task_w3wf215v2u98ty07_with_calculation

Student Group

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Table of Contents

Exercise E10 Efficiency (written test, approx. 14 % of a 60-minute written test, SS2023) 2

efficiency, charges, power, exam ee1 SS2023

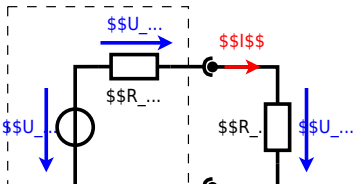
Exercise E10 Efficiency
(written test, approx. 14 % of a 60-minute written test, SS2023)

A. [WARD] Calculate the efficiency of the battery when the load is connected to the battery and the lowest possible efficiency.

Result: $\eta_{min} = 0.95$

Solution: Device with a load resistance of $R_{\rm L} = 2 \Omega$. The following values are given:

- Internal resistance: $R_{\rm i} = 0.05 \Omega$
- Capacity: $Q = 2.6 {\rm Ah}$
- Longest efficiency for the lowest current for $I_{\rm Dis max}$ in this case, the **equivalent circuit diagram** with the internal resistance and an external load. Label voltages and currents.



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