B8 · Extra practice

Original diploma-style practice | Items 1-2

Extra practice for this lesson. Original questions, not released diploma items. Select one option for multiple choice; other tasks state the required response.

Use the givens and conditions in each prompt. Enter the requested count, coefficient, oxidation number or potential with the stated unit and precision.

B8-D01 · Numerical response

A student wants to drive $Mg^{2+} + Zn \rightarrow Mg + Zn^{2+}$ with a power source (Mg^{2+}/Mg −2.37 V; Zn^{2+}/Zn −0.76 V). What voltage must the source exceed, in volts to two decimal places?

Response: _____

B8-D02 · Multiple choice

In an electrolytic cell, which terminal of the power source is the cathode joined to?

A. The positive terminal
B. The negative terminal
C. Neither terminal
D. Both terminals

Response: _____

B8 · Extra practice

Original diploma-style practice | Items 3-4

B8-D03 · Multiple choice

In an electrolytic cell, which ions move toward the anode?

A. Cations
B. Anions
C. Electrons
D. Neutral atoms

Response: _____

B8-D04 · Numerical response

For the electrolysis of molten NaCl, what is E°cell in volts to two decimal places? Use Na^+/Na −2.71 V and Cl_2/Cl^- +1.36 V.

Response: _____

B8 · Extra practice

Original diploma-style practice | Items 5-6

B8-D05 · Select all that apply

Select every correct statement about electrolytic cells.

A. Oxidation happens at the anode
B. A power source is needed
C. The anode is the negative electrode
D. A salt bridge is not required

Response: _____

B8-D06 · Matching

Match each feature to the cell type it describes.

Items to match:

1. Needs a power source
2. Needs a salt bridge or porous barrier
3. Anode is negative
4. Anode is positive

Targets:

A. Voltaic cell
B. Electrolytic cell

Response: _____

B8 · Extra practice

Original diploma-style practice | Items 7-8

B8-D07 · Numerical response

How many electrons appear in the anode half-reaction $2Cl^- \rightarrow Cl_2 + 2e^-$? Enter an integer.

Response: _____

B8-D08 · Multiple choice

To plate a metal spoon with silver, which statement is correct?

A. The spoon is the anode
B. The spoon is the cathode
C. The spoon is not connected
D. The spoon is the salt bridge

Response: _____

B8 · Extra practice

Original diploma-style practice | Items 9-10

B8-D09 · Numerical response

What is E°cell in volts for a cell with silver electrodes in silver nitrate solution? Enter to two decimal places.

Response: _____

B8-D10 · Ordering / ranking

Arrange the steps for predicting the electrolysis of a molten salt.

First to last

1. Calculate E°cell and the minimum voltage
2. Write the reduction and the oxidation
3. Send the cation to the cathode and the anion to the anode
4. List the ions present
5. Match the electrons and add the halves

Response: _____

B8 · Extra practice

Original diploma-style practice | Items 11-12

B8-D11 · Multiple choice

In a copper refining cell, which electrode gains mass?

A. The impure copper anode
B. The pure copper cathode
C. The salt bridge
D. Neither electrode

Response: _____

B8-D12 · Written response

A student says that a negative E°cell means a reaction can never be made to happen. Explain what is wrong.

Response: _____