be cancelled by heat lost above room temperature.
• A larger temperature change will reduce the percentage error.

Measurement of specific heat capacity of water by an electrical method

Apparatus

- [Diagram of apparatus: Joulemeter, Thermometer, Heating coil, Insulated beaker, Voltage source]

Method
1. Find the of the calorimeter.
2. Find the mass of the calorimeter plus the water and use this to find the mass of the water. Note the initial temperature.
3. Allow current to flow until there is a temperature rise of about 10°C.
4. Switch off the power supply, stir the water and note the highest temperature.
5. Record the rise in temperature, \( \Delta T \), and the final joulemeter reading \( Q \).

Conclusion
Electrical energy supplied = energy gained by water + energy gained by calorimeter
\[ Q = (mc \Delta T)_{\text{water}} + (mc \Delta T)_{\text{calorimeter}} \]

Where \( c \) = specific heat capacity

Accuracy
• To improve accuracy we can begin by chilling the water. The heat gained below room temperature will be cancelled by the heat lost above room temperature.
• A larger temperature change will reduce the percentage error.
• If a joulemeter is unavailable, the energy, \( Q \), can be calculate using the formula: \( Q = VIt \)
  Where \( V \) = voltage  \( I \) = current  \( t \) = time