

- 16 An electric kettle contains $4.25 \times 10^{-4} \text{ m}^3$ of water. The temperature of the water is 22°C .

The kettle is switched on. The water takes 85 s to reach a temperature of 100°C .

- (a) Show that the power of the kettle is about 1600 W.

specific heat capacity of water = $4190 \text{ J kg}^{-1} \text{ K}^{-1}$

density of water = 998 kg m^{-3}

(4)

- (b) The water boils at 100°C .

Calculate the time now taken for 75% of the water to boil away.

specific latent heat of vaporisation of water = $2.26 \times 10^6 \text{ J kg}^{-1}$

(3)

Time taken =

(Total for Question 16 = 7 marks)