# ETERNAL CAREER CLASSES

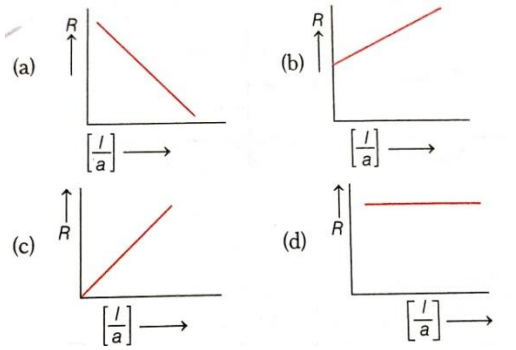
SUBJECT : CHEMISTRY | CLASS : XII | FULL MARKS : 20

NAME : …….. | BOARD TEST : 06 | DATE : 10.12.2024

## SECTION - A

**Single answer type question. Attempt any seven question :-** **Marks : 1**× 7 = 7

1. Select the incorrect statement (s) .
   (a) in a galvanic cell, a spontaneous chemical reaction generates an electric current .
   (b) in an electrolytic cell, an electric current drives a non- spontaneous reaction
   (c) in a galvanic cell, cell reaction is exothermic.
   (d) current flows from anode to cathode un exothermic.
2. Nernst equation is not useful in determining
   (a) emf of a cell
   (b) equilibrium constant
   (c) spontaneity of a cell reaction
   (d) cell potential
3. Following behaves as SHE at a pressure of Pt, $H_2|H_2O$
   (a) 1 bar (b) $10^{-14}$
   (c) $10^{7}$bar (d) $10^{14}$ bar
4. Variation of resistance (R) with increase in cell constant $(l/a)$given graph of the type




5. Steady current of 30.0 A for 70.2 min corresponds to a passage of
   (a) $1.26 \times 10^5$ electrons
   (b) 1.31 Coulombs
   (c) $1.26 \times 10^5$ Faradays
   (d) 1.31 Faradays
6. During the electrolysis of aqueous zinc nitrate
   (a) $O_2$ and $H_2$ evolved at the cathode
   (b) zinc plates out at the anode
   (c) hydrogen gas $H_2$ is evolved at the anode
   (d) oxygen gas $O_2$ is evolved at the anode
7. Which of the following is/ are function (s) of salt – bridge ?
   (a) it completes the electrical circuit with electrons flowing from one electrode to other through external wires and a flow of ions between the two compartments through salt –bride
   (b) it prevents the accumulation of the ions
   (c) it does not prevents the diffusion of solution from one cell to the other
   (d) it maximises the liquid – liquid junction potential
8. The number of electrons delivered at the cathode during electrolysis by a current of 1 ampere in 60 seconds is ( charge on electron = 1.60 $10^{-19}$)
   (a) $6 \times 10^{23}$ (b) $6 \times 10^{20}$
   (c) $3.75 \times 10^{20}$ (d) $7.48 \times 10^{23}$
9. Zinc can be coated on iron to produce galvanised iron but the reverse is not possible. It is because

(a) zinc is lighter than iron
(b) zinc has lower melting point than iron
(c) zinc has lower negative electrode potential than iron
(d) zinc has higher negative electrode potential than iron

10. A device that converts energy of combustion of fuels like hydrogen and methane, directly into electrical energy is known as
(a) fuel cell
(b) electrolytic cell
(c) dynamo
(d) Ni - Cd cell

## SECTION - B

**Short answer type question. Attempt any one question :-** **Marks : 1** × 3 = 3

11. Calculate the emf of the cell in which the following reaction takes place : Ni(s) +2ag$^{+}$ (0.002 M) → $Ni^{2+}$(0.160 M) + 2 Ag(s)
Given that $E^{\ominus}_{cell}$ = 1.05 V
12. Write the chemistry of recharging the lead storage battery, highlighting all the materials that are involved during recharging.

**Long answer type question. Attempt any two question :-** **Marks : 2** × 5 = 10

13. A solution of Ni $(NO_3)_2$ is electrolysed between platinum electrodes using a current of 5 amperes for 20 minutes. What mass of Ni is deposited at the cathode ?
14. Three electrolytic cell A.B.C containing solutions of $ZnSO_4$. $AgNO_3$ and $CuSO_4$. Respectively are connected in series. A steady current of 1.5 amperes was passed through them until 1.45 g of silver deposited at the cathode of cell B. How long did the current flow ? what mass of copper and zinc were deposited ?
15. Predict the products of electrolysis in each of the following :
(i) An aqueous solution of $AgNO_3$ with silver electrodes .
(ii) An aqueous solution of $AgNO_3$with platinum electrodes
(iii) A dilute solution of $H_2SO_4$ with platinum electrodes
(iv) An aqueous solution of Cu$Cl_2$with platinum electrodes .

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