B10 · 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.

B10-D01 · Numerical response

A current of 2.50 A flows for 8.00 minutes. What charge moves, in coulombs? Enter an integer.

Response: _____

B10-D02 · Numerical response

A charge of 4825 C passes through a cell. How many moles of electrons is that, to four decimal places? Use $F = 9.65 \times 10^4$ C/mol e^-.

Response: _____

B10 · Extra practice

Original diploma-style practice | Items 3-4

B10-D03 · Numerical response

Given 0.0500 mol of electrons and $Ag^+ + e^- \rightarrow Ag$. What mass of silver forms, in grams to two decimal places? Use M = 107.87 g/mol.

Response: _____

B10-D04 · Numerical response

A charge of 1.93×10^4 C plates zinc from Zn^{2+}. What mass of zinc forms, in grams to two decimal places? Use M = 65.41 g/mol.

Response: _____

B10 · Extra practice

Original diploma-style practice | Items 5-6

B10-D05 · Numerical response

A steady current of 2.00 A delivers a charge of 1.93×10^4 C. How long does it flow, in seconds? Enter an integer.

Response: _____

B10-D06 · Numerical response

How many moles of electrons are needed to deposit 1.00 mol of chromium from Cr^{3+}? Enter an integer.

Response: _____

B10 · Extra practice

Original diploma-style practice | Items 7-8

B10-D07 · Multiple choice

Why must the time be in seconds when we use q = It?

A. An ampere is one coulomb each second
B. Seconds are the only SI unit of time
C. The Faraday constant is in minutes
D. Minutes cannot be multiplied

Response: _____

B10-D08 · Select all that apply

Select every correct statement about the Faraday constant.

A. It is about 9.65×10^4 C/mol e^-
B. It changes moles of electrons to coulombs
C. It is the molar mass of electrons in g/mol
D. It is listed in the data booklet

Response: _____

B10 · Extra practice

Original diploma-style practice | Items 9-10

B10-D09 · Ordering / ranking

Arrange the steps for finding the mass of metal deposited.

First to last

1. Multiply the moles of metal by the molar mass
2. Divide the moles of electrons by the electrons in the half-reaction
3. Find the charge from current and time
4. Divide the charge by the Faraday constant

Response: _____

B10-D10 · Matching

Match each half-reaction to the moles of electrons needed for 1 mol of metal.

Items to match:

1. $Ag^{+} + e^{-} \rightarrow Ag$
2. $Cu^{2+} + 2e^{-} \rightarrow Cu$
3. $Al^{3+} + 3e^{-} \rightarrow Al$

Targets:

A. 1 mol
B. 2 mol
C. 3 mol

Response: _____

B10 · Extra practice

Original diploma-style practice | Items 11-12

B10-D11 · Multiple choice

A cathode has a mass of 10.00 g before plating and 10.50 g after. Which mass is used in Faraday calculations?

A. 10.00 g
B. 10.50 g
C. 0.50 g
D. 20.50 g

Response: _____

B10-D12 · Written response

A student says that Faraday calculations always give the exact mass formed in a real cell. Explain what the calculation assumes.

Response: _____