B11 · 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.

B11-D01 · Numerical response

A cathode gains 3.18 g of copper in 1000 s from $Cu^{2+} + 2e^- \rightarrow Cu$. What constant current was used, in amperes to two decimal places? Use M = 63.55 g/mol.

Response: _____

B11-D02 · Numerical response

Copper is plated at 2.00 A. A mass of 1.271 g forms from $Cu^{2+} + 2e^- \rightarrow Cu$. How long did the plating run, in seconds? Enter an integer. Use M = 63.55 g/mol.

Response: _____

B11 · Extra practice

Original diploma-style practice | Items 3-4

B11-D03 · Numerical response

A metal of molar mass 107.87 g/mol is plated by 1.00 A for 965 s. A mass of 1.08 g forms. What is the charge on the ion? Enter an integer.

Response: _____

B11-D04 · Numerical response

A zinc and copper voltaic cell gives 0.500 A for 30.0 minutes. What mass of zinc dissolves from the anode, in grams to three decimal places? Use M = 65.41 g/mol.

Response: _____

B11 · Extra practice

Original diploma-style practice | Items 5-6

B11-D05 · Multiple choice

In a voltaic cell, which electrode loses mass and which gains mass?

A. The anode loses mass and the cathode gains mass
B. The cathode loses mass and the anode gains mass
C. Both electrodes gain mass
D. Both electrodes lose mass

Response: _____

B11-D06 · Numerical response

Aqueous Na_2SO_4 is electrolyzed with inert electrodes at 1.50 A for 1930 s. How many moles of hydrogen form, to four decimal places?

Response: _____

B11 · Extra practice

Original diploma-style practice | Items 7-8

B11-D07 · Numerical response

For the same electrolysis, how many moles of oxygen form, to four decimal places?

Response: _____

B11-D08 · Multiple choice

Which quantity is found first when the mass of metal and the current are given and the time is asked?

A. The moles of metal
B. The charge
C. The time
D. The moles of electrons

Response: _____

B11 · Extra practice

Original diploma-style practice | Items 9-10

B11-D09 · Select all that apply

Select every correct statement about finding the mass from a cathode weighed before and after plating.

A. Use the gain in mass
B. Use the final mass
C. The starting mass was not made by the current
D. Subtract the starting mass from the final mass

Response: _____

B11-D10 · Ordering / ranking

Arrange the steps for finding an unknown ion charge z.

First to last

1. Divide the moles of electrons by the moles of metal
2. Find the moles of metal from the mass
3. Find the charge and the moles of electrons
4. Round z to a whole number

Response: _____

B11 · Extra practice

Original diploma-style practice | Items 11-12

B11-D11 · Matching

Match each unknown to the quantity that is found immediately before it in the chain.

Items to match:

1. Mass of metal
2. Moles of electrons
3. Charge
4. Current

Targets:

A. Charge
B. Moles of metal
C. Moles of electrons
D. Charge and time

Response: _____

B11-D12 · Written response

A student uses the final mass of a cathode to find the time. Explain whether the time is too large or too small.

Response: _____