

Chemistry
PAPER 2
Higher Tier

Diagram Booklet

In the boxes below, write your name, centre number and candidate number.

Surname					
Other names					
Centre Number					
Candidate Number					

INSTRUCTIONS

There may be spare copies of some diagrams in case you need them.

THIS DIAGRAM BOOKLET MUST BE RETURNED WITH THE QUESTION PAPER AT THE END OF THE EXAMINATION.

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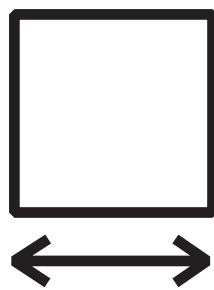
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Question 1(b)

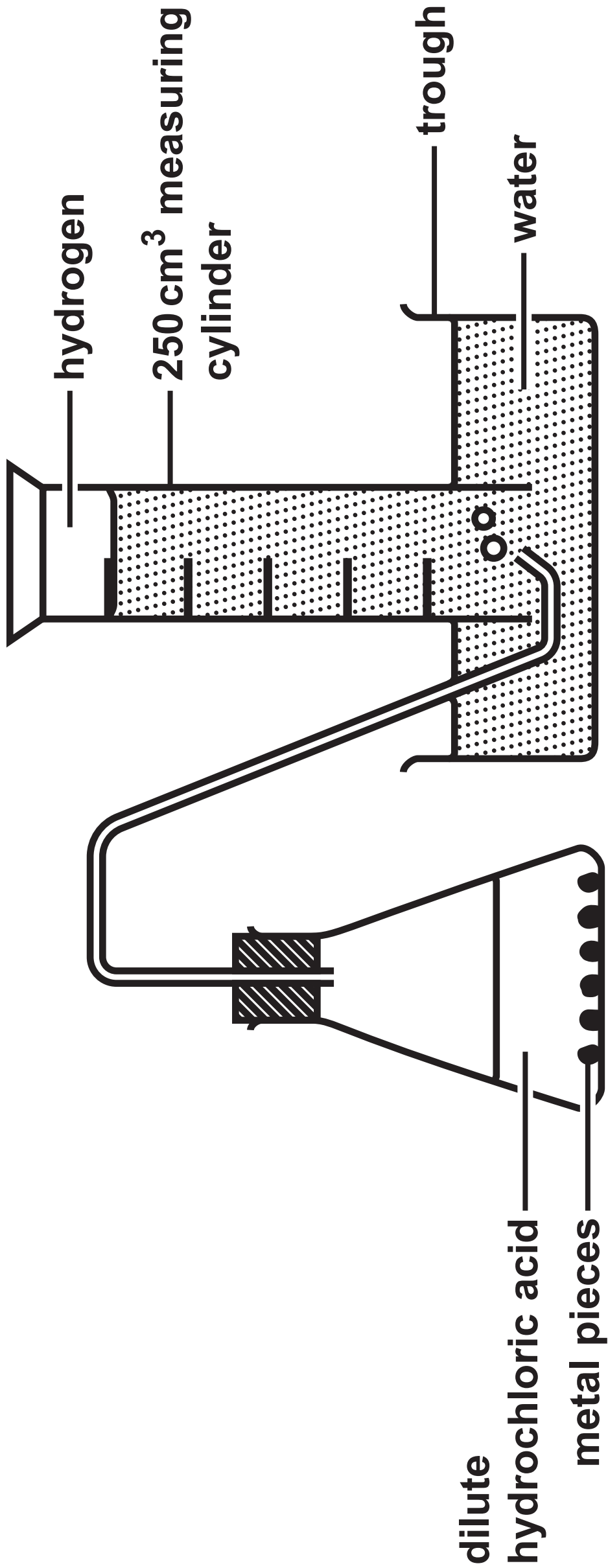
FIGURE 1

diameter of nanoparticle in nm	surface area : volume ratio
10	3 : 5
20	3 : 10
30	3 : 15
40	3 : 20
50	3 : 25

Question 1(c)**FIGURE 2****60 nm**

Question 2

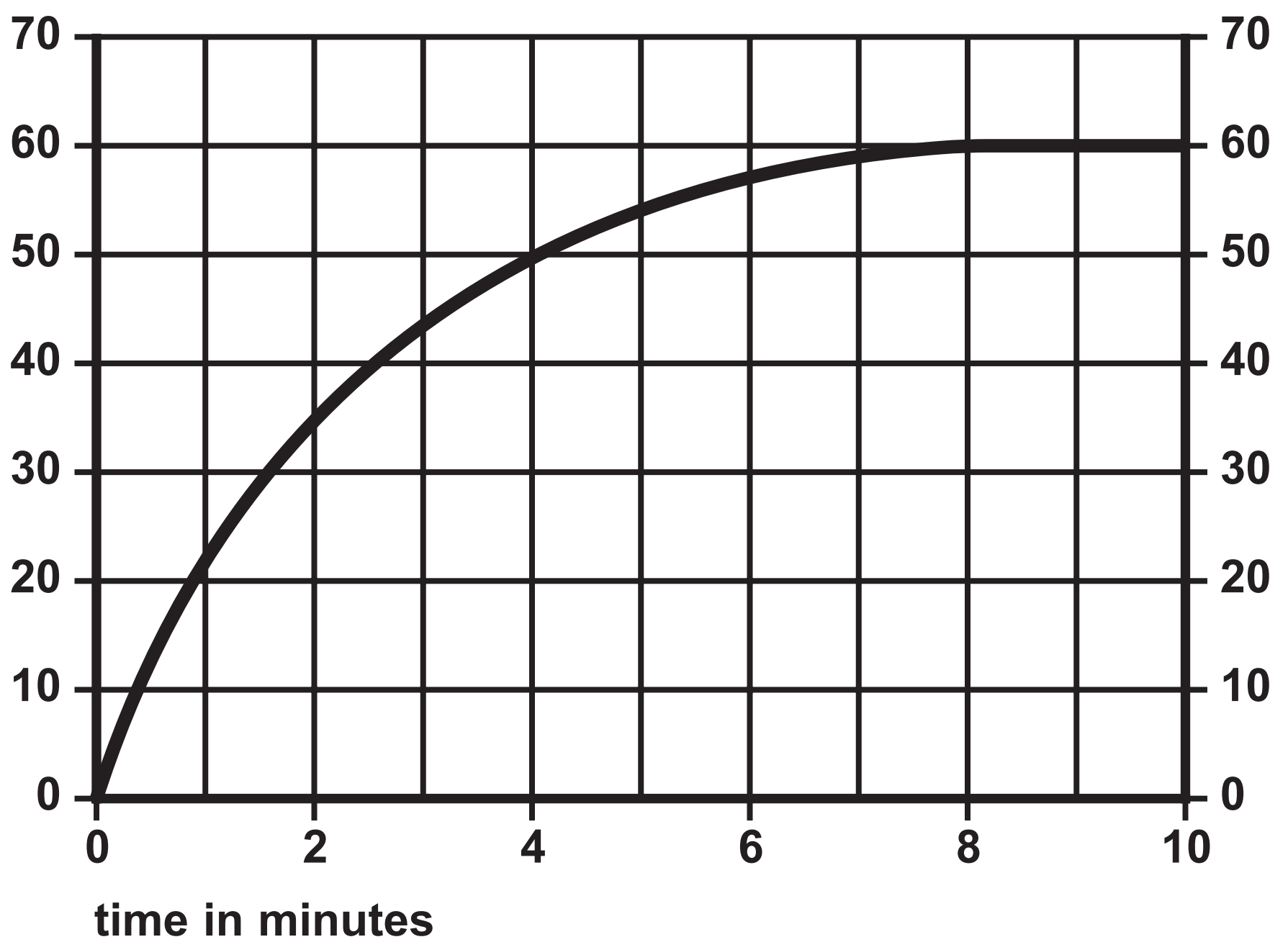
FIGURE 3



Question 2(a)

FIGURE 4

volume of hydrogen
in cm^3



Question 3(d)

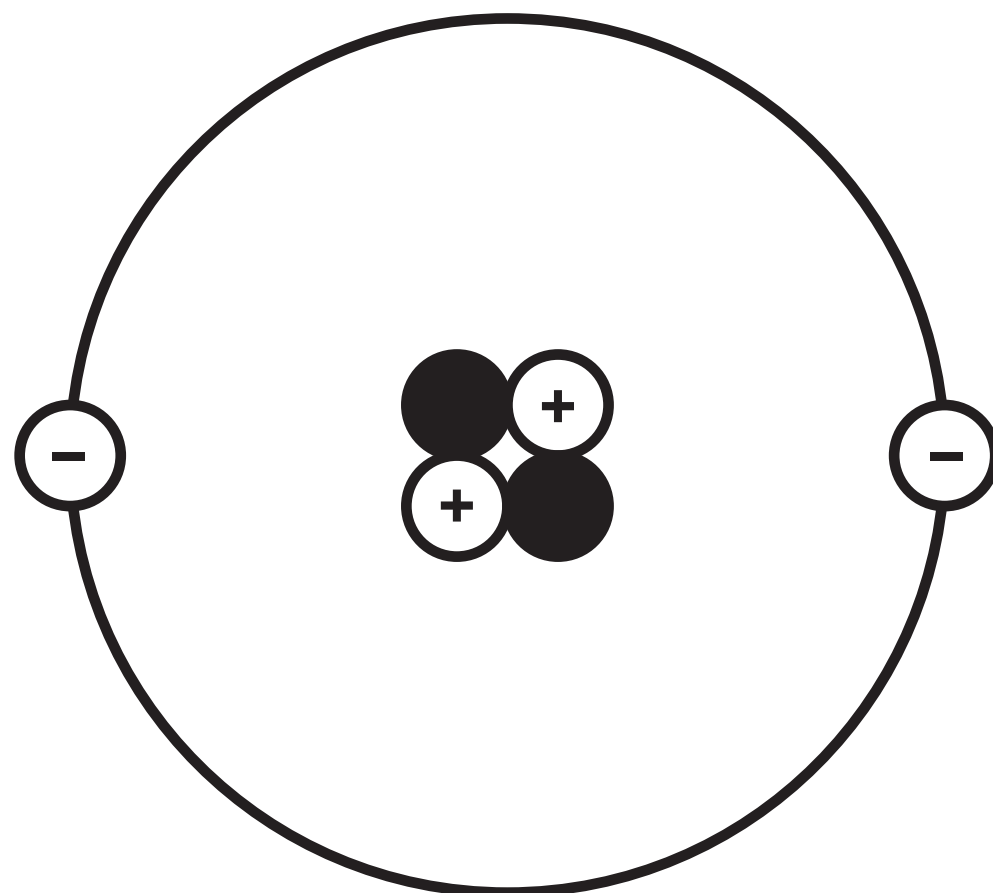
FIGURE 5

Key

⊖ = electron

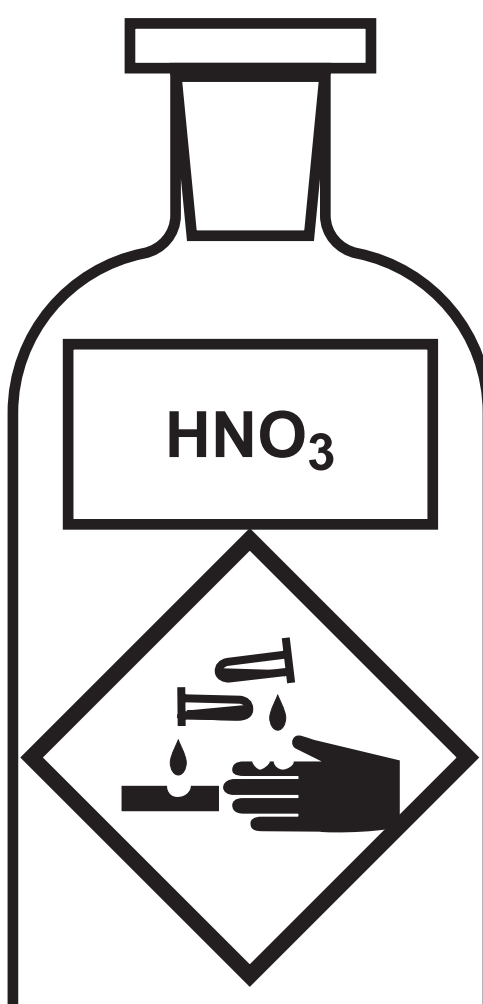
● = neutron

⊕ = proton



Question 4(a)

FIGURE 6



Question 4(b)(ii)

FIGURE 7

compound	flame colour
P	red
Q	lilac
R	blue-green

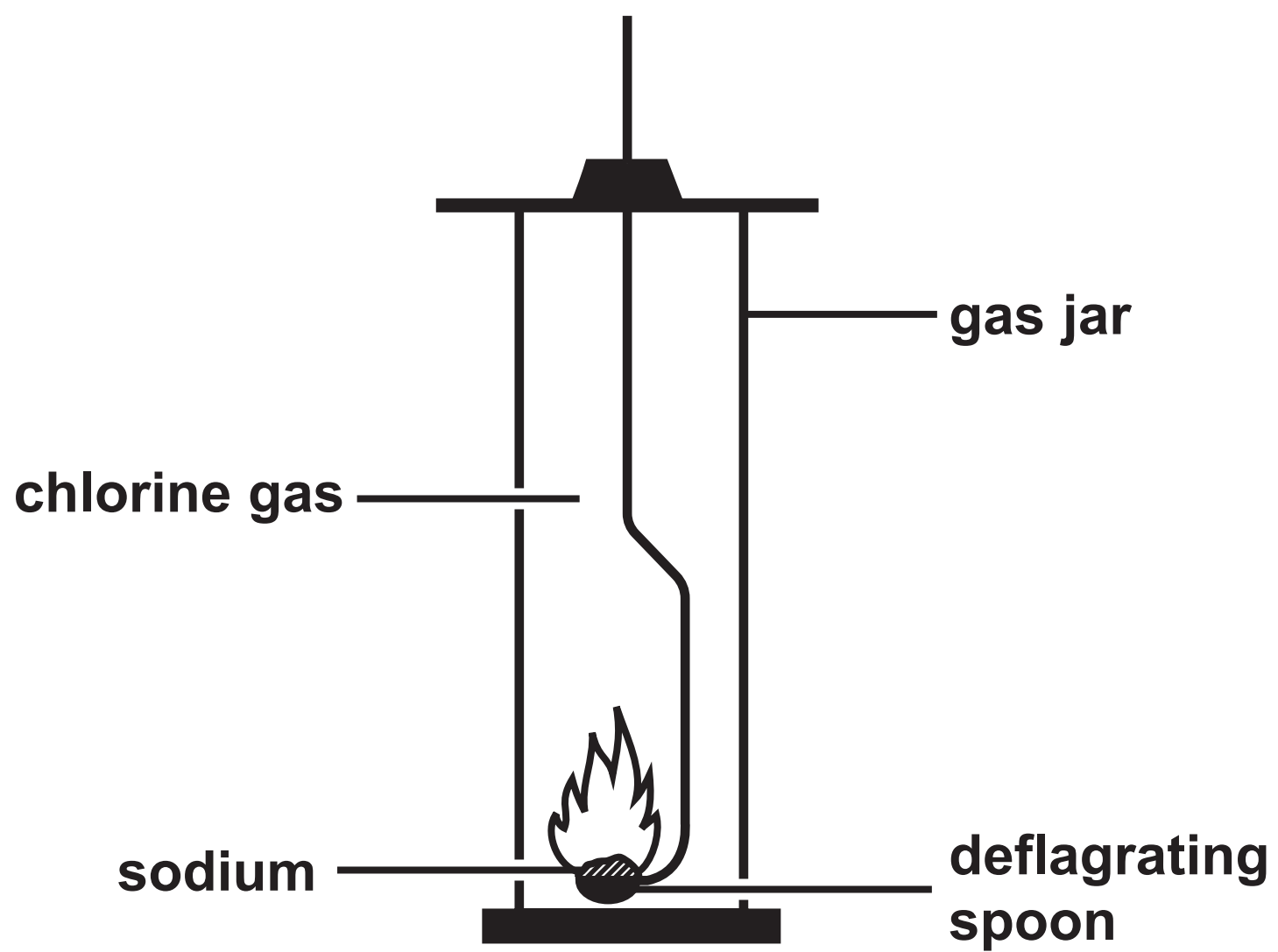
Question 5(a)

FIGURE 8

pollutant	mass of pollutant given out in g per kilometre driven	
	petrol engine	diesel engine
carbon dioxide	210	180
carbon monoxide	1·5	0·10
unburnt hydrocarbons	0·13	0·020
nitrogen oxides	0·36	2·0
particulates	0·0060	0·046
sulfur dioxide	0·0089	0·0037

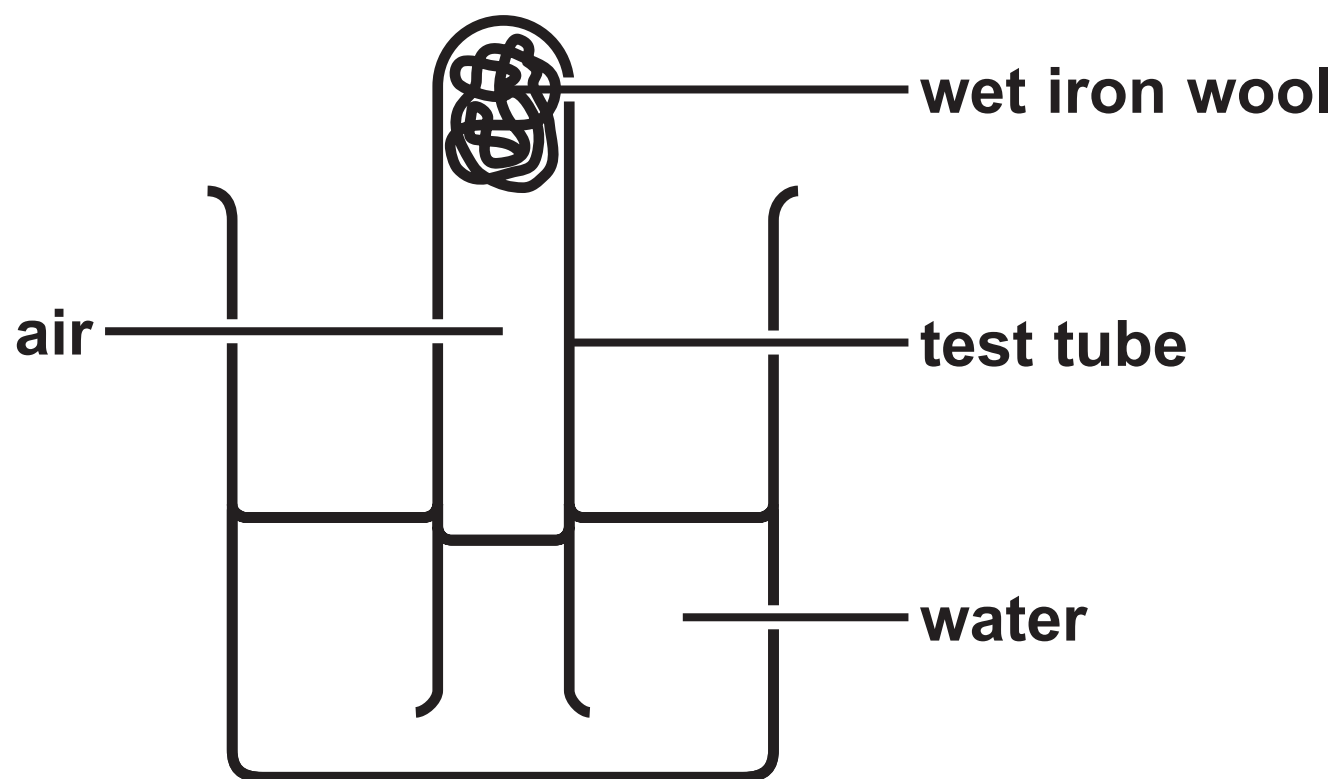
Question 6(c)

FIGURE 9



Question 7(d)

FIGURE 10



Question 8(b)

FIGURE 11

test	result
appearance of V	white solid
see whether solid V conducts electricity	the solid does not conduct electricity
see whether a solution of V conducts electricity	the solution conducts electricity
heat solid V to 400 °C	the solid does not melt
add some sodium hydroxide solution to solid V and warm	a pungent gas, W , is released which turns damp litmus paper blue
add some dilute nitric acid, followed by drops of silver nitrate solution, to a solution of V	a cream precipitate, X , is produced

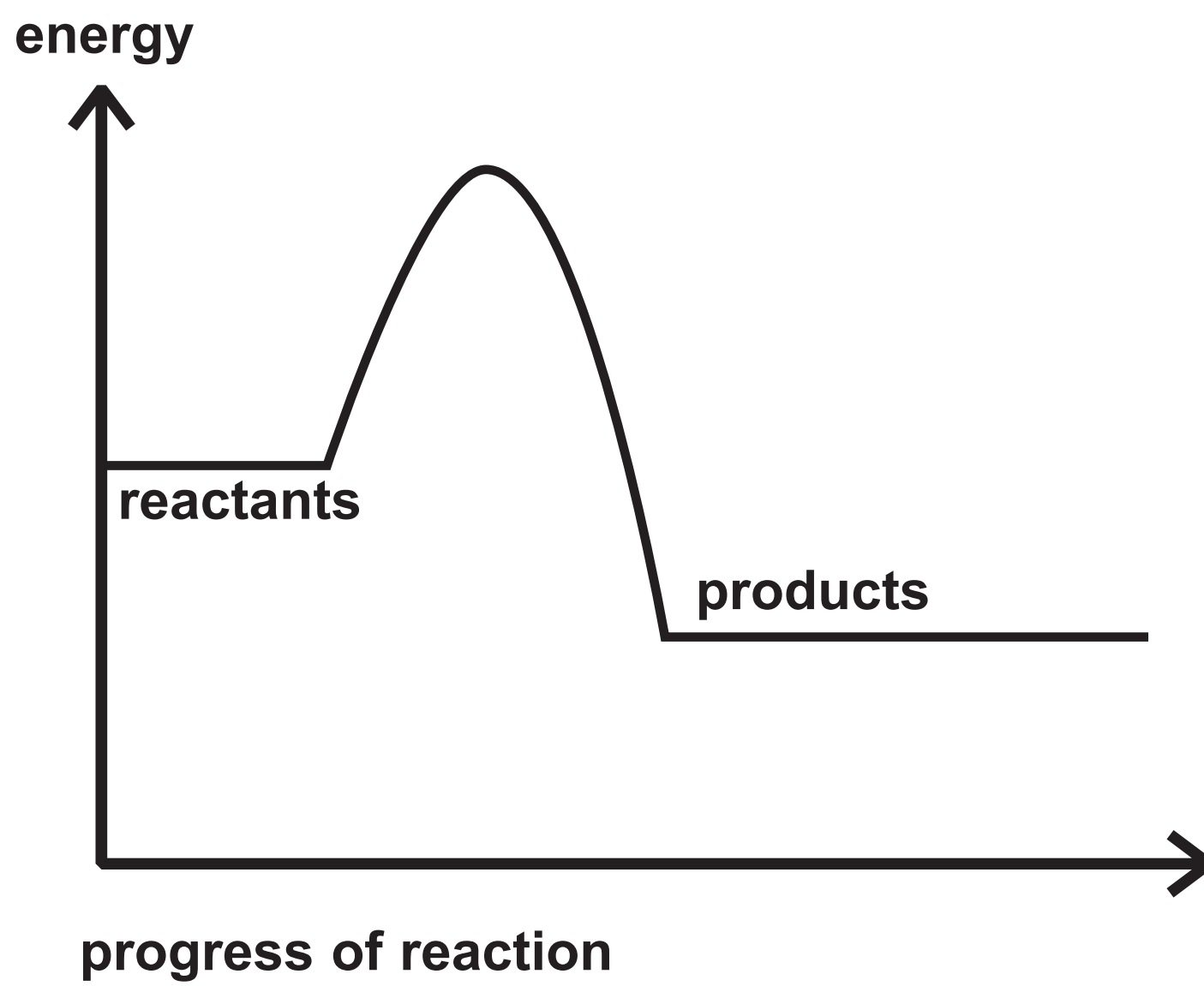
Question 9(a)(ii)

FIGURE 12

bond	bond energy in kJ mol^{-1}
H—H	436
F—F	158
H—F	562

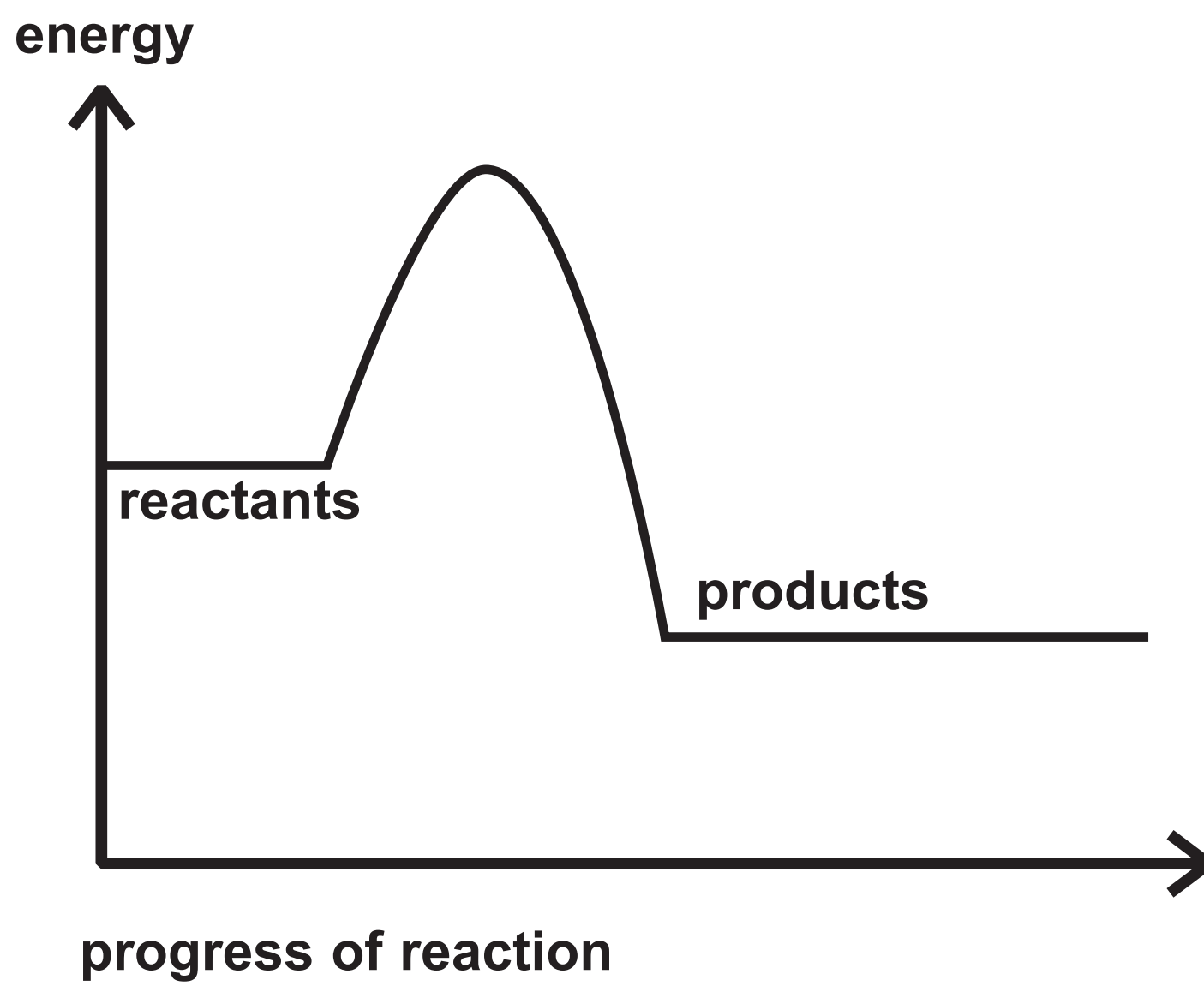
Question 9(b)

FIGURE 13



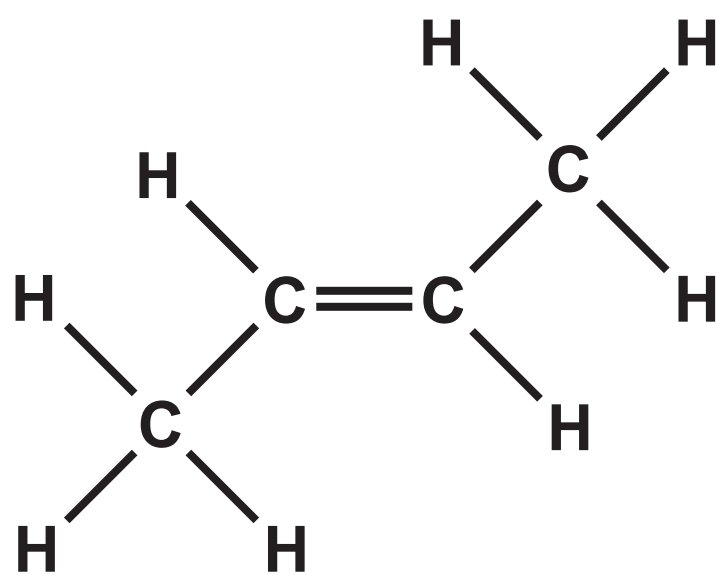
Question 9(b)

FIGURE 13



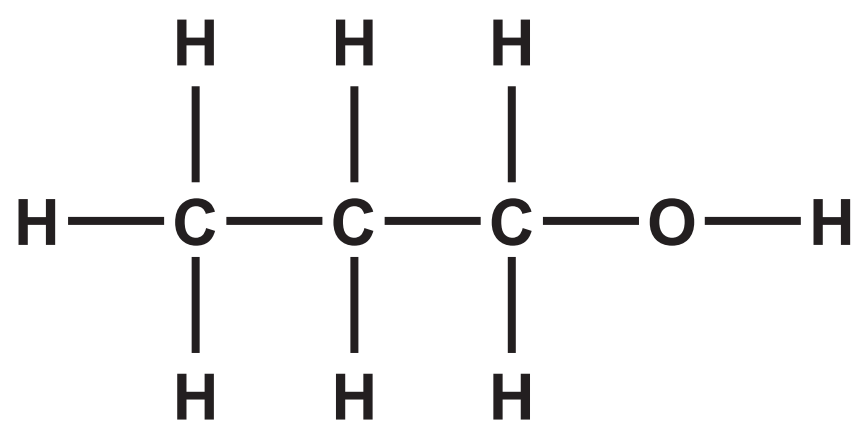
Question 10(a)

FIGURE 14



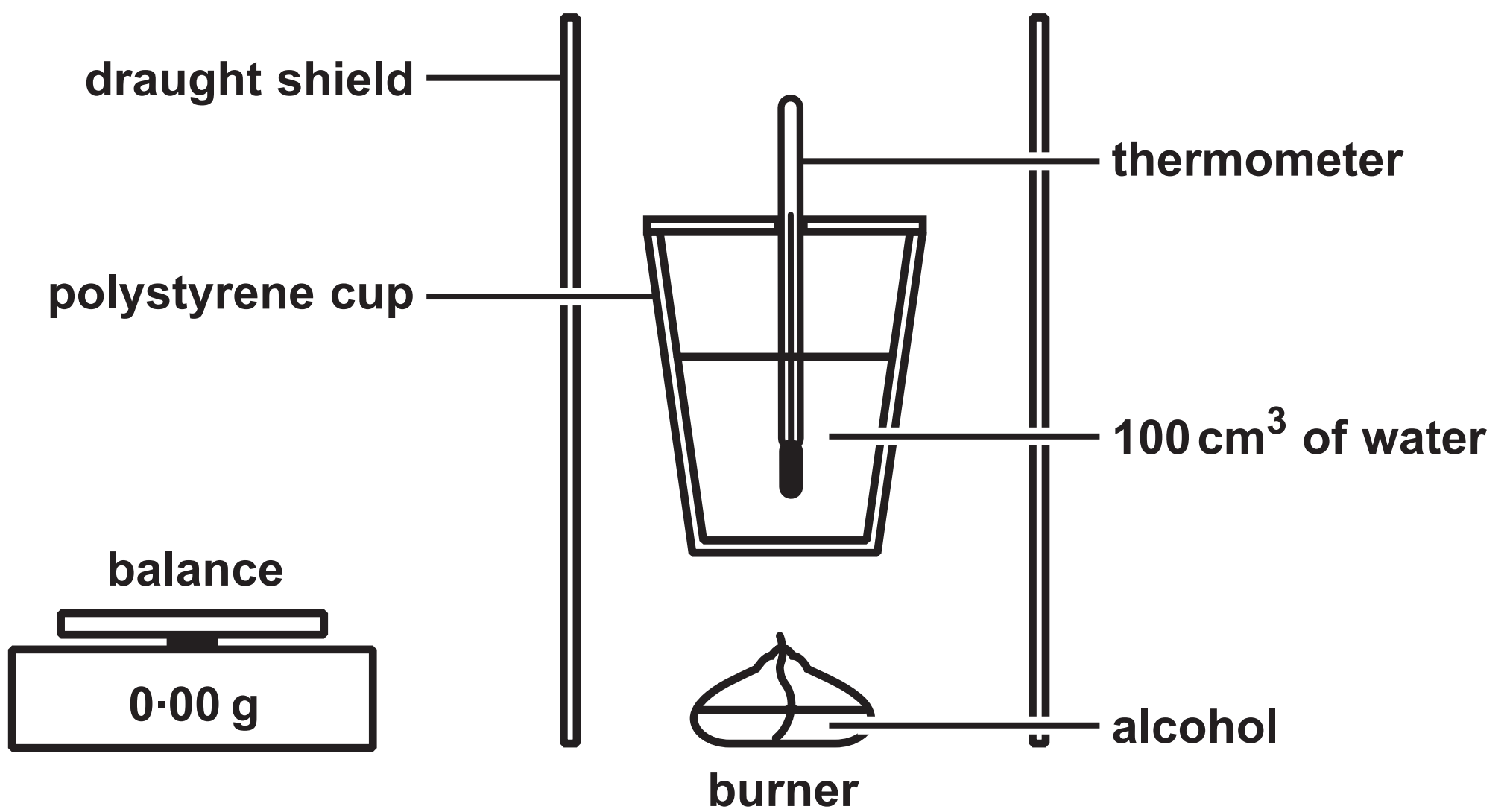
Question 10(b)

FIGURE 15



Question 10(b)(iii)

FIGURE 16



Question 10(c)

FIGURE 17

