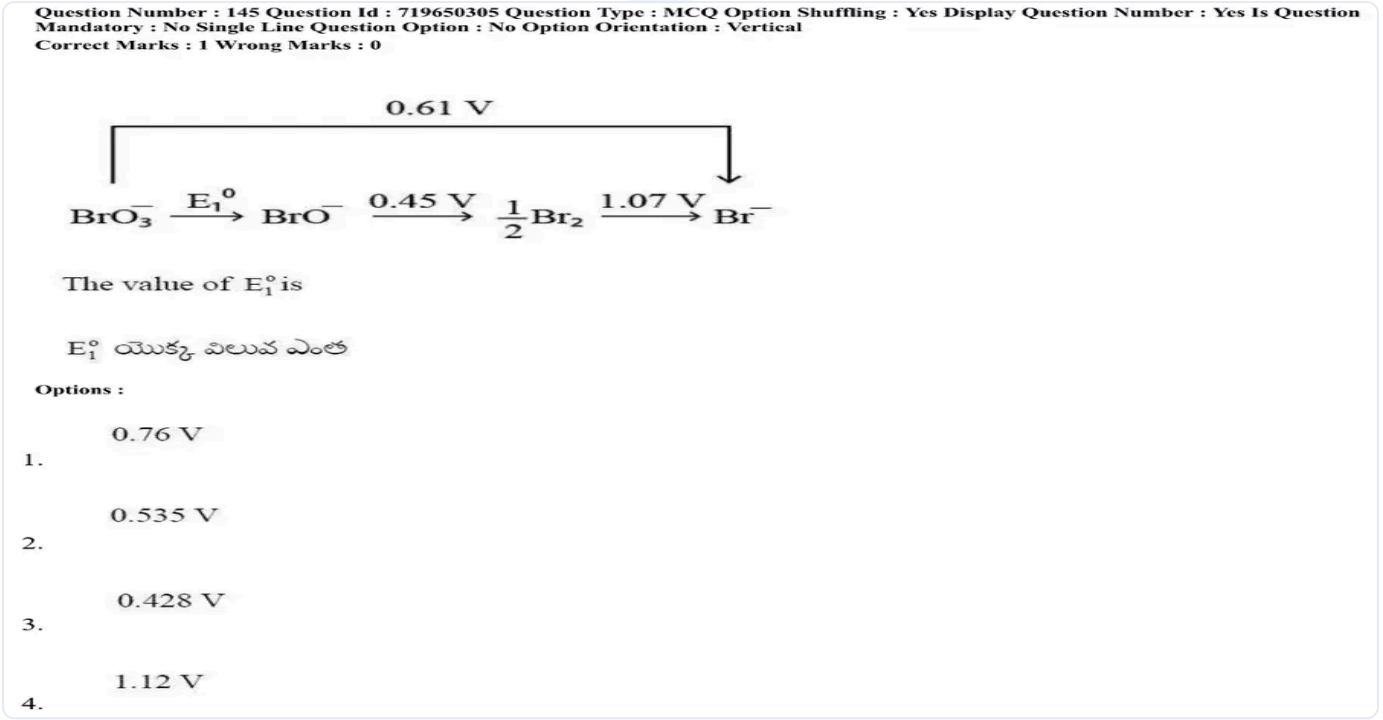
The maximum work that can be obtained from the following cell is
$X \mid X^{2+}(aq) \mid\mid Y^{+}(aq) \mid Y$
Given $E^{\circ}_{X^{2+}/X}$ = −1.7 V
$E^{\circ}_{Y^{+}/Y}$ = 0.8 V

(A) 579 kJ/mol
(B) 482.5 kJ/mol
(C) 289.5 kJ/mol
(D) 301.8 kJ/mol

Answer: (B) 482.5 kJ/mol · Official TGCHE final key

Q138 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

see figure



(A) $0.76\ \text{V}$
(B) $0.535\ \text{V}$
(C) $0.428\ \text{V}$
(D) $1.12\ \text{V}$

Answer: (B) $0.535\ \text{V}$ · Official TGCHE final key

Q139 TS EAMCET 2019 · 6 May · Shift 1 MCQ

If 'A' is the reactant and 'P' is the product which one of the following is the correct form of Nernst's equation?

(A) $\frac{[A]}{[P]} = \exp\left(\frac{RT}{nF}(E - E^\circ)\right)$
(B) $\frac{[A]}{[P]} = \exp\left(\frac{nF}{RT}(E - E^\circ)\right)$
(C) $\frac{[A]}{[P]} = \exp\left(-\frac{nF}{RT}(E - E^\circ)\right)$
(D) $E = E^\circ - \frac{RT}{nF}\ln\frac{[A]}{[P]}$

Answer: (B) $\frac{[A]}{[P]} = \exp\left(\frac{nF}{RT}(E - E^\circ)\right)$ · Official TGCHE final key

Q140 TS EAMCET 2019 · 4 May · Shift 1 MCQ

Consider the systems having liquid-solid interface. (a) copper wire in silver nitrate solution and (b) silver wire in copper sulphate solution. Predict which interface will show spontaneous reaction if $E^\circ_{Cu^{2+}/Cu} = 0.34\ \text{V}$ and $E^\circ_{Ag^+/Ag} = 0.80\ \text{V}$?

(A) Copper - Silver nitrate interface
(B) Silver - Copper sulphate interface
(C) There will be no spontaneous reaction
(D) Both interfaces will give spontaneous reaction

Answer: (A) Copper - Silver nitrate interface · Official TGCHE final key

Q141 TS EAMCET 2019 · 4 May · Shift 2 MCQ

For a half cell containing a Pt rod immersed in a solution of 1M HA, $O_2(g)$ is bubbled at 1 atm. The standard reduction potential for water formation is 1.23 V. Given a dissociation constant, $K_a = 1 \times 10^{-4}$ for HA, what is $E_{half-cell}$ at 298 K in V?

(A) 1.289
(B) 1.171
(C) 1.348
(D) 1.112

Answer: (D) 1.112 · Official TGCHE final key

Q142 TS EAMCET 2019 · 3 May · Shift 1 MCQ

A current of 19296 C is passed through an aqueous solution of copper sulphate using copper electrodes. What is the mass (in g) of copper deposited at the cathode?
(molar mass of Cu = 63.5 g mol^{-1})

(A) 3.17
(B) 1.58
(C) 6.35
(D) 0.79

Answer: (C) 6.35 · Official TGCHE final key

Q143 TS EAMCET 2019 · 3 May · Shift 2 MCQ

An electrolyte of a polymer-salt complex of poly (ethylene oxide) - $LiCF_3SO_3$ is shaped into a free standing circular film of 20 mm diameter and a thickness of 20 μm. When it is sandwiched between 2 stainless steel circular electrodes of the same diameter, this cell exhibits a conductance of $\frac{314}{5}$ S. What is the specific conductivity of the electrolyte?

(A) 4 mS cm^{-1}
(B) 0.4 S cm^{-1}
(C) 40 mS cm^{-1}
(D) 0.004 S cm^{-1}

Answer: (C) 40 mS cm^{-1} · Official TGCHE final key

Q144 TS EAMCET 2019 · 3 May · Shift 2 MCQ

In the preparation of chlorine by the electrolysis of brine, the reaction taking place at the anode is

(A) $Cl^-_{(aq)} \rightarrow \frac{1}{2}Cl_2(g) + e^-$
(B) $Na^+_{(aq)} + e^- \rightarrow Na(s)$
(C) $O_2(g) + 4H^+ + 4e^- \rightarrow 4H_2O(l)$
(D) $H^+_{(aq)} + e^- \rightarrow \frac{1}{2}H_2(g)$

Answer: (A) $Cl^-_{(aq)} \rightarrow \frac{1}{2}Cl_2(g) + e^-$ · Official TGCHE final key

Q145 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

In which of the following cells, the space between cathode and anode is filled by a moist mixture of ammonium chloride and zinc chloride

(A) Mercury cell
(B) Leclanche cell
(C) Nickel-Cadmium cell
(D) Fuel cell

Answer: (B) Leclanche cell · Official APSCHE final key

Q146 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

If the E^0_{cell} of an equilibrium reaction
$A_{(s)} + 2B^+_{(aq)} \rightleftharpoons A^{2+}_{(aq)} + 2B_{(s)}$
at $298\ \mathrm{K}$ is $0.59\ \mathrm{V}$, the equilibrium constant $\mathrm{K_c}$ is

(A) 1.0×10^{10}
(B) 1.0×10^{2}
(C) 1.0×10^{-20}
(D) 1.0×10^{20}

Answer: (D) 1.0×10^{20} · Official APSCHE final key

Q147 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

If E^0_{cell} is 1.05 V, the emf of the cell for the following cell reaction
$\mathrm{Ni(s) + 2Ag^+(0.004\,M) \longrightarrow Ni^{2+}(0.16\,M) + 2Ag(s)}$ at 298 K in V is

(A) 0.932
(B) 1.227
(C) 0.732
(D) 1.397

Answer: (A) 0.932 · Official APSCHE final key

Q148 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

The electrode potentials for
$\mathrm{M^{2+}}(aq) + e^- \longrightarrow \mathrm{M^+}(aq)$
$\mathrm{M^+}(aq) + e^- \longrightarrow \mathrm{M}(s)$
are +0.15 V and +0.50 V respectively. The value of $E^0_{\mathrm{M^{2+}/M}}$ will be

(A) 0.150 V
(B) 0.300 V
(C) 0.325 V
(D) 0.650 V

Answer: (C) 0.325 V · Official APSCHE final key

Q149 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

$CuSO_4$ solution is electrolysed for 15 minutes to deposit 0.4725 g of copper at the cathode. The current in amperes required is
(Faraday $= 96{,}500\ C\ mol^{-1}$, atomic weight of copper = 63)

(A) 0.804
(B) 1.608
(C) 1.206
(D) 0.402

Answer: (B) 1.608 · Official APSCHE final key

Q150 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

Under which of the following conditions E value of the cell for the cell reaction given is maximum?
$Zn_{(s)} + Cu^{2+}_{(aq)} \rightleftharpoons Cu_{(s)} + Zn^{2+}_{(aq)}$ with C_1 under Cu^{2+} and C_2 under Zn^{2+}
($\frac{2.303\,RT}{F}$ at 298 K = 0.059 V, $E^0_{Zn^{2+}|Zn} = -0.76$ V, $E^0_{Cu^{2+}|Cu} = +0.34$ V)

(A) $C_1 = 0.1$ M, $C_2 = 0.01$ M
(B) $C_1 = 0.01$ M, $C_2 = 0.1$ M
(C) $C_1 = 0.1$ M, $C_2 = 0.2$ M
(D) $C_1 = 0.2$ M, $C_2 = 0.1$ M

Answer: (A) $C_1 = 0.1$ M, $C_2 = 0.01$ M · Official APSCHE final key

Q151 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

The emf of the following cell
$Mg\,|\,Mg^{+2}(0.01M)\,||\,Sn^{+2}(0.1M)\,|\,Sn$ at 298K in 'V' is
(Given, $E^0_{Mg^{+2}|Mg} = -2.34\,V$, $E^0_{Sn^{+2}|Sn} = -0.14\,V$)

(A) 2.17
(B) 2.23
(C) 2.51
(D) 2.45

Answer: (B) 2.23 · Official APSCHE final key

Q152 TS EAMCET 2018 · 7 May · Shift 1 MCQ

What is the approximate standard free energy change per mole of Zn (in kJ mol^{-1}) for Daniel cell at 298 K?

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(A) -212.3
(B) 230.0
(C) 0.0
(D) -1.10

Answer: (A) -212.3 · The council's preliminary key

Q153 TS EAMCET 2018 · 5 May · Shift 1 MCQ

Limiting molar conductivity of Mg^{2+} and Cl^- ions in water is 106.0 and 76.3 $S\ cm^2\ mol^{-1}$. The limiting molar conductivity of magnesium chloride (in $S\ cm^2\ mol^{-1}$) in water is

(A) 182.3
(B) 258.6
(C) 288.3
(D) 364.6

Answer: (B) 258.6 · The council's preliminary key

Q154 TS EAMCET 2018 · 5 May · Shift 2 MCQ

The potential of hydrogen electrode of $pH = 10$ with respect to standard hydrogen electrode is

(A) $-0.0591\ V$
(B) $-0.591\ V$
(C) $0.2\ V$
(D) 0

Answer: (B) $-0.591\ V$ · The council's preliminary key

Q155 TS EAMCET 2018 · 4 May · Shift 1 MCQ

The EMF of a galvanic cell consisting of two hydrogen electrodes is 0.17 V. If the solution of one of the electrodes has $[H^+] = 10^{-3}$ M, the pH at the other electrode is?

(A) 5.88
(B) 4.88
(C) 2.08
(D) 3.08

Answer: (A) 5.88 · The council's preliminary key

Q156 TS EAMCET 2018 · 4 May · Shift 2 MCQ

Which of the following correctly represents Nernst equation?
[P = products : R = reactants]

EdLoop EAPCET

(A) $\Delta G = \Delta G^\circ + 2.303\, RT \log \frac{[P]}{[R]}$

(B) $\Delta G = \Delta G^\circ - 2.303\, RT \log \frac{[P]}{[R]}$

(C) $\Delta G^\circ = \Delta G + 2.303\, RT \log \frac{[R]}{[P]}$

(D) $\Delta G^\circ = \Delta G - 2.303\, RT \log \frac{[R]}{[P]}$

Options (1) or (3) were accepted. More than one answer was accepted. · The council's preliminary key

Q157 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

Assertion (A) : The charge on one mole of electrons is one Faraday.
Reason (R) : The quantity of current required to deposit one mole of Mg from Mg^{2+} electrolyte solution is two Faradays.
The correct answer is

(A) Both (A) and (R) are correct and (R) is the correct explanation of (A).

(B) Both (A) and (R) are correct but (R) is not the correct explanation of (A).

(C) (A) is correct but (R) is not correct.

(D) (A) is not correct but (R) is correct.

Answer: (B) Both (A) and (R) are correct but (R) is not the correct explanation of (A). · Checked by our team

Q158 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

At T(K), the molar conductivity of 0.04 M acetic acid is $7.8\ \mathrm{S\,cm^2\,mol^{-1}}$. If the limiting molar conductivities of H^+ and CH_3COO^- at T(K) are 349 and $41\ \mathrm{S\,cm^2\,mol^{-1}}$ respectively, the dissociation constant of acetic acid is

(A) 1.63×10^{-5}

(B) 8.33×10^{-5}

(C) 1.63×10^{-4}

(D) 8.33×10^{-4}

Answer: (A) 1.63×10^{-5} · The council's preliminary key

Q159 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

For the oxidation of 0.2 M $FeSO_4$ solution 0.965 amperes current is passed through it for 1 hour. The volume of the solution that is oxidised in mL is

(A) 70
(B) 80
(C) 60
(D) 90

Answer: (D) 90 · The council's preliminary key

Q160 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

The conductivity of 0.01 M aqueous acetic acid measured with a conductivity cell of cell constant of $0.5\ \text{cm}^{-1}$ at 298 K is 3.12×10^{-4} S. If the limiting conductivities of H^+ and CH_3COO^- at the same temperature are 349, and 41 $\text{S cm}^2\ \text{mol}^{-1}$ respectively, the dissociation constant of acetic acid is

(A) 1.67×10^{-4}
(B) 1.67×10^{-5}
(C) 1.67×10^{-3}
(D) 1.67×10^{-6}

Answer: (B) 1.67×10^{-5} · The council's preliminary key

Q161 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

When an aqueous solution of $CuCl_2$ is electrolysed using Pt inert electrodes, the reaction at cathode and anode respectively are

(A) $4H_2O_{(l)} \xrightarrow{+4e^-} 2H_{2(g)} + 4OH^-_{(aq)}$; $2H_2O_{(l)} \xrightarrow{-4e^-} O_{2(g)} + 4H^+_{(aq)}$
(B) $2Cu^{2+}_{(aq)} \xrightarrow{+4e^-} 2Cu_{(s)}$; $2H_2O_{(l)} \xrightarrow{-4e^-} O_{2(g)} + 4H^+_{(aq)}$
(C) $Cu^{2+}_{(aq)} \xrightarrow{+2e^-} Cu_{(s)}$; $2Cl^-_{(aq)} \xrightarrow{-2e^-} Cl_{2(g)}$
(D) $2H_2O_{(l)} \xrightarrow{+2e^-} H_{2(g)} + 2OH^-_{(aq)}$; $2Cl^-_{(aq)} \xrightarrow{-2e^-} Cl_{2(g)}$

Answer: (C) $Cu^{2+}_{(aq)} \xrightarrow{+2e^-} Cu_{(s)}$; $2Cl^-_{(aq)} \xrightarrow{-2e^-} Cl_{2(g)}$ · The council's preliminary key

Q162 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

Using the standard electrode potentials given below identify the correct statements from the following

$Fe^{2+} + 2e^- \longrightarrow Fe;\ E^\circ = -0.44\ V$
$Cu^{2+} + 2e^- \longrightarrow Cu;\ E^\circ = +0.34\ V$
$Ag^+ + e^- \longrightarrow Ag;\ E^\circ = +0.80\ V$

a) Copper can displace iron from $FeSO_4$ solution
b) Iron can displace copper from $CuSO_4$ solution
c) Silver can displace copper from $CuSO_4$ solution
d) Iron can displace silver from $AgNO_3$ solution

(A) a, b
(B) b, c
(C) b, d
(D) a, d

Answer: (C) b, d · The council's preliminary key

Q163 TS EAMCET 2017 · 12 May · Offline MCQ

Consider the following electrode processes of a cell,

$Cl^- \rightarrow \frac{1}{2}Cl_2 + e^-$

$[MCl + e^- \rightarrow M + Cl^-]$

If EMF of this cell is $-1.140\ \mathrm{V}$ and E° value of the cell is $-0.55\mathrm{V}$ at $298\mathrm{K}$, the value of the equilibrium constant of the sparingly soluble salt MCl is in the order of

(A) 10^{-10}
(B) 10^{-8}
(C) 10^{-7}
(D) 10^{-11}

Answer: (A) 10^{-10} · The council's preliminary key

Q164 TS EAMCET 2017 · 12 May · Offline MCQ

Consider the single electrode process $4\mathrm{H}^+ + 4\bar{e} \rightleftharpoons 2\mathrm{H}_2$ catalyzed by platinum black electrode in HCl electrolyte. The potential of the electrode is $-0.059\mathrm{V}$ Vs.SHE. What is the concentration of the acid in the hydrogen half cell if the H_2 pressure is 1 bar?

(A) $1\ \mathrm{M}$
(B) $10\ \mathrm{M}$
(C) $0.1\ \mathrm{M}$
(D) $0.01\ \mathrm{M}$

Answer: (C) $0.1\ \mathrm{M}$ · The council's preliminary key

Q165 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The gaseous products formed at cathode (X) and anode (Y), when an aqueous solution of sodium acetate is electrolysed are

(A) X: $\mathrm{C_2H_6},\ \mathrm{H_2}$; Y: $\mathrm{CO_2}$
(B) X: $\mathrm{CO_2}$; Y: $\mathrm{C_2H_6},\ \mathrm{H_2}$
(C) X: $\mathrm{H_2}$; Y: $\mathrm{C_2H_6},\ \mathrm{CO_2}$
(D) X: $\mathrm{H_2},\ \mathrm{CO_2}$; Y: $\mathrm{C_2H_6}$

Answer: (C) X: $\mathrm{H_2}$; Y: $\mathrm{C_2H_6},\ \mathrm{CO_2}$ · The council's preliminary key

Q166 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

Same amount of electricity is passed through aqueous solutions of $AgNO_3$ and $CuSO_4$. The number of Ag and Cu atoms deposited are x and y respectively. The correct relationship between x and y is

(A) $x = y$
(B) $x = 2y$
(C) $y = 2x$
(D) $x < y$

Answer: (B) $x = 2y$ · The council's preliminary key

Q167 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

Standard Gibbs energy change in $kJ\ mol^{-1}$ for a galvanic cell $A_{(s)} + B^{3+}_{(aq)} \longrightarrow A^{3+}_{(aq)} + B_{(s)}$ that has standard emf of 0.5V is : ($F = 96500\ C\ mol^{-1}$)

(A) -193.50
(B) -96.50
(C) -144.75
(D) -289.50

Answer: (C) -144.75 · The council's preliminary key

Q168 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

Using the standard reduction potentials of the electrodes Li, Zn, Mg, Ni as -3.05, -0.76, -2.36, -0.25 V respectively, identify the correct statement.

(A) Mg, displaces Zn from its solution.
(B) Ni, reduces Zn^{2+} to Zn
(C) Mg, reduces Li^{+} to Li
(D) Zn, reduces Mg^{2+} to Mg

Answer: (A) Mg, displaces Zn from its solution. · The council's preliminary key

Q169 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

The conductivity of 0.001 M acetic acid at a certain temperature is $5.07 \times 10^{-5}\ S\ cm^{-1}$. If Λ^0_m of acetic acid at the same temperature is $390\ S\ cm^2\ mol^{-1}$, the dissociation constant of acetic acid at that temperature is:

(A) 1.94×10^{-5}
(B) 1.94×10^{-3}
(C) 1.94×10^{-4}
(D) 1.94×10^{-6}

Answer: (A) 1.94×10^{-5} · The council's preliminary key

Q170 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

For a reaction, $A_{(s)} + 2B^{+}_{(aq)} \rightleftharpoons A^{2+}_{(aq)} + 2B_{(s)}$ K_c is 10^{12} at 25 °C. The E°_{Cell} of the corresponding cell is ($F = 96500\ C\,mol^{-1}$)

(A) 0.708 V
(B) 0.534 V
(C) 0.355 V
(D) 0.453 V

Answer: (C) 0.355 V · The council's preliminary key

Q171 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

E^{0}_{cell} of the reaction $Mg_{(s)} + 2Ag^{+}(0.0001M) \rightleftharpoons Mg^{2+}(0.01M) + 2Ag_{(s)}$ is 3.17 V. The E_{cell} of the reaction and its cell notation respectively are :

(A) 2.993 V, $Ag\,|\,Ag^{+}(0.0001\ M)\,||\,Mg^{2+}(0.01\ M)\,|\,Mg$
(B) 3.993 V, $Mg\,|\,Mg^{2+}(0.0001\ M)\,||\,Ag^{+}(0.01\ M)\,|\,Ag$
(C) 2.993 V, $Mg\,|\,Mg^{2+}(0.01\ M)\,||\,Ag^{+}(0.0001\ M)\,|\,Ag$
(D) 3.993 V, $Ag\,|\,Ag^{+}(0.01\ M)\,||\,Mg^{2+}(0.0001\ M)\,|\,Mg$

Answer: (C) 2.993 V, $Mg\,|\,Mg^{2+}(0.01\ M)\,||\,Ag^{+}(0.0001\ M)\,|\,Ag$ · The council's preliminary key

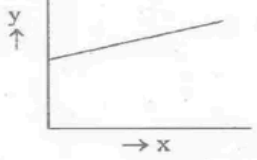
Q172 TS EAMCET 2016 · 15 May · Offline MCQ

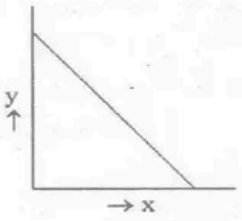
Which one of the following is the correct plot of Λ_m (in $S\ cm^2\ mol^{-1}$) and $\sqrt{c}$ (in $(mol/L)^{1/2}$) for KCl solution ? ($y = \Lambda_m$; $x = \sqrt{c}$)

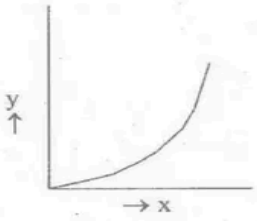
(see the figure above)

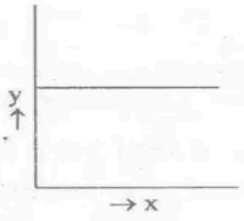
145. Which one of the following is the correct plot of $\wedge_m$(in S cm^2 mol^{-1}) and $\sqrt{c}$ (in mol/L)$^{1/2}$) for KCl solution ? ($y = \wedge_m$; $x = \sqrt{c}$)

కింది వాటిలో ఏది KCl ద్రావణానికి, $\wedge_m$(S cm^2 mol^{-1} లలో) మరియు $\sqrt{c}$ (mol/L)$^{1/2}$ లలో)ల మధ్య గీచిన సరియైన రేఖాపటము? ($y = \wedge_m$; $x = \sqrt{c}$)

(1) 

(2) 

(3) 

(4) 

(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (B) · Official TGCHE final key

Q173 AP EAMCET 2016 · 29 Apr · Offline MCQ

The products obtained at the cathode and anode respectively during the electrolysis of aqueous K_2SO_4 solution using platinum electrodes are

(A) O_2, H_2
(B) H_2, O_2
(C) H_2, SO_2
(D) K, SO_2

Answer: (B) H_2, O_2 · The council's preliminary key

Q174 AP EAMCET 2014 · 22 May · Offline MCQ

At 298 K the molar conductivities at infinite dilution (Λ_m^o) of NH_4Cl, KOH and KCl are 152.8, 272.6 and 149.8 S cm^2 mol^{-1} respectively. The Λ_m^o of NH_4OH in S cm^2 mol^{-1} and % dissociation of 0.01 M NH_4OH with $\Lambda_m = 25.1$ S cm^2 mol^{-1} at the same temperature are

(A) 275.6, 0.91
(B) 275.6, 9.1
(C) 269.6, 9.6
(D) 30, 84

Answer: (B) 275.6, 9.1 · The council's preliminary key

Q175 AP EAMCET 2013 · 10 May · Offline MCQ

During the electrolysis of copper sulphate aqueous solution using copper electrode, the reaction taking place at the cathode is :

(A) $\mathrm{Cu} \rightarrow \mathrm{Cu}^{2+}_{(aq)} + 2e^-$
(B) $\mathrm{Cu}^{2+}_{(aq)} + 2e^- \rightarrow \mathrm{Cu}_{(s)}$
(C) $\mathrm{H}^+_{(aq)} + e^- \rightarrow \frac{1}{2}\mathrm{H}_{2(g)}$
(D) $\mathrm{SO}^{2-}_{4(aq)} \rightarrow \mathrm{SO}_{3(g)} + \frac{1}{2}\mathrm{O}_{2(g)} + 2e^-$

Answer: (B) $\mathrm{Cu}^{2+}_{(aq)} + 2e^- \rightarrow \mathrm{Cu}_{(s)}$ · The council's preliminary key

Q176 AP EAMCET 2013 · 10 May · Offline MCQ

The extent of charge of lead accumulator is determined by

(A) amount of $\mathrm{PbSO_4}$ in the battery
(B) amount of $\mathrm{PbO_2}$ in the battery
(C) specific gravity of $\mathrm{H_2SO_4}$ of the battery
(D) amount of Pb in the battery

Answer: (C) specific gravity of $\mathrm{H_2SO_4}$ of the battery · The council's preliminary key

Q177 AP EAMCET 2012 · 12 May · Offline MCQ

The number of moles of electrons required to deposit 36 g of Al from an aqueous solution of $\mathrm{Al(NO_3)_3}$ is (At. wt. of Al = 27)

(A) 4
(B) 2
(C) 3
(D) 1

Answer: (A) 4 · Official APSCHE final key

Q178 AP EAMCET 2012 · 12 May · Offline MCQ

The emf (in V) of a Daniel cell containing 0.1 M $\mathrm{ZnSO_4}$ and 0.01 M $\mathrm{CuSO_4}$ solutions at their respective electrodes is
($E^\circ_{\mathrm{Cu^{2+}|Cu}} = 0.34$ V; $E^\circ_{\mathrm{Zn^{2+}|Zn}} = -0.76$ V)

(A) 1.10
(B) 1.16
(C) 1.13
(D) 1.07

Answer: (D) 1.07 · Official APSCHE final key

Q179 AP EAMCET 2011 · 8 May · Offline MCQ

For the electrochemical cell $M|M^+||X^-|X$, $E^\circ(M^+|M)$ = 0.44 V and $E^\circ(X|X^-)$ = 0.33 V. Which one of the following is true for this data ?

(A) $M + X \rightarrow M^+ + X^-$ is a spontaneous reaction
(B) $M^+ + X^- \rightarrow M + X$ is a spontaneous reaction
(C) E_{cell} = 0.77 V
(D) E_{cell} = -0.77 V

Answer: (B) $M^+ + X^- \rightarrow M + X$ **is a spontaneous reaction** · The council's preliminary key

Q180 AP EAMCET 2011 · 8 May · Offline MCQ

In electrochemical corrosion, the metal undergoing corrosion :

(A) Acts as anode
(B) Acts as cathode
(C) Undergoes reduction
(D) Liquefies

Answer: (A) Acts as anode · The council's preliminary key

Q181 AP EAMCET 2010 · 30 May · Offline MCQ

At a certain temperature and at infinite dilution, the equivalent conductances of sodium benzoate, hydrochloric acid and sodium chloride are 240, 349 and 229 $ohm^{-1}\,cm^2\,equiv^{-1}$ respectively. The equivalent conductance of benzoic acid in $ohm^{-1}\,cm^2\,equiv^{-1}$ at the same conditions is :

(A) 80
(B) 328
(C) 360
(D) 408

Answer: (C) 360 · Official APSCHE final key

Q182 AP EAMCET 2010 · 30 May · Offline MCQ

A solution of concentration 'C' g equiv/litre has a specific resistance R. The equivalent conductance of the solution is :

(A) R/C

(B) C/R

(C) $\frac{1000}{RC}$

(D) $\frac{1000R}{C}$

Answer: (C) $\frac{1000}{RC}$ · Official APSCHE final key

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