Electrochemistry Important Questions

Here is a comparison between an **Electrolytic Cell** and a **Galvanic Cell** in tabular form:

Feature	Electrolytic Cell	Galvanic (Voltaic) Cell
Energy Conversion	Converts electrical energy into chemical energy	Converts chemical energy into electrical energy
Reaction Type	Non-spontaneous (requires external electrical energy)	Spontaneous (generates electrical energy)
Anode Polarity	Positive	Negative
Cathode Polarity	Negative	Positive
Electron Flow	Electrons flow from the positive anode to the negative cathode	Electrons flow from the negative anode to the positive cathode
Direction of Ion Flow	Cations move toward the negative cathode, anions move toward the positive anode	Cations move toward the positive cathode, anions move toward the negative anode
Example	Electrolysis of water, electroplating	Daniell cell (Zn-Cu), batteries
Use of External Power Source	Requires an external power source (like a battery)	No external power source required, it produces current
Purpose	To drive a chemical reaction (e.g., electrolysis)	To generate electrical energy
Electrode Reactions	Anode: Oxidation, Cathode: Reduction	Anode: Oxidation, Cathode: Reduction
Example of Use	Electrolysis, electroplating, metal refining	Batteries, fuel cells

This table provides a concise comparison of key features between an **electrolytic cell** and a **galvanic cell**.