3 **(a)** Define *specific latent heat of fusion*.

.....

.....

.....[2]

(b) A student sets up the apparatus shown in Fig. 3.1 in order to investigate the melting of ice.

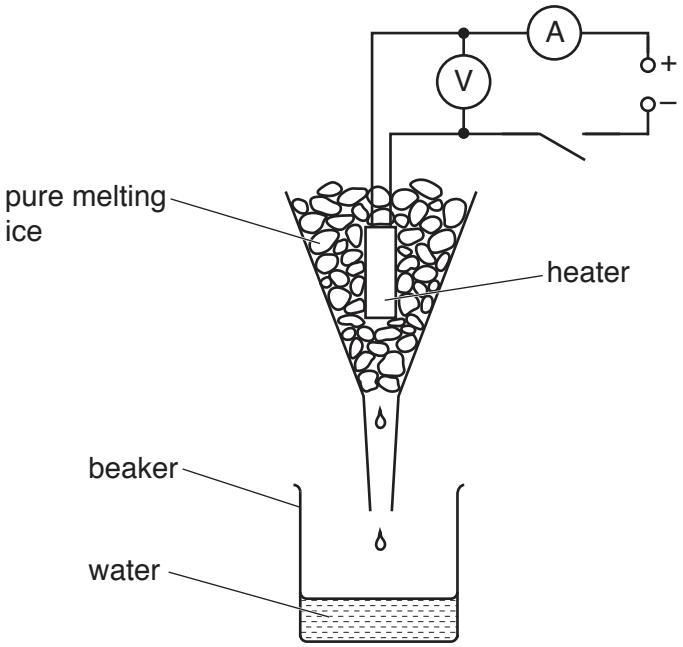

Fig. 3.1

The heater is switched on.
When the pure ice is melting at a constant rate, the data shown in Fig. 3.2 are collected.

voltmeter reading /V	ammeter reading /A	initial mass of beaker plus water/g	final mass of beaker plus water/g	time of collection /minutes
12.8	4.60	121.5	185.0	5.00

Fig. 3.2

The specific latent heat of fusion of ice is $332\,J\,g^{-1}$.

(i) State what is observed by the student that shows that the ice is melting at a constant rate.

.....

.....[1]

(ii) Use the data in Fig. 3.2 to determine the rate at which

1. thermal energy is transferred to the melting ice,

rate = ... W

2. thermal energy is gained from the surroundings.

rate = ... W
[4]

[Total: 7]