ELECTROCHEMISTRY (ASSERTION REASON)

Directions: These questions consist of two statements, each printed as Assertion and Reason. While answering these questions, you are required to choose any one of the following four responses.

(A) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.

(B) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.

(C) If the Assertion is correct but Reason is incorrect.

(D) If both the Assertion and Reason are incorrect.

1	**Assertion :** The resistivity for a substance is its resistance when it is one meter long and its area of cross section is one square meter. **Reason :** The SI units of resistivity is ohm metre (m).	B
2	**Assertion :** On increasing dilution, the specific conductance keep on increasing. **Reason :** On increasing dilution, degree of ionisation of weak electrolyte increases and molality of ions also increases.	D
3	**Assertion :** Galvanised iron does not rust. **Reason :** Zinc has a more negative electrode potential than iron.	A
4	**Assertion :** Cu is less reactive than hydrogen. **Reason :** $\mathbf{E^0_{Cu2+/Cu}}$ is negative.	C
5	**Assertion :** ECell should have a positive value for the cell to function. **Reason :** $E_{cathode} < E_{anode}$	C
6	**Assertion :** Conductivity of all electrolytes decreases on dilution. **Reason :** On dilution number of ions per unit volume decreases.	A
7	**Assertion :** Λ_m for weak electrolytes shows a sharp increase when the electrolytic solution is diluted. **Reason :** For weak electrolytes degree of dissociation increases with dilution of solution.	A
8	**Assertion :** Lithium has the lowest electrode potential. **Reason :** Lithium ion is the strongest oxidising agent.	C
9	**Assertion :** Electrolysis of NaCl solution gives chlorine at anode instead of O_2. **Reason :** Formation of oxygen at anode requires overvoltage.	A
10	**Assertion :** For measuring resistance of an ionic solution an AC source is used. **Reason :** Concentration of ionic solution will change if DC source is used.	A
11	**Assertion :** Current stops flowing when $E_{Cell} = 0$. **Reason :** Equilibrium of the cell reaction is attained.	A
12	**Assertion :** $E_{Ag+/Ag}$ increases with increase in concentration of Ag+ ions. **Reason :** $E_{Ag+/Ag}$ has a positive value.	B

13	**Assertion :** Copper sulphate can be stored in zinc vessel. **Reason :** Zinc is less reactive than copper.	D
14	**Assertion :** The resistivity for a substance is its resistance when it is one meter long and its area of cross section is one square meter. **Reason :** The SI units of resistivity is ohm metre .	B
15	**Assertion :** When a copper wire is dipped in silver nitrate solution, there is no change in the colour of the solution. **Reason :** Copper cannot displace silver from its salt solution.	D
16	**Assertion:** Kohlrausch law helps to find the molar conductivity of weak electrolyte at infinite dilution. **Reason:** Molar conductivity of a weak electrolyte at infinite dilution cannot be determined experimentally.	A
17	**Assertion:** A standard hydrogen electrode is also called a reversible electrode. **Reason:** Standard hydrogen electrodes can act both as anode as well as the cathode in an electrochemical cell.	A
18	**Assertion :** Molar conductivity increases with decrease in concentration. **Reason :** Conductivity always decreases with decrease in concentration.	B
19	**Assertion :** In electrolysis, the quantity of electricity needed for depositing 1 mole of silver is different from that required for 1 mole of copper. **Reason ;** The molecular weights of silver and copper are different.	B
20	**Assertion :** In electrolysis of aqueous NaCl the product obtained is H_2 gas. **Reason :** Gases are liberated faster than the metals.	C
21	**Assertion :** To obtain maximum work from a galvanic cell charge has to be passed reversibly. **Reason :** The reversible work done by a galvanic cell is equal to decrease in its Gibbs energy.	A
22	**Assertion :** The electrical resistance of any object decreases with increase in its length. **Reason :** Electrical resistance of any object increases with increase in its area of cross-section.	D
23	**Assertion :** The conductivity of electrolytic solutions increases with increase of temperature. **Reason :** Electronic conductance decreases with increase of temperature.	B
24	**Assertion:** Salts like KCl, KNO_3 i.e., inert electrolytes are used in salt bridge. **Reason:** An inert electrolyte can easily be filled in the U[1]tube.	C
25	**Assertion:** Emf and potential difference are the same for cells. **Reason:** Both give the difference in electrode potential under any condition.	D
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