1 A student uses the apparatus in Fig. 1.1 to show that water is formed as one of the products when a fuel is burned. The gases produced when the fuel is burned are passed through the apparatus using a suction pump.

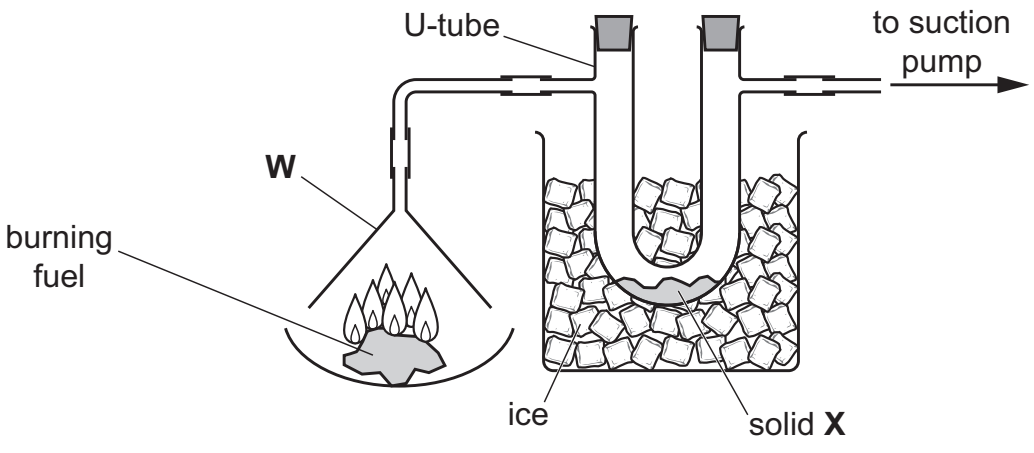

Fig. 1.1

(a) Identify the item of apparatus labelled **W** in Fig. 1.1.

..... [1]

(b) When the fuel is burned, the steam produced passes into the U-tube.

Suggest why the U-tube is surrounded by ice.

..... [1]

(c) Water causes solid **X** in the U-tube to change colour.

Name solid **X** and state the colour change seen.

solid **X** .....

colour change from ..... to .....
[2]

.

The student tries to use the apparatus in Fig. 1.2 to pass the gases produced through acidified aqueous potassium manganate(VII).

There is an error in the apparatus in Fig. 1.2 so that the gases produced will **not** pass through the acidified aqueous potassium manganate(VII).

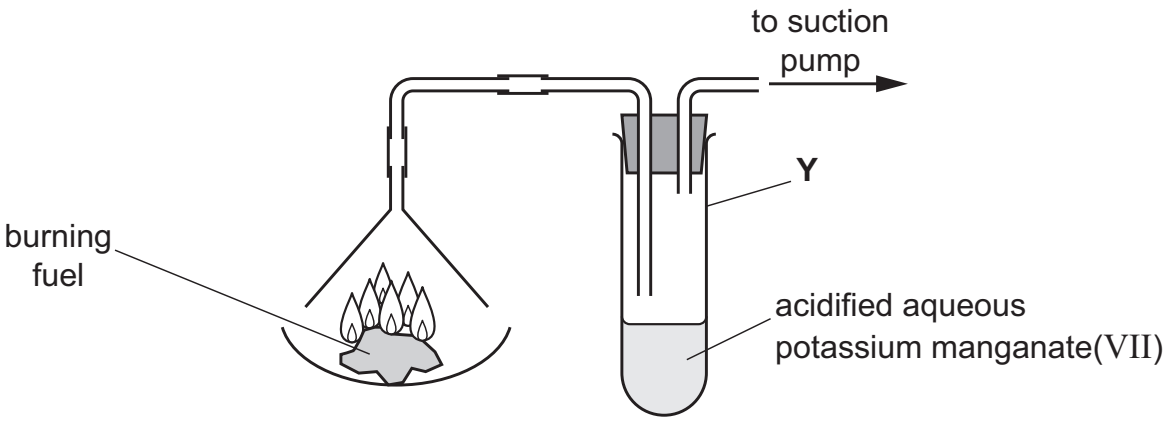

Fig. 1.2

(d) Identify the item of apparatus labelled **Y** in Fig. 1.2.

..... [1]

(e) **On Fig. 1.2**, draw a circle around the error in the apparatus. [1]

(f) The error in the apparatus in Fig. 1.2 is corrected.
The student observes that the acidified aqueous potassium manganate(VII) changes colour from purple to colourless.

Suggest why this colour change occurs.

.....

..... [1]

[Total: 7]