B15 · 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.

B15-D01 · Numerical response

A given result for iron and copper is predicted 0.79 V, measured 0.76 V. What is the difference, in volts to two decimal places?

Response: _____

B15-D02 · Numerical response

Four cells of 1.07 V are joined in a row. What is the battery voltage, in volts to two decimal places?

Response: _____

B15 · Extra practice

Original diploma-style practice | Items 3-4

B15-D03 · Multiple choice

Which column of a results table holds observations?

A. The measured voltage
B. The predicted voltage
C. The table value
D. The controlled variables

Response: _____

B15-D04 · Multiple choice

All measured voltages are 0.03 V below the predictions and the order matches. Which conclusion is best?

A. The data disprove the table
B. The data support the table with a small gap
C. The table is useless
D. The measurements are exactly right

Response: _____

B15 · Extra practice

Original diploma-style practice | Items 5-6

B15-D05 · Select all that apply

Select every possible explanation for a small constant gap below the predicted voltage.

A. The salt bridge adds resistance
B. The strips have an oxide coating
C. The concentration is not exactly 1.0 mol/L
D. The table values are exact for all conditions

Response: _____

B15-D06 · Multiple choice

How could you test whether oxide coatings caused part of a gap?

A. Sand the strips and measure again
B. Use a bigger strip
C. Change the metal
D. Remove the voltmeter

Response: _____

B15 · Extra practice

Original diploma-style practice | Items 7-8

B15-D07 · Multiple choice

Which is an inference?

A. The zinc strip lost mass
B. The copper strip gained a reddish-brown coating
C. Zn^{2+} ions formed in the solution
D. The voltmeter read 1.07 V

Response: _____

B15-D08 · Multiple choice

A student writes that the data prove the cause is the salt bridge. What is the best correction?

A. It is a possible cause until it is tested
B. It is certainly the cause
C. Salt bridges never matter
D. Remove the data

Response: _____

B15 · Extra practice

Original diploma-style practice | Items 9-10

B15-D09 · Select all that apply

Select every part of a complete conclusion.

A. A claim
B. The evidence
C. A possible explanation
D. A guess without evidence

Response: _____

B15-D10 · Multiple choice

Why is repeating the trial an improvement to a design with one trial per cell?

A. It shows how much the measurement varies
B. It changes the table values
C. It removes the controls
D. It makes the cell stronger

Response: _____

B15 · Extra practice

Original diploma-style practice | Items 11-12

B15-D11 · Matching

Match each item to its role in battery evaluation.

Items to match:

1. Voltage
2. Mass
3. Recycling
4. Lifetime

Targets:

A. How long the battery runs
B. How much power the cell gives
C. Handling used batteries
D. How heavy the battery is

Response: _____

B15-D12 · Ordering / ranking

Put the analysis steps in order.

First to last

1. Explain the gap with possible causes
2. Put together the table
3. Compare predicted and measured values
4. Write a limitation and an improvement

Response: _____