The Practise Ground

Class 12 Chemistry

Electrochemistry Essentials

Cells, potentials and Faraday's laws

1

$$E^\circ_{cell} = E^\circ_{cathode} - E^\circ_{anode}$$

Standard cell potential
The higher reduction potential is the cathode

2

$$\Delta G^\circ = -n F E^\circ_{cell}$$

Free energy and cell potential
F = 96500 C/mol. Spontaneous when E°cell is positive.

3

$$E = E^\circ - (0.059 / n) \log Q$$

Nernst equation at 298 K
Q is the reaction quotient

4

$$m = Z I t$$

Faraday's first law
Mass deposited is proportional to the charge passed

Remember

Oxidation at the anode, reduction at the cathode: AN OX, RED CAT.

In a galvanic cell, electrons flow from anode to cathode.

Quick example

E° of Zn = −0.76 V and E° of Cu = +0.34 V

E°cell = 0.34 − (−0.76) = 1.10 V

Positive, so the cell reaction is spontaneous.

Think you've got it? Test yourself.

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