

7 A circuit consists of an a.c. supply and two lamps. The lamps are connected in parallel.

(a) Draw the circuit diagram.

[2]

(b) The electromotive force (e.m.f.) of the a.c. supply is 230V. When connected to the 230V supply, the resistance of one lamp is $1200\ \Omega$ and the resistance of the other lamp is $800\ \Omega$.

(i) Calculate the current in the $800\ \Omega$ lamp.

current = [2]

(ii) Calculate the energy used by the $800\ \Omega$ lamp in 5.0 hours.

Give your answer in kWh.

energy = kWh [3]

(iii) Calculate the combined resistance of the two lamps in this circuit.

resistance = [2]

[Total: 9]