B K BIRLA CENTRE FOR EDUCATION
(Sarala Birla Group of Schools)

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SARALA BIRLA GROUP OF SCHOOLS
SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

PERIODIC-TEST-1 2025-26

CHEMISTRY (043) set-2 Answer Key

Class : XII
Date : 12/06/2026
Admission No.:

Duration: 1 Hr
Max. Marks: 25
Roll No.:

SECTION-A

1. (b) 130 gram . 1

2. (a) 38%

3. (b) mol lit^{-1} sec^{-1}

4. (b) First order

5. (c) activation energy of the reaction.

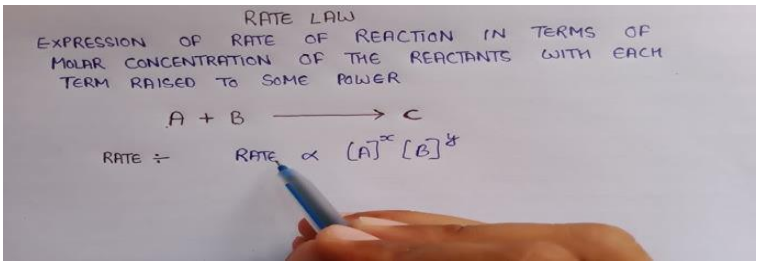
SECTION - B

6. (a) Rate law expression $R=K\{A\}^x[B]^y$ x+y is the order of reaction.
(b) no. of molecules participated in the reaction is known as molecularity.

7. 2
(a) 3F (b) 2F

8. 1.K^+/K = -2.93 V, 6. Ag^+/Ag = 0.80 V, 5.Cu^{2+}/Cu = 0.34 V, 2.Mg^{2+}/Mg = -2.37 V, 3.Cr^{3+}/Cr = -0.74 V, 4.Fe^{2+}/Fe = -0.44 V. 2

9.



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SECTION C

10.

A lead storage battery consists of a lead anode, a grid of lead packed with lead oxide (PbO_2) as the cathode, and a 38% solution of sulphuric acid (H_2SO_4) as an electrolyte.

When the battery is in use, the following cell reactions take place:

At anode: $Pb_{(s)} + SO^{2-}{}_{4(aq)} \rightarrow PbSO_{4(s)} + 2e^-$

At cathode:

$$PbO_{2(s)} + SO_4^{2-}{}_{(aq)} + 4H^+{}_{(aq)} + 2e^- \longrightarrow PbSO_{4(s)} + 2H_2O_{(l)}$$

The overall cell reaction is given by,

$$Pb_{(s)} + PbO_{2(s)} + 2H_2SO_{4(aq)} \longrightarrow 2PbSO_{4(s)} + 2H_2O_{(l)}$$

When a battery is charged, the reverse of all these reactions takes place.

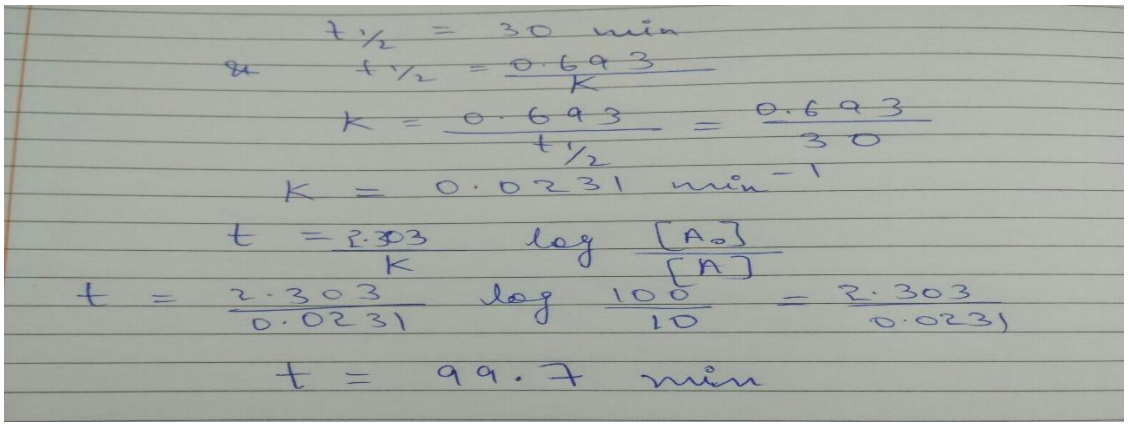
Hence, on charging, present at the anode and cathode is converted into and respectively.

3

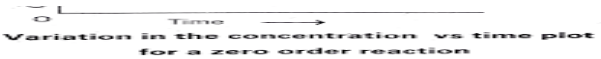
11. (a) (i) 9 times

For a first-order reaction, the relationship between the rate constant

and the half-life



12. (a)



Variation in the concentration vs time plot for a zero order reaction

(b) Collision theory states that reactions occur only when reactant particles collide with sufficient energy (activation energy,) and proper orientation. The reaction rate is proportional to the collision frequency, with the rate constant) defined by the Arrhenius equation: , where Ais the steric factor, is collision frequency, Ris the gas constant, and T is temperature.

13. emf of the cell $Zn/Zn^{2+}(0.1M)$ II Cd^{2+} (0.01M)/Cd at 298K

$E^0 = E^0_{Zn^{2+}/Zn} = -0.76 - E^0_{Cd^{2+}/Cd} = -0.40\ V = 1.10V$

$E_{Cell} = E^0_{cell} - 0.059/2 \log 0.1/0.01$

$Ecell = 1.10 - 0.03 = 1.07V$ 3

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