

6 (a) A lamp is rated as 12V, 36W.

(i) Calculate the resistance of the lamp at its working temperature.

resistance = Ω [2]

(ii) On the axes of Fig. 6.1, sketch a graph to show the current-voltage (I – V) characteristic of the lamp. Mark an appropriate scale for current on the y -axis.

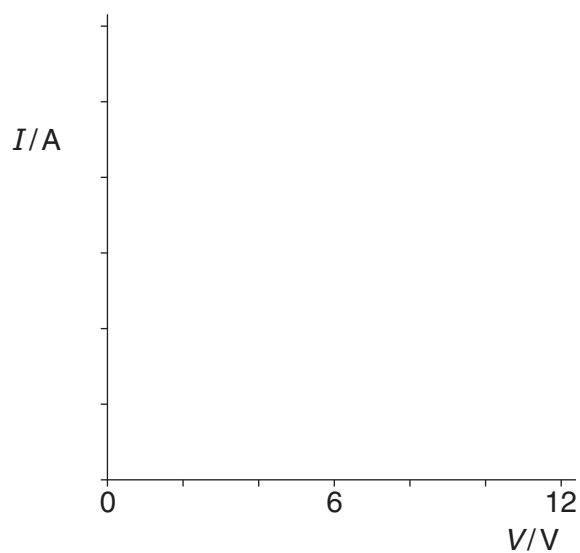


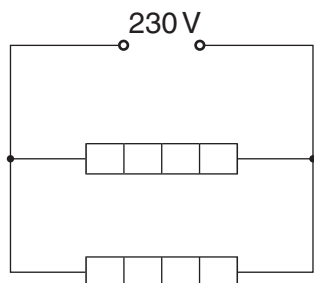
Fig. 6.1

[3]

(b) Some heaters are each labelled 230V, 1.0kW. The heaters have constant resistance.

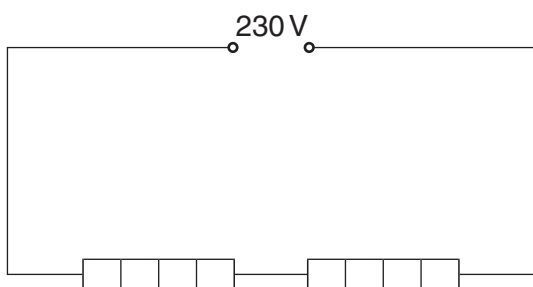
Determine the total power dissipation for the heaters connected as shown in each of the diagrams shown below.

(i)



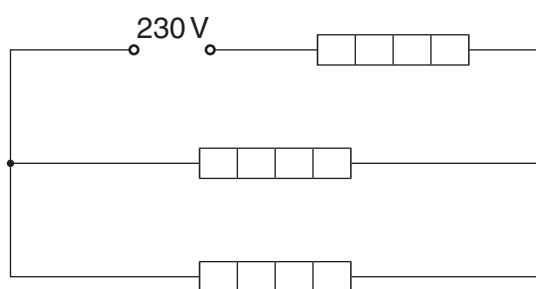
power = kW [1]

(ii)



power = kW [1]

(iii)



power = kW [2]