

- 3 When a liquid is boiling, thermal energy must be supplied in order to maintain a constant temperature.

(a) State two processes for which thermal energy is required during boiling.

1. ....

.....

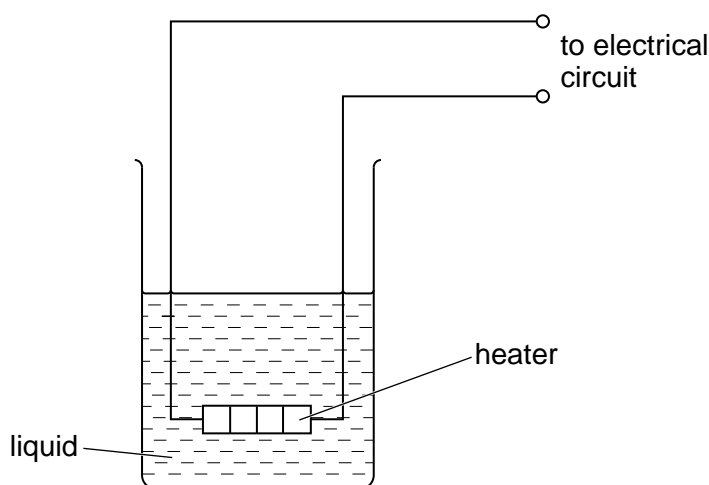
2. ....

.....

[2]

(b) A student carries out an experiment to determine the specific latent heat of vaporisation of a liquid.

Some liquid in a beaker is heated electrically as shown in Fig. 3.1.



**Fig. 3.1**

Energy is supplied at a constant rate to the heater. When the liquid is boiling at a constant rate, the mass of liquid evaporated in 5.0 minutes is measured.

The power of the heater is then changed and the procedure is repeated.

Data for the two power ratings are given in Fig. 3.2.

power of heater /W	mass evaporated in 5.0 minutes /g
50.0	6.5
70.0	13.6

**Fig. 3.2**

(i) Suggest

1. how it may be checked that the liquid is boiling at a constant rate,

.....

..... [1]

2. why the rate of evaporation is determined for two different power ratings.

.....

..... [1]

(ii) Calculate the specific latent heat of vaporisation of the liquid.

specific latent heat of vaporisation = .....  $\text{J g}^{-1}$  [3]