
Sample Assignment: Unit 12 Electrons in Action

ASSIGNMENT BRIEF

Unit Name: Electrons in Action	Unit Number: 12
Assignment Title: Production of a Cell of Known Voltage	Assignment Number: 12.1
Date Set:	Due Date: See plan
Assessment Objective(s): AO1 b, AO3 a b c (AO1 b (A) 2 b part)	
Brief: <p>The Research and Development department of a company that manufactures batteries have been asked to produce a cell of a given voltage that can be manufactured at a reasonable cost.</p> <p>The research team's task is to present a paper outlining the theory involved, information on experimental procedures used, safety precautions necessary and a report containing the results from the experimental work with suitable conclusions. This report will be forwarded to other departments for evaluation and the costings required for development.</p> <p>In addition your own evaluation of the research work needs to be included with the report.</p>	

Tasks:

As a member of the research team you will need to follow the tasks listed below:

Task 1 (AO1 b)

Carry out research into the theory of the production of electrons in electrochemical cells.

- Produce a paper outlining the outcomes of your research (use 12.2.2 *Principles and Applications of Commercial Cells*).

Task 2 (AO3 a)

Carry out practical work on the effect of changing conditions on the value of the EMF of the cell(s) chosen:

- Complete a detailed risk assessment for the research work you are going to carry out before you begin or use the risk assessment provided
- Follow the standard experimental procedure provided
- Adapt the procedure in order to find the effect on the EMF of changing the conditions chosen and record and carry out your own procedures
- Ask your supervisor to complete the time card indicating the practical work was completed.

Task 3 (AO3 b)

Record all the data collected from your experimental work in a suitable format so that it can be sent to other departments for evaluation.

Task 4 (AO3 b/c) (A) 2 b part)

Produce a report for the company which includes:

- The results you obtained
- An analysis of experimental results
- Any conclusions which relate to the production of the cell
- An evaluation of the procedures followed
- Suggestions of possible alternative follow-up work.

The complete portfolio work for A03 is made up of 2 assignments. Each can be marked out of 26 and the total divided by 2.

Resources:

- Experimental Detail – Standard procedures for measuring EMF of cells
- Guidelines for 'Production of a Cell of Known Voltage'.