

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		

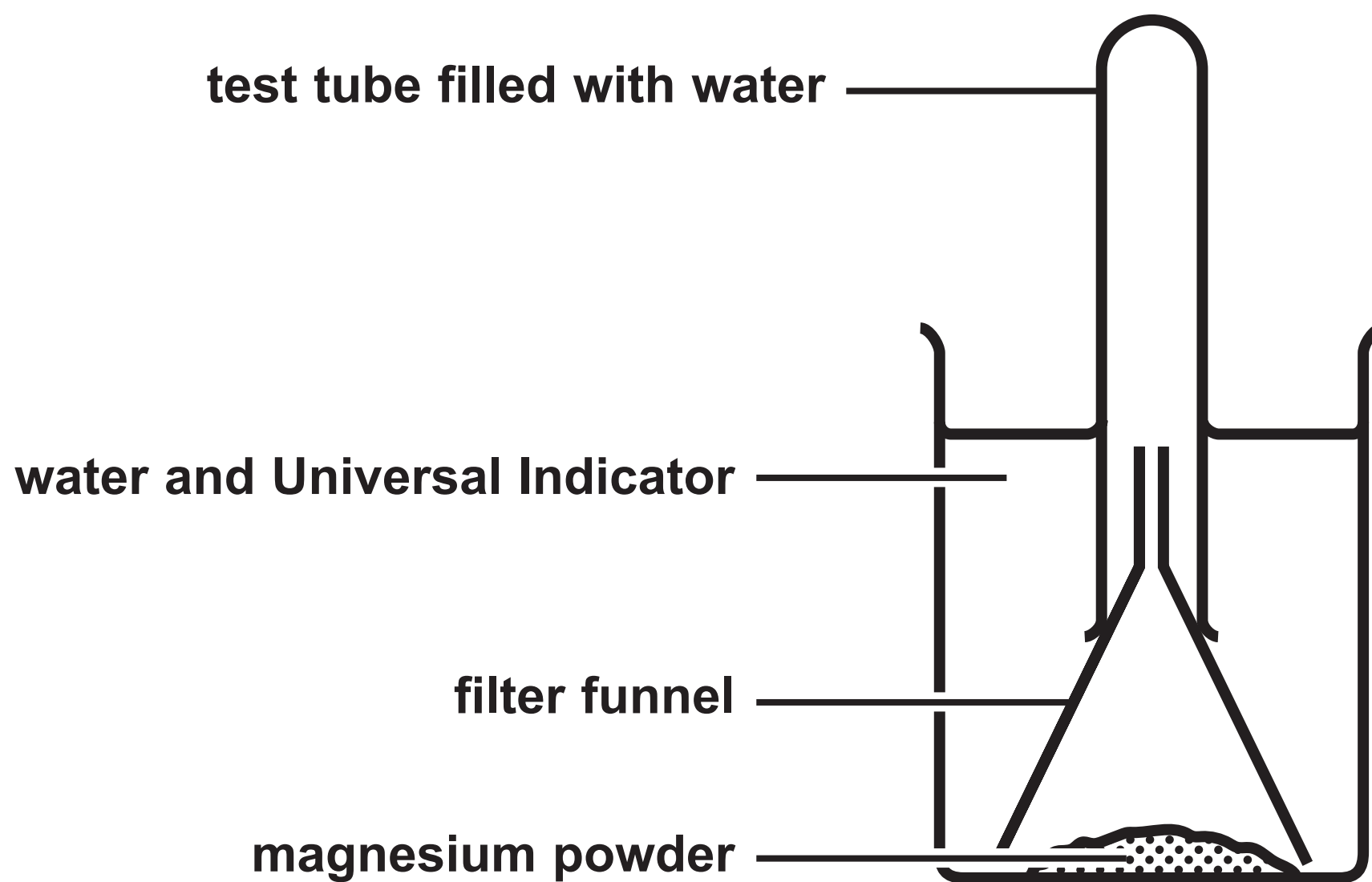
## Question 1(a)

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)





## Question 3(e)(i)

Diagram A

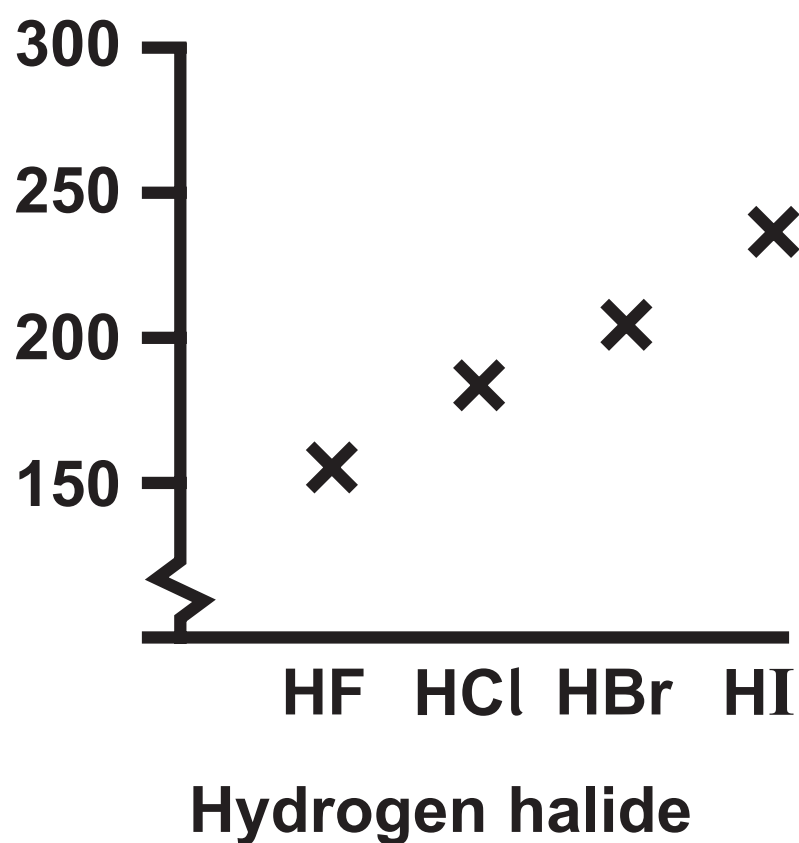
Boiling  
temperature / K

Diagram B

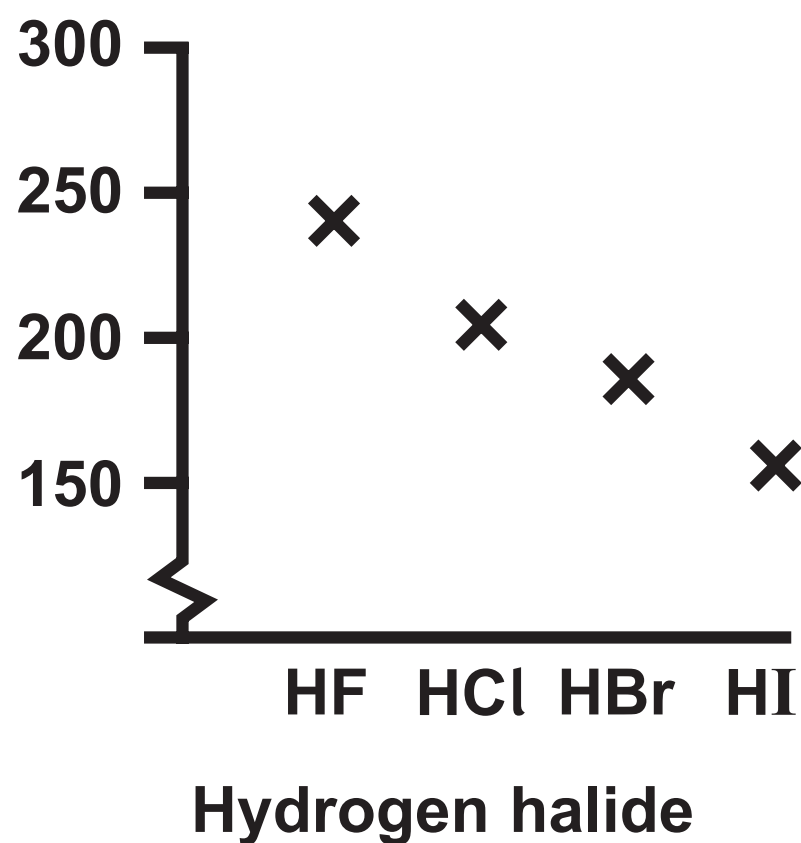
Boiling  
temperature / K

Diagram C

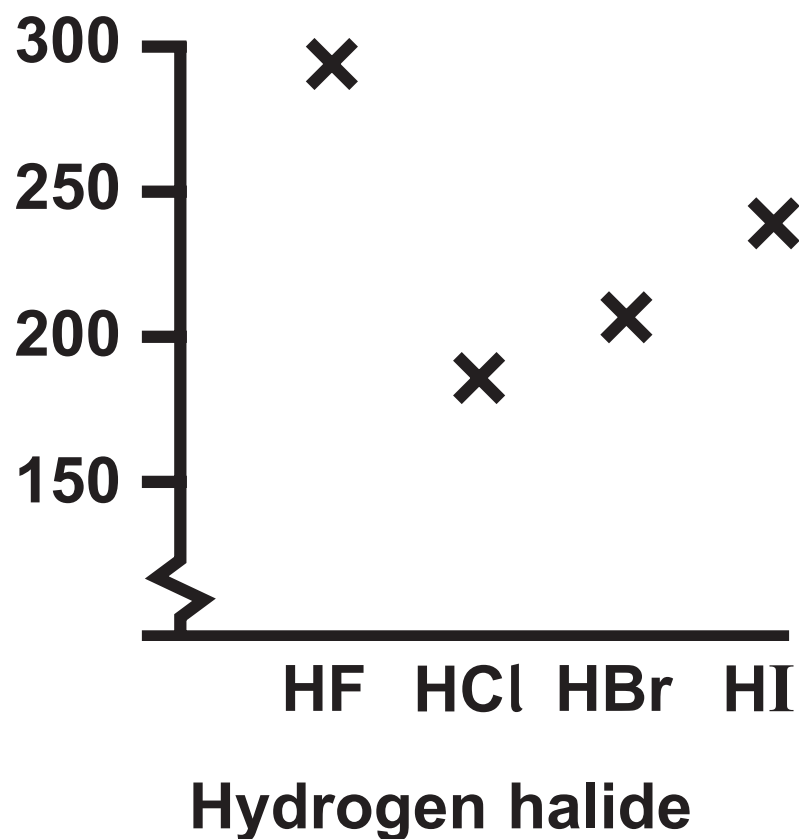
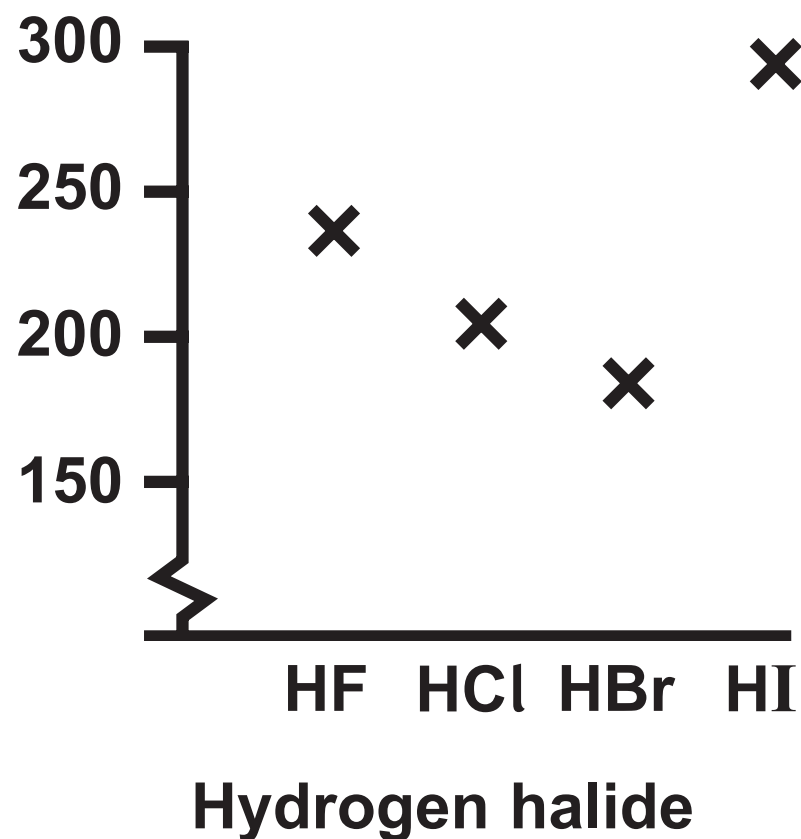
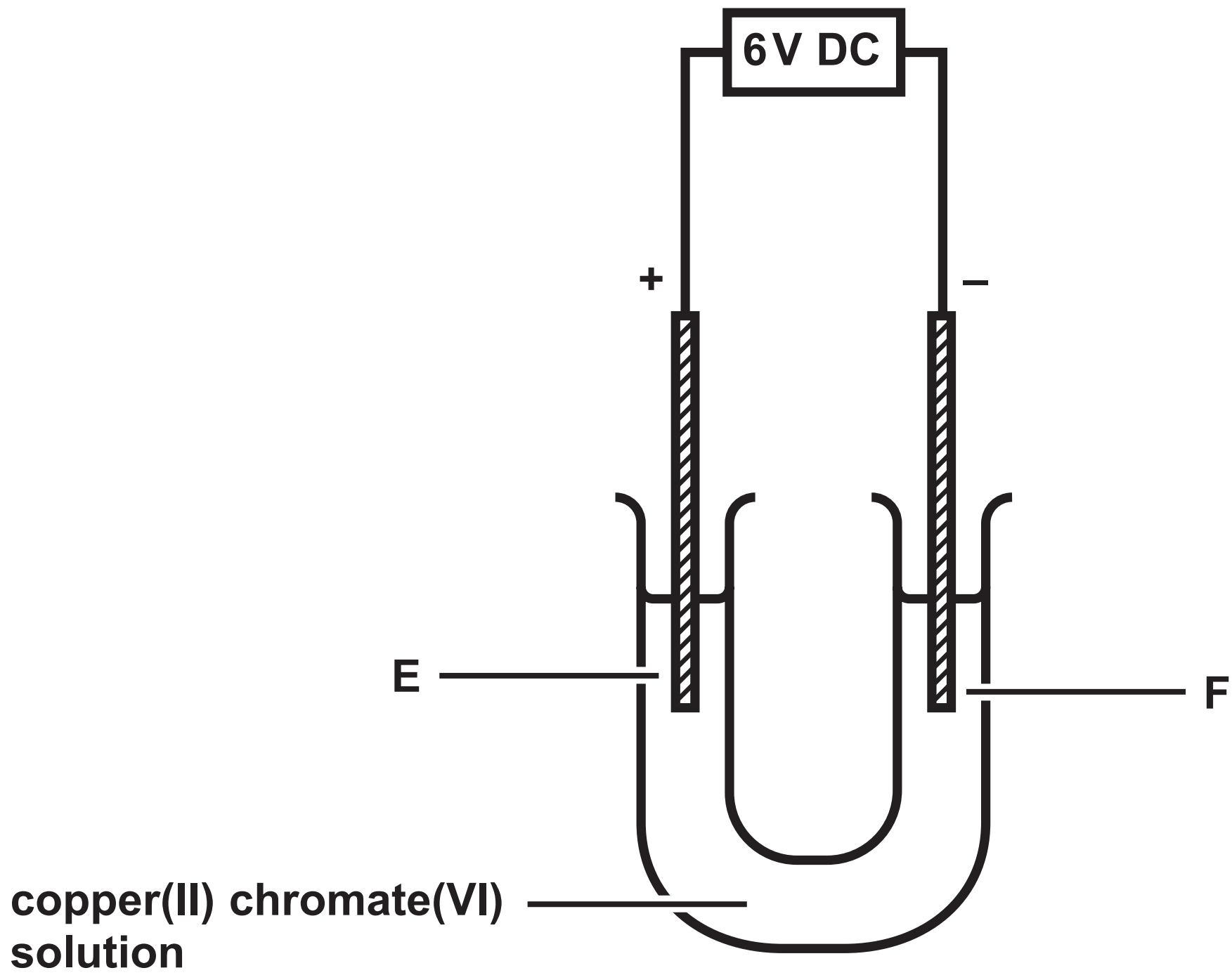
Boiling  
temperature / K

Diagram D

Boiling  
temperature / K

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



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## Question 5(c)(ii)

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



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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 <sub>3</sub> (aq)	CH <sub>3</sub> COOH(aq) and NaOH(aq)
<input type="checkbox"/> B	HCl(aq) and NaOH(aq)	CH <sub>3</sub> COOH(aq) and NH <sub>3</sub> (aq)
<input type="checkbox"/> C	CH <sub>3</sub> COOH(aq) and NaOH(aq)	HCl(aq) and NaOH(aq)
<input type="checkbox"/> D	CH <sub>3</sub> COOH(aq) and NH <sub>3</sub> (aq)	HCl(aq) and NH <sub>3</sub> (aq)

### Question 6(e)(i)

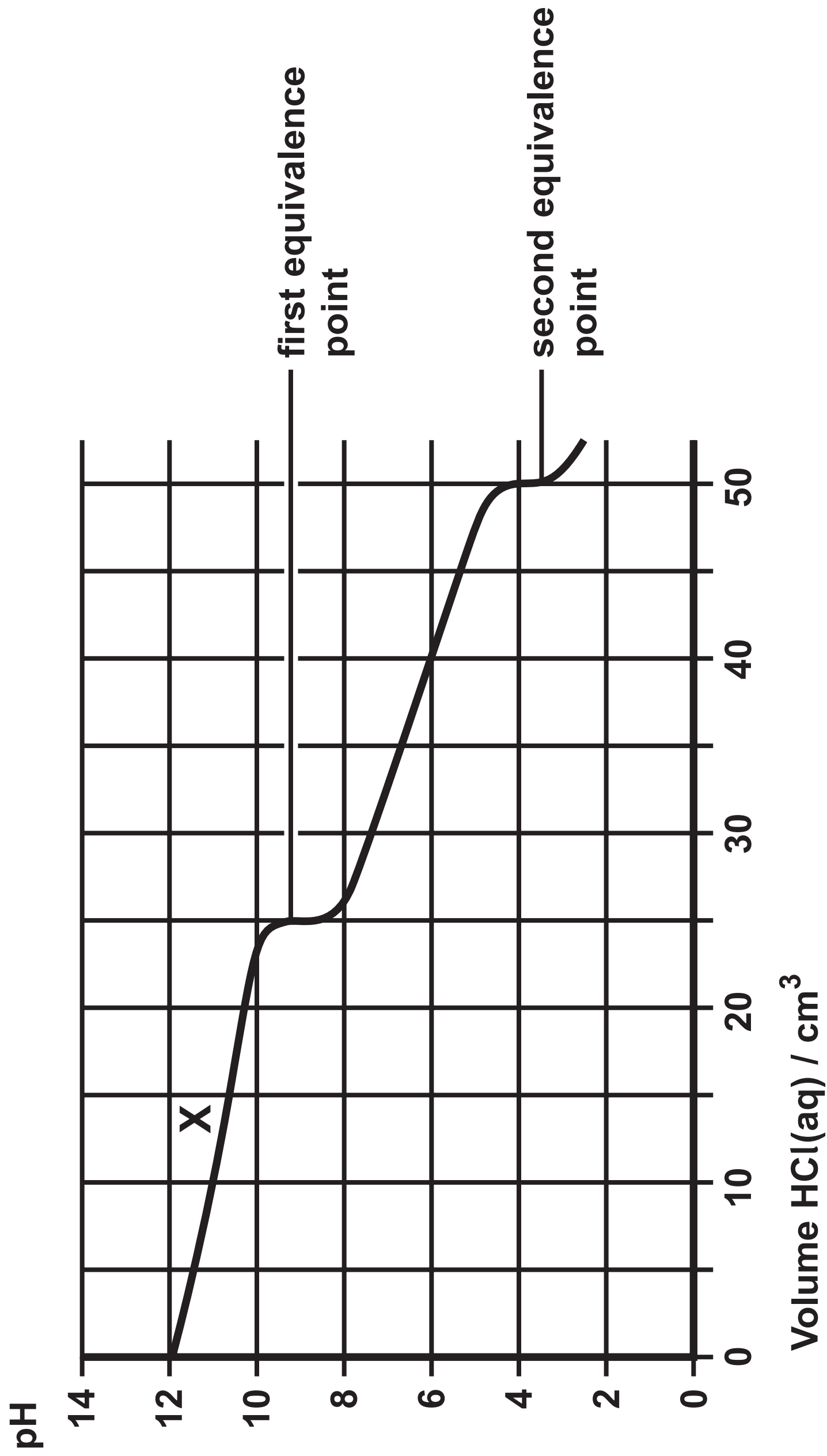
[illegible]

### Question 6(e)(i)

[illegible]



Question 6(f)



Question 7(c)

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