

Higher Assignment Guide Sheet A: A.C. D.C.

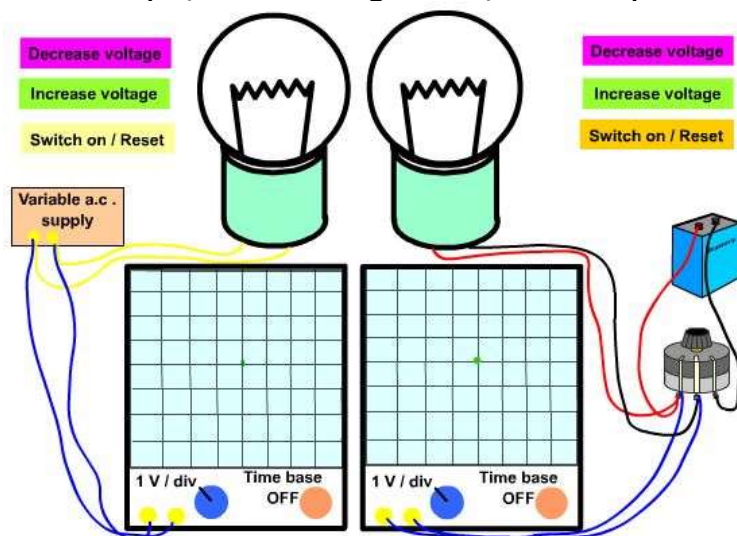
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A.C. D.C relationship.

Apparatus

2 identical lamps, variable D.C power supply, variable A.C power supply, oscilloscope, connecting wires, double pole switch or two circuits. Light level meter.



Instructions:

- Switch on the left hand lamp.
- Adjust the a.c. voltage to give a peak alternating voltage of 1 V
- Leave this circuit switched on.
- Switch on the right hand circuit.
- Adjust the d.c. voltage so that the lamp is the same brightness as the left hand lamp.
- Measure the deflection of the spot on the oscilloscope. This gives a measure of the direct base voltage across the lamp.
- Alter the a.c. peak voltage.
- Plot a graph.
- State the relationship between V d.c. and V peak using the value obtained from the graph.

Risk Assessment

- The light bulbs will get very hot
- Do an electrical safety check by observing all the wires and connections.
- Do not leave the circuit on longer than necessary
- Be observant to those around you.

Research

1. <https://www.electronics-tutorials.ws/ac/circuits/ac-inductance.html>
2. http://staff.iium.edu.my/farahhani/index_files/ECE1101_6.pdf
3. https://tap.iop.org/electricity/emf/123/file_46123.doc
4. <https://studylib.net/doc/18112546/experiment-3---kathmandu-university>
5. <http://practicalphysics.org/explaining-rms-voltage-and-current.html>
6. <http://practicalphysics.org/comparing-rms-value-and-peak-value-ac.html>
7. <https://www.electronics-tutorials.ws/ac/circuits/rms-voltage.html>
8. <https://www.bbc.com/bitesize/guides/zqq77ty/revision/4>
9. <https://www.youtube.com/watch?v=FzNFWtHRq3w>
10. <https://opentextbc.ca/physicstestbook2/chapter/alternating-current-versus-direct-current/>
11. <http://userwww.sfsu.edu/mojan/engr206/Experiment%205.pdf>