3 (a) Define *specific latent heat*.

....

....

....

.... [2]

(b) An electrical heater is immersed in some melting ice that is contained in a funnel, as shown in Fig. 3.1.
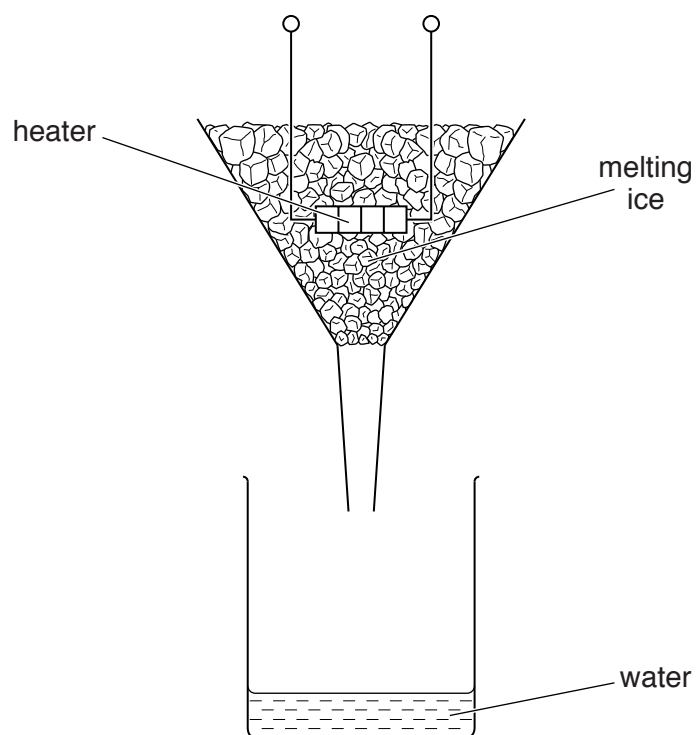

Fig. 3.1

The heater is switched on and, when the ice is melting at a constant rate, the mass *m* of ice melted in 5.0 minutes is noted, together with the power *P* of the heater. The power *P* of the heater is then increased. A new reading for the mass *m* of ice melted in 5.0 minutes is recorded when the ice is melting at a constant rate.

Data for the power *P* and the mass *m* are shown in Fig. 3.2.

power of heater P/ W	mass m melted in 5.0 minutes / g	mass m melted per second / $g\,s^{-1}$
70	78	....
110	114	....

Fig. 3.2

(i) Complete Fig. 3.2 to determine the mass melted per second for each power of the heater.

[2]

(ii) Use the data in the completed Fig. 3.2 to determine

1. a value for the specific latent heat of fusion *L* of ice,

L = ... J g⁻¹ [3]

2. the rate *h* of thermal energy gained by the ice from the surroundings.

h = ... W [2]

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