

Paper Reference(s) 9CH0/01
Pearson Edexcel Level 3 GCE

Chemistry
Advanced
PAPER 1: Advanced Inorganic and Physical
Chemistry

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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Question 1(a)

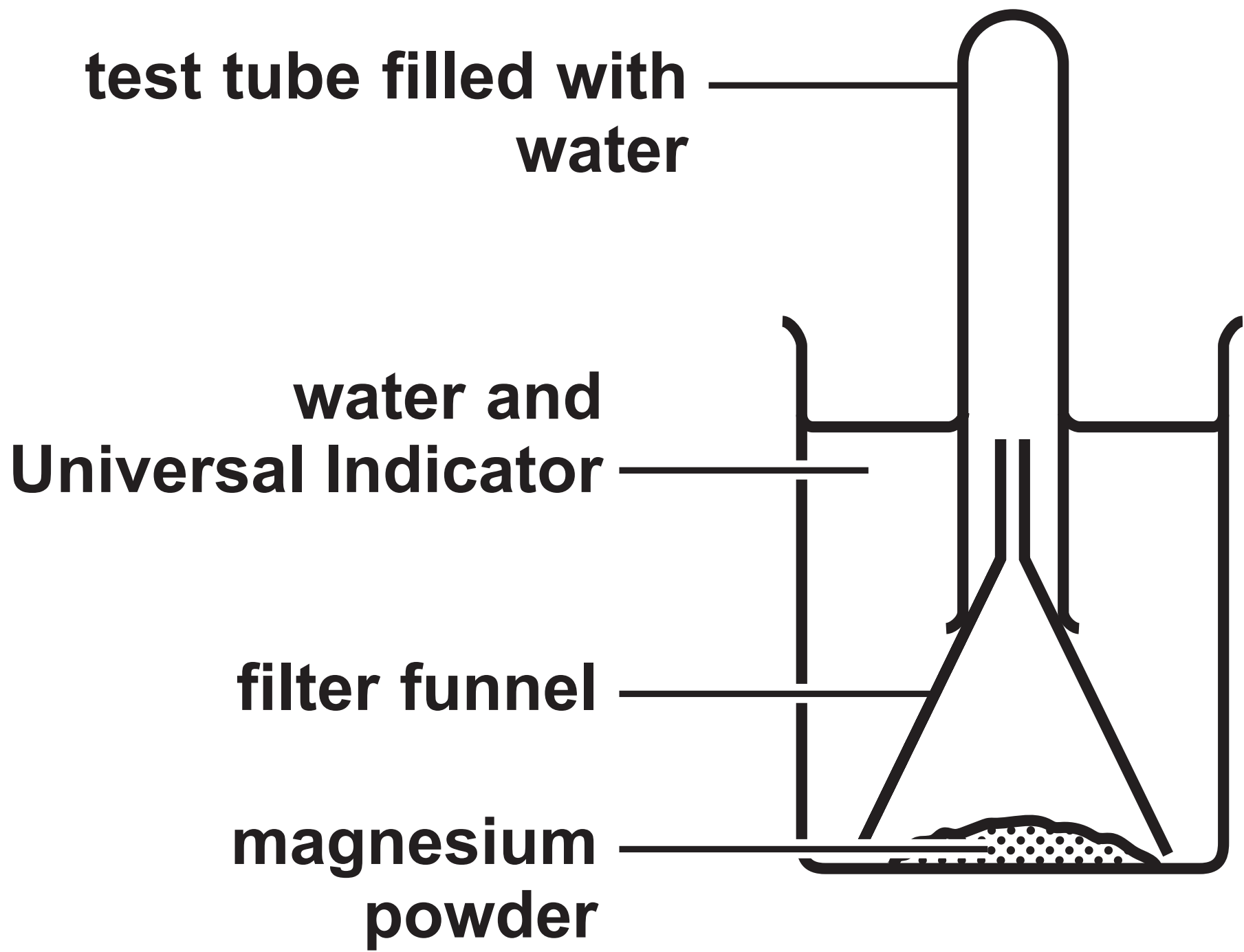
Particle	Relative charge	Relative mass
proton	+1	1
neutron		
electron		

Question 1(a)

Particle	Relative charge	Relative mass
proton	+1	1
neutron		
electron		

Question 1(d)

Element	silicon	chlorine
Melting temperature / K	1683	172

Question 2(a)

Question 3(d)



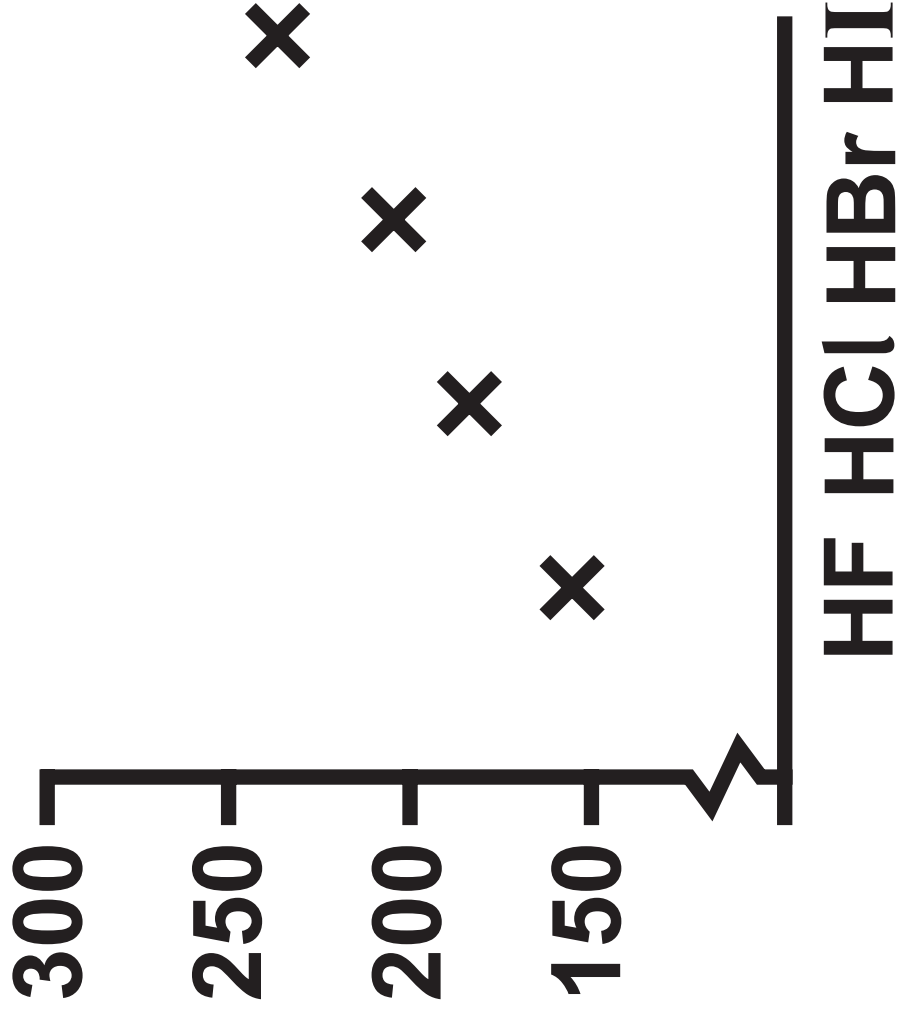
$$E^\ominus = +1.57 \text{ V}$$

Question 3(e)(i)

Diagram A

Boiling temperature

/ K

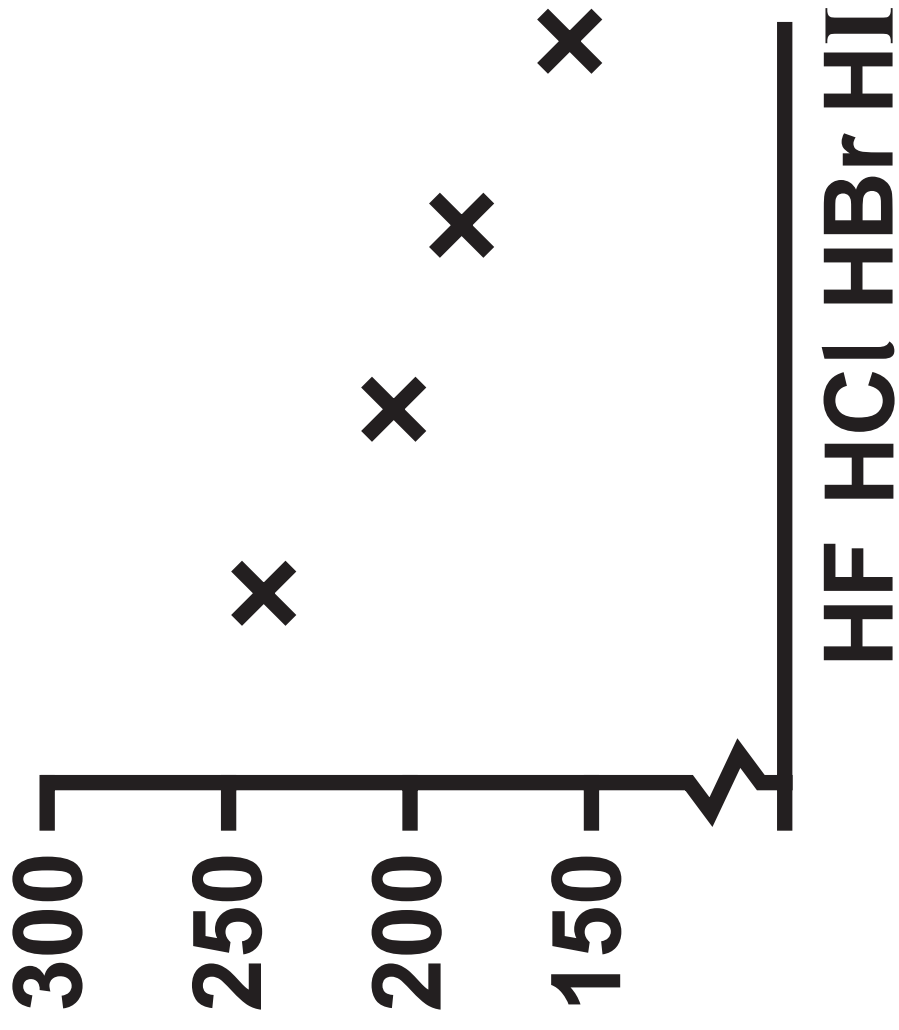


Hydrogen halide

Diagram B

Boiling temperature

/ K



Hydrogen halide

(continued on the next page)

Turn over

Question 3(e)(i) continued.

Diagram C

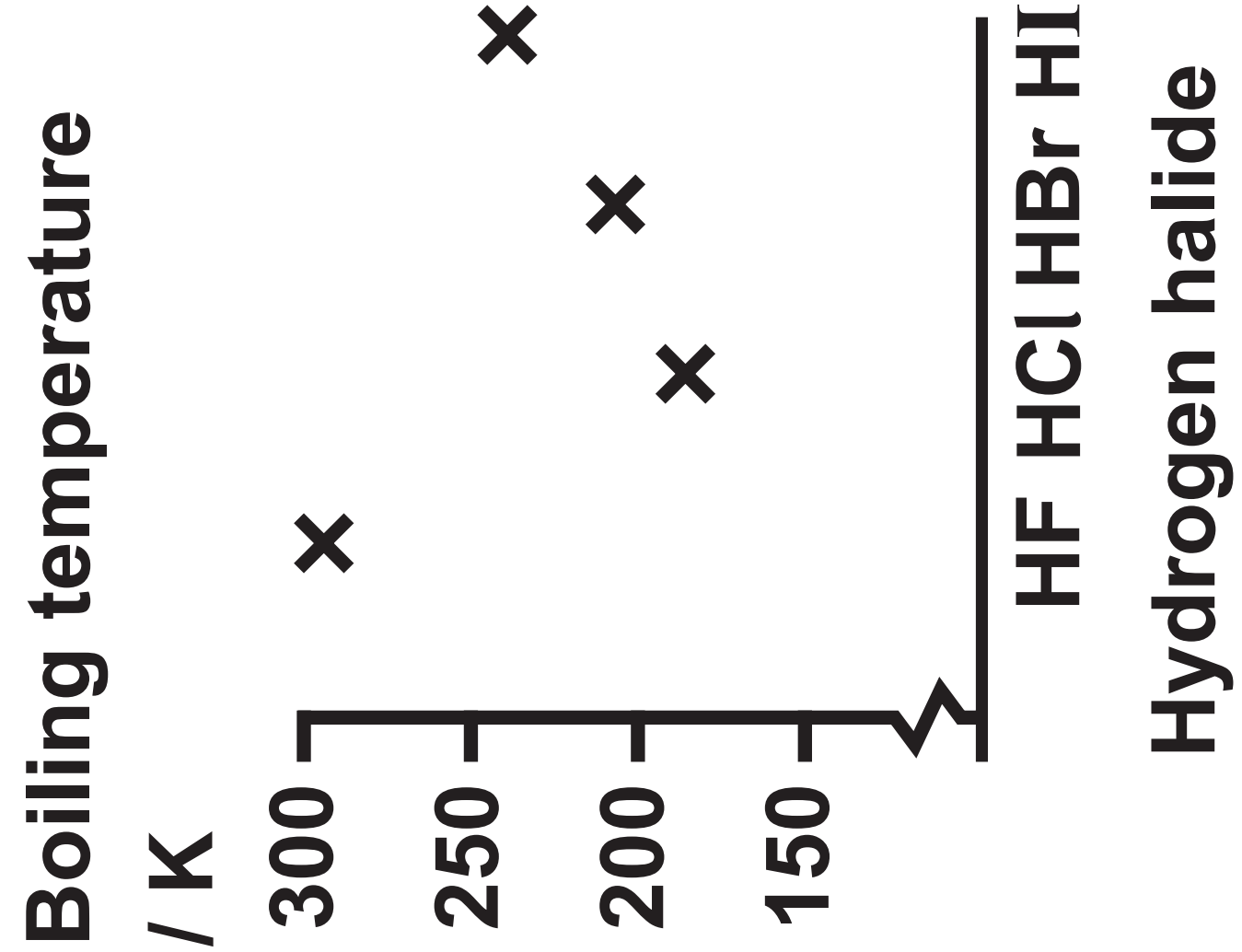
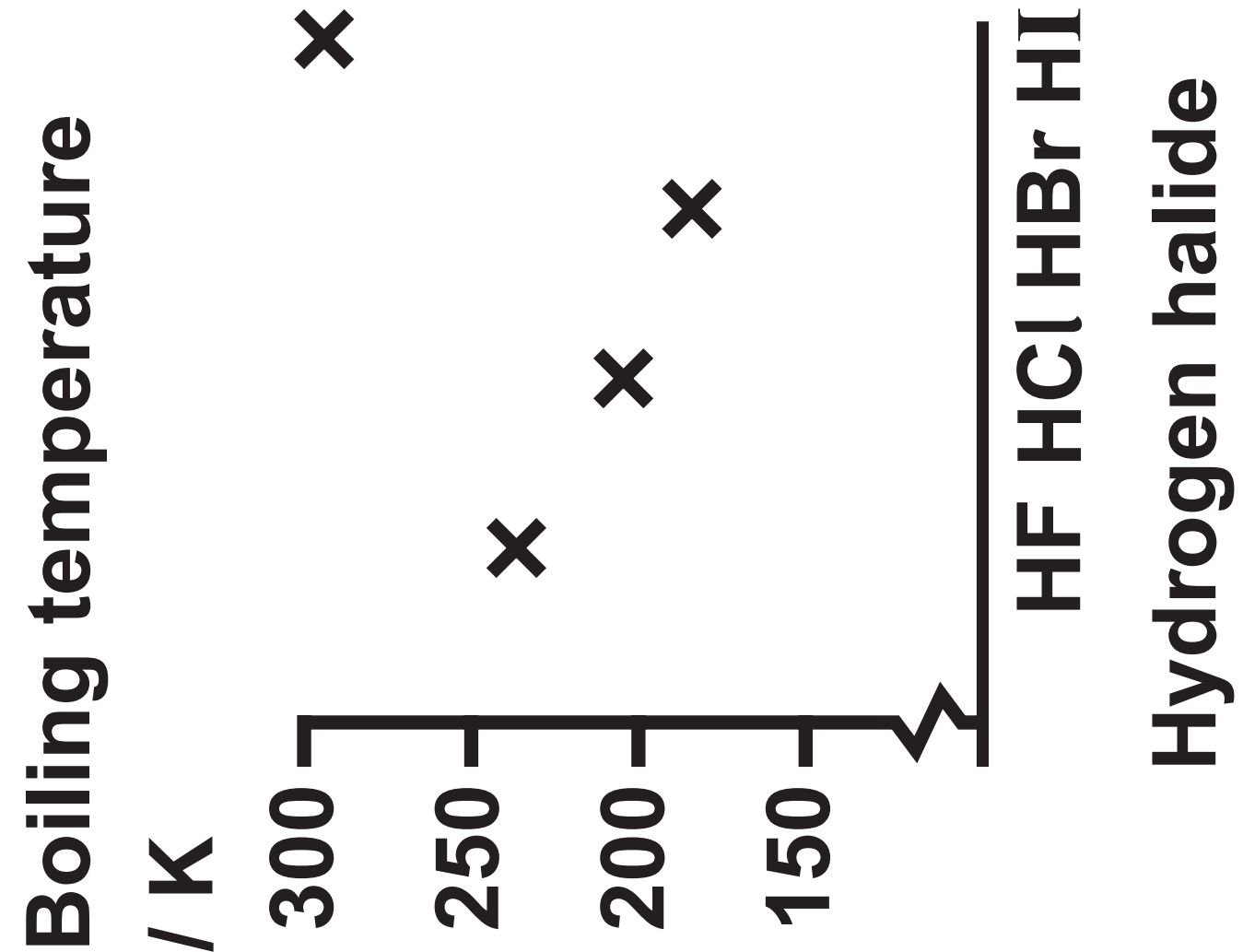
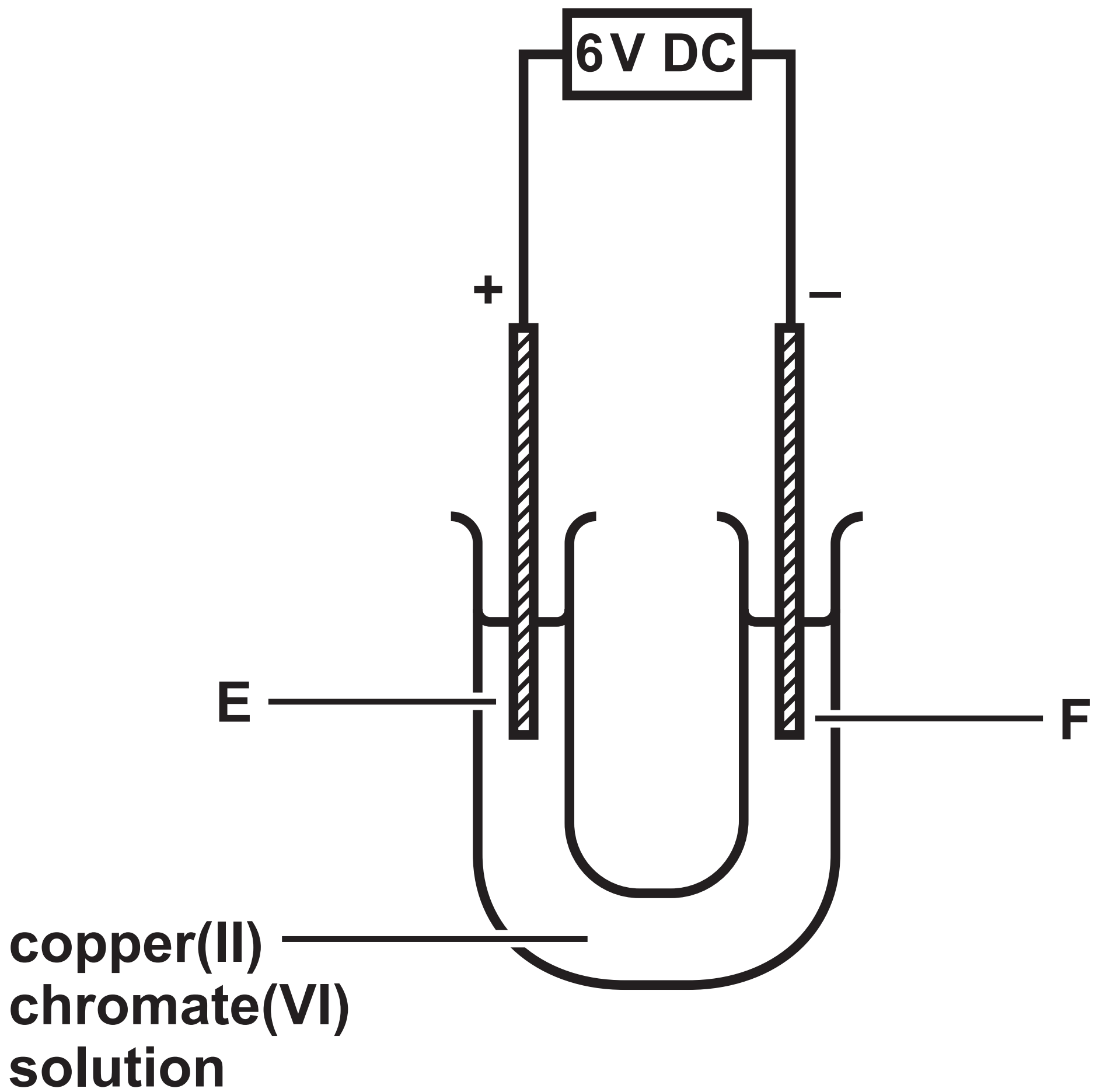


Diagram D



Question 4(b)



Question 4(d)

Substance	Name
P	copper
Q	iodine
R	silicon(IV) oxide
S	sodium chloride

Question 5(c)(ii)

Enthalpy change	Value / kJ mol^{-1}
Enthalpy change of hydration of K^+	−322
Enthalpy change of hydration of Ca^{2+}	−1650
Enthalpy change of solution of KCl	+17.2
Lattice energy of KCl	−711

Question 5(c)(ii)



Question 5(c)(ii)



Question 6(d)

	Acid and base forming the salt in solution J	Acid and base forming the salt in solution K
<input type="checkbox"/> A	HCl(aq) and NH ₃ (aq)	CH ₃ COOH(aq) and NaOH(aq)
<input type="checkbox"/> B	HCl(aq) and NaOH(aq)	CH ₃ COOH(aq) and NH ₃ (aq)
<input type="checkbox"/> C	CH ₃ COOH(aq) and NaOH(aq)	HCl(aq) and NaOH(aq)
<input type="checkbox"/> D	CH ₃ COOH(aq) and NH ₃ (aq)	HCl(aq) and NH ₃ (aq)

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Question 6(e)(i)

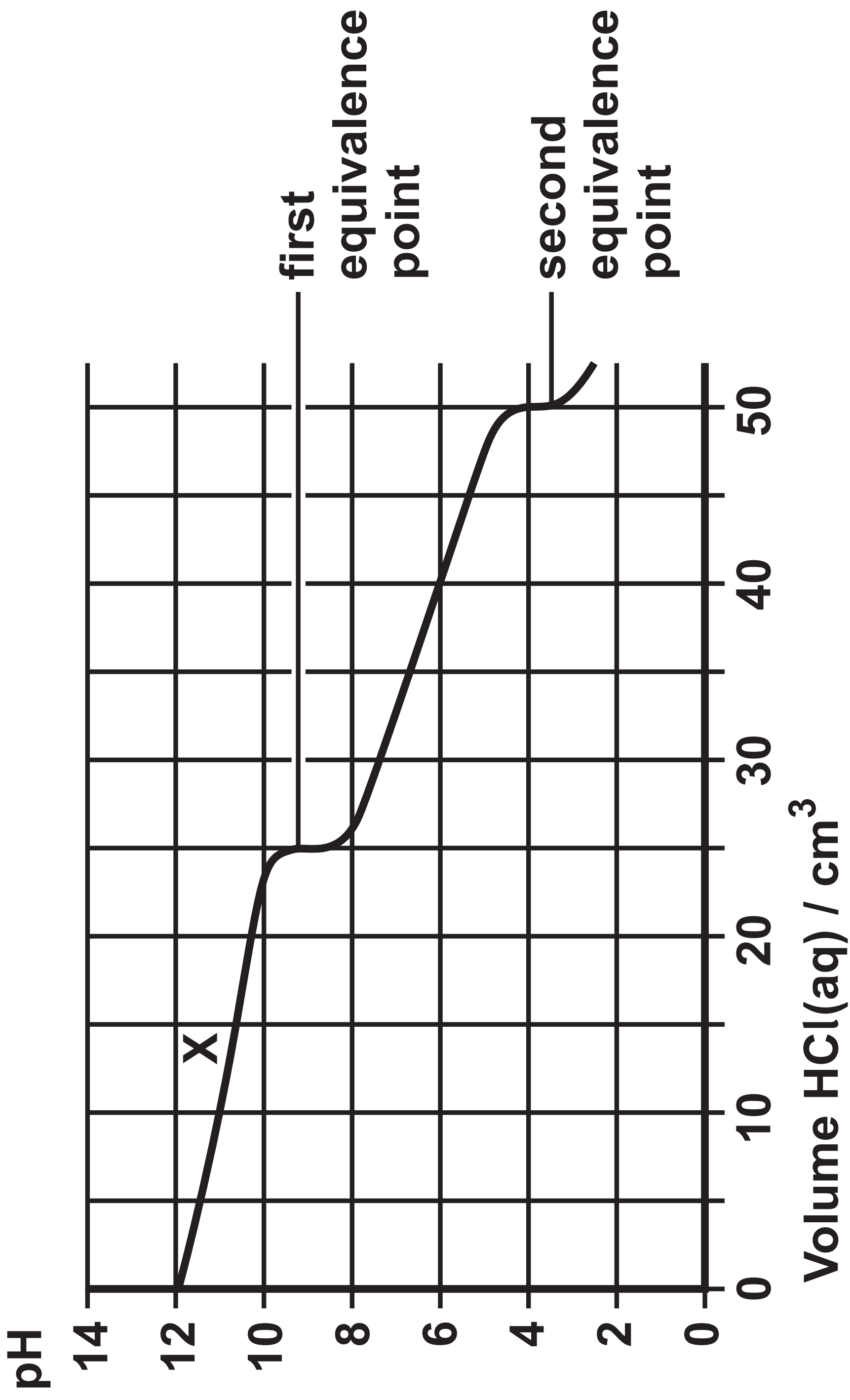
[illegible]

18

Question 6(e)(i)

[illegible]

Question 6(f)



Question 7(c)

Right-hand electrode system	E^\ominus / V
$\text{Zn}^{2+}(\text{aq}) + 2\text{e}^- \rightleftharpoons \text{Zn}(\text{s})$	−0.76
$\text{Cr}^{3+}(\text{aq}) + \text{e}^- \rightleftharpoons \text{Cr}^{2+}(\text{aq})$	−0.41
$\text{Cr}_2\text{O}_7^{2-}(\text{aq}) + 14\text{H}^+(\text{aq}) + 6\text{e}^- \rightleftharpoons 2\text{Cr}^{3+}(\text{aq}) + 7\text{H}_2\text{O}(\text{l})$	+1.33