



B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

Periodic Test-1 Chemistry (043)

SET-1

Class : XII

Date : 12/06/2026

Admission No.:

Duration: 1 Hr

Max. Marks: 25

Roll No.:

General Instructions:

- (1) There are 13 questions in all. All questions are compulsory.
- (2) This question paper has three sections: Section A, Section B and Section C.
- (3) All the sections are compulsory.
- (4) Section A contains five questions of 1 mark each, Section B contains four questions of two marks each, Section C contains four questions of three marks each.
- (5) There is no overall choice. Use of calculators is not allowed.

SECTION-A

1. Two Faraday of electricity are passed through a solution of CuSO_4 . The mass of copper deposited at the cathode is (atomic mass of Cu = 63.5 amu).
(a) 2 gram (b) 127 gram (c) 0 gram (d) 63.5 gram
2. Which of the following is NOT a secondary cell?
(a) Nickel-cadmium cell (b) Lead storage cell (c) Mercury cell (d) Leclanche cell
3. The slowest step in a reaction mechanism determines:
(a) The molecularity (b) The overall rate (rate-determining step)
(c) The activation energy (d) The temperature coefficient
4. The unit of rate constant of a first-order reaction
(a) sec^{-1} (b) $\text{mol lit}^{-1} \text{sec}^{-1}$ (c) $\text{lit mol}^{-1} \text{sec}^{-1}$ (d) $\text{mol}^2 \text{ lit sec}$.
5. If the concentration of a reactant is increased by 'a' times and the rate increases by a^2 times, the order is:
(a) 0 (b) 1 (c) 2 (d) 3

SECTION - B

6. A reaction is of second order with respect to a reactant. How will the rate of reaction be affected if the concentration of this reactant is

- (i) doubled, (ii) reduced to half? 2
7. Define the following : 2
 (i) Order of a reaction
 (ii) Activation energy of a reaction
8. Express the relation among the cell constant, the resistance of the solution in the cell and the conductivity of the solution. How is the conductivity of a solution related to its molar conductivity? 2
9. Given that the standard electrode potentials (E°) of metals are :
 $K^+/K = -2.93$ V, $Ag^+/Ag = 0.80$ V, $Cu^{2+}/Cu = 0.34$ V, $Mg^{2+}/Mg = -2.37$ V, $Cr^{3+}/Cr = -0.74$ V,
 $Fe^{2+}/Fe = -0.44$ V. Arrange these metals in increasing order of their reducing power. 2

SECTION C

10. The rate of a reaction becomes four times when the temperature changes from 293 K to 313 K. Calculate the energy of activation (E_a) of the reaction, assuming that it does not change with temperature. [$R = 8.314$ JK⁻¹ mol⁻¹, $\log 4 = 0.6021$] 3
11. (a) For a reaction $A + B \rightarrow P$, the rate is given by $\text{Rate} = k[A][B]^2$
 (i) How is the rate of reaction affected if the concentration of B is doubled?
 (b) A first-order reaction takes 30 minutes for 50% completion. Calculate the time required for 90% completion of this reaction. 3
12. What is corrosion? Explain the electrochemical theory of rusting of iron and write the reactions involved in the rusting of iron. 3
13. What do you mean by Kohlrausch's law? From the following molar conductivities at infinite dilution
 $\lambda_m \text{Ba}(\text{OH})_2 = 457.6 \Omega^{-1}\text{cm}^2\text{mol}^{-1}$ $\lambda_m \text{BaCl}_2 = 240.6 \Omega^{-1}\text{cm}^2\text{mol}^{-1}$ $\lambda_m \text{NH}_4\text{Cl} = 129.8 \Omega^{-1}\text{cm}^2\text{mol}^{-1}$
 Calculate λ_m for NH_4OH . 3

-----ALL THE BEST-----