

Investigation of the output of an iron-cored transformer

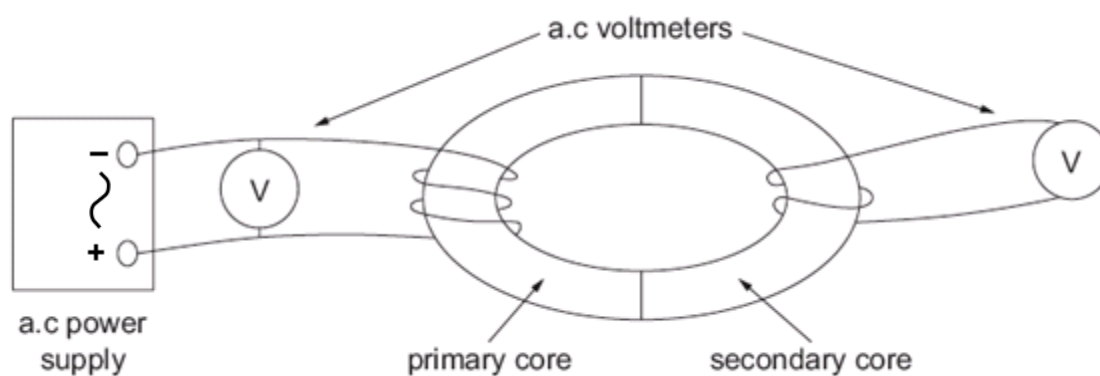
Introduction

A transformer can be constructed from iron 'C' cores and flexible insulated wire. You will investigate the relationship between the number of turns on the secondary coil and secondary voltage.

Apparatus

C-cores (20/40/60/80/100 turns)
a.c. power supply
2 × a.c. voltmeters $\pm 0.01V$
connecting wires
crocodile clips

Diagram of Apparatus



Method

1. Ensure the power supply is switched off.
2. Set up the circuit as shown with 100 turns on the primary core and 20 turns on the secondary core.
3. Switch on the power supply.
4. Record the voltages.
5. Turn off the power supply.
6. Add 20 further turns to the secondary core.
7. Repeat steps 3 to 6 to until there are 100 turns on the secondary core.

Analysis

1. Draw a graph of the number of turns on the secondary core (N_2) against the secondary voltage (V_2).