KCET 2026 Chemistry

Question Paper

Conducted by KEA

General Instructions

(i) **Duration:** The total duration of the examination is 80 minutes.

(ii) **Total Marks:** The complete paper carries a maximum of 60 marks.

(iii) **Compulsory Questions:** All 60 questions are compulsory.

(iv) Each question has four options. Only **one** option is correct.

(v) **Correct Answer:** +1 marks.

(vi) **Incorrect Answer:** There is no Negative marking for incorrect answers.

1. During the electrolysis of acidified water, 16 g of O_2 gas is formed. The volume of H_2 gas liberated at cathode under STP conditions is

(1) 22.4 L

(2) 11.2 L

(3) 2.24 L

(4) 1.12 L

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2. $\Lambda_m^\circ(NH_4OH)$ is equal to ____

(1) $\Lambda_m^\circ(NH_4OH) + \Lambda_m^\circ(NH_4Cl) - \Lambda_m^\circ(HCl)$

(2) $\Lambda_m^\circ(NH_4Cl) + \Lambda_m^\circ(NaOH) - \Lambda_m^\circ(NaCl)$

(3) $\Lambda_m^\circ(NH_4Cl) + \Lambda_m^\circ(NaCl) - \Lambda_m^\circ(NaOH)$

(4) $\Lambda_m^\circ(NaOH) + \Lambda_m^\circ(NaCl) - \Lambda_m^\circ(NH_4Cl)$

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3. Given below are the half-cell reactions:

$Mn^{2+} + 2e^- \rightarrow Mn$ **(E° = -1.18 V)**

$Mn^{3+} + e^- \rightarrow Mn^{2+}$ **(E° = +1.51 V)**

The E°_{cell} **for** $3Mn^{2+} \rightarrow Mn + 2Mn^{3+}$ **will be ____**

(1) - 2.69 V, the reaction will not occur (Non-Spontaneous)

(2) - 2.69 V, the reaction will occur (Spontaneous)

(3) - 0.33 V, the reaction will not occur (Non-Spontaneous)

(4) - 0.33 V, the reaction will occur (Spontaneous)

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4. The conductivity of centimolar solution of KCl at 298 K is 0.021 Ω^{-1} **cm**$^{-1}$**. The resistance of the cell containing the solution at 298 K is 60** Ω**. The value of cell constant is**

(1) 3.28 cm^{-1}

(2) 1.26 cm^{-1}

(3) 3.54 cm^{-1}

(4) 1.34 cm^{-1}

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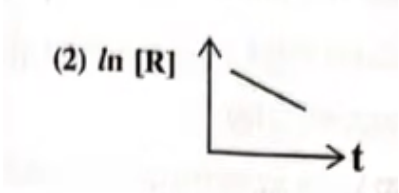
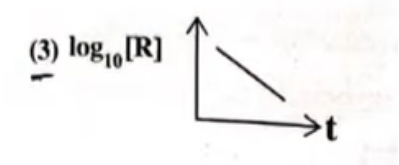
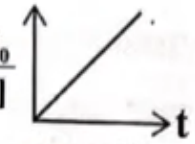
5 Which one of the following graph is not applicable for a 1st order reaction (R → P)?





(4) $\log_{10}\frac{[R]_0}{[R]}$ 

(1) Graph 1

(2) Graph 2

(3) Graph 3

(4) Graph 4

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6. For a reaction having three steps, the overall rate constant is $K = \frac{k_1 k_2}{k_3}$. The values E_{a1}, E_{a2} and E_{a3} (activation energies stepwise) are 40, 50 and 60 kJ mol^{-1} respectively. Then the overall Ea (activation energy) of the reaction is ____.

(1) 30 kJ mol^{-1}

(2) 40 kJ mol^{-1}

(3) 50 kJ mol^{-1}

(4) 60 kJ mol^{-1}

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7. For a 1st order change R → P, the concentration of Reactant R changes from 0.1 M to 0.025 M in 40 minutes. The rate of reaction when the concentration of R is 0.01 M is ____.

(1) 1.73×10^{-5} M min^{-1}

(2) 3.47×10^{-4} M min^{-1}

(3) 3.47×10^{-5} M min^{-1}

(4) 1.73×10^{-4} M min^{-1}

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8. The activation energy for the reaction X → Y is 150 kJ mol^{-1}. The change in enthalpy for the above reaction is -135 kJ mol^{-1}. Then the activation energy for Y → X is ____.

(1) 280 kJ mol^{-1}

(2) 285 kJ mol^{-1}

(3) 270 kJ mol^{-1}

(4) 15 kJ mol^{-1}

