8 A student has available some resistors, each of resistance 100 Ω.

(a) Draw circuit diagrams, one in each case, to show how a number of these resistors may be connected to produce a combined resistance of

(i) 200 Ω,

(ii) 50 Ω,

(iii) 40 Ω.

[4]

(b) The arrangement of resistors shown in Fig. 8.1 is connected to a battery.

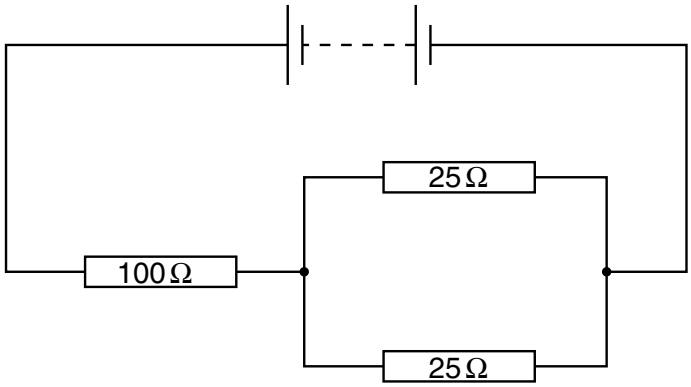

Fig. 8.1

The power dissipation in the 100 Ω resistor is 0.81 W. Calculate

(i) the current in the circuit,

current = ... A

(ii) the power dissipation in each of the 25 Ω resistors.

power = ... W

[4]

[Turn over