B16 · 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.

B16-D01 · Multiple choice

A reaction has E°cell = +0.46 V. Which cell type does it make?

A. A voltaic cell
B. An electrolytic cell that needs a power supply
C. A cell that cannot run
D. A fuel cell only

Response: _____

B16-D02 · Numerical response

Al^{3+}/Al is −1.66 V and Ag^{+}/Ag is +0.80 V. What is E°cell, in volts to two decimal places?

Response: _____

B16 · Extra practice

Original diploma-style practice | Items 3-4

B16-D03 · Numerical response

A charge of 4500 C passes through a cell. How many moles of electrons is that, to three decimal places? Use F = 9.65 × 10^4 C/mol e^-.

Response: _____

B16-D04 · Numerical response

What mass of silver forms from 0.0200 mol of electrons when $Ag^+ + e^- \rightarrow Ag$? Use M = 107.87 g/mol. Answer in grams to two decimal places.

Response: _____

B16 · Extra practice

Original diploma-style practice | Items 5-6

B16-D05 · Numerical response

A 25.00 mL sample of Fe^{2+} needs 20.00 mL of 0.0200 mol/L MnO_4^- in the 5 to 1 reaction. Find $[Fe^{2+}]$ in mol/L to four decimal places.

Response: _____

B16-D06 · Multiple choice

Which method do you use to find the mass of a metal from a current and a time?

A. The reduction table
B. Faraday’s law
C. A redox titration
D. Oxidation numbers only

Response: _____

B16 · Extra practice

Original diploma-style practice | Items 7-8

B16-D07 · Multiple choice

Which method do you use to find the concentration of Fe^{2+} from a volume of permanganate?

A. A redox titration
B. Faraday’s law
C. The anode rule
D. A battery plan

Response: _____

B16-D08 · Multiple choice

Why does a magnesium block protect an iron pipe?

A. Magnesium has a lower reduction value, so it is oxidized instead
B. Magnesium is heavier
C. Magnesium is a cathode
D. Magnesium stops oxygen from touching the pipe

Response: _____

B16 · Extra practice

Original diploma-style practice | Items 9-10

B16-D09 · Multiple choice

In electroplating, which electrode is the object that is plated?

A. The cathode
B. The anode
C. Neither
D. Both

Response: _____

B16-D10 · Select all that apply

Select every correct statement about the redox titration with permanganate.

A. The end point is the first lasting pale pink
B. Permanganate is its own indicator
C. Fe^{2+} is oxidized
D. Fe^{2+} is reduced

Response: _____

B16 · Extra practice

Original diploma-style practice | Items 11-12

B16-D11 · Matching

Match each problem to its method.

Items to match:

1. Voltage of a cell
2. Mass at an electrode
3. Concentration from a volume
4. Protect a pipe

Targets:

A. Faraday’s law
B. Redox titration
C. Reduction table
D. Sacrificial anode

Response: _____

B16-D12 · Ordering / ranking

Put the Faraday steps in order.

First to last

1. Multiply moles of metal by molar mass
2. Use the mole ratio from the half-reaction
3. Find the moles of electrons
4. Find the charge from current and time

Response: _____