Paper Reference(s) 9CH0/02
Pearson Edexcel Level 3 GCE

Chemistry
Advanced
PAPER 2: Advanced Organic and Physical Chemistry

Tuesday 18 June 2024 – Morning

Time: 1 hour 45 minutes

Diagram Booklet

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

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

Surname						
Other names						
Centre Number						
Candidate Number						

Q76896A

Pearson

INSTRUCTIONS

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

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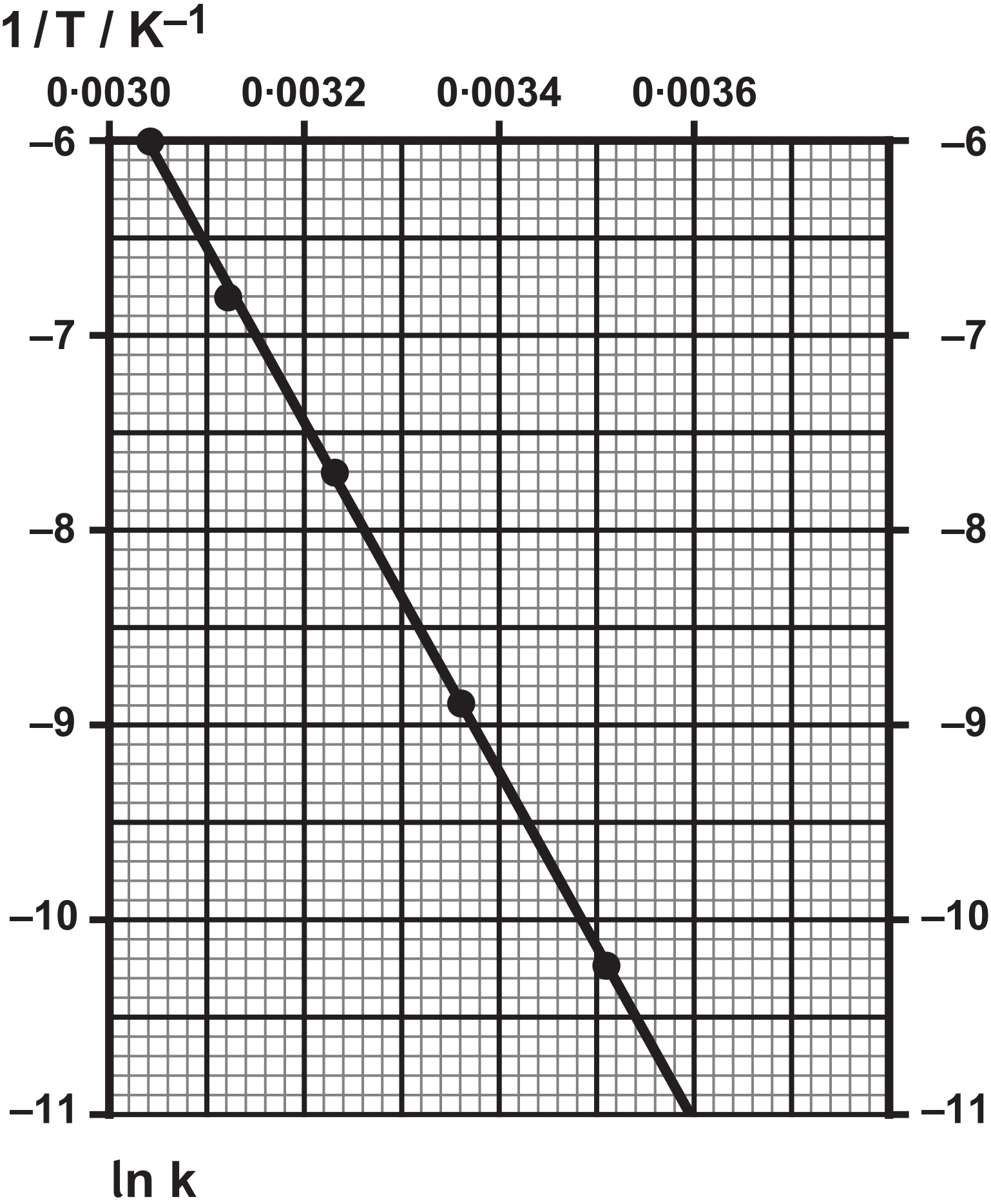
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Question 3(a) – Blank

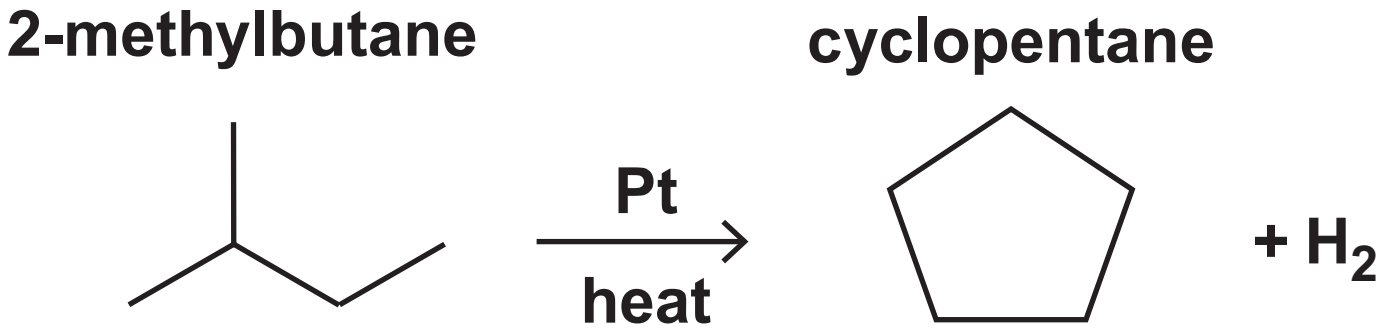
Question 3(c)

Experiment	$[H_2O_2(aq)]$ / mol dm^{-3}	$[I^-(aq)]$ / mol dm^{-3}	Rate / mol dm^{-3} s^{-1}
1	0·100	0·0500	$8{\cdot}90 \times 10^{-7}$
2	0·400	0·0500	$3{\cdot}56 \times 10^{-6}$
3	0·200	0·100	$3{\cdot}56 \times 10^{-6}$

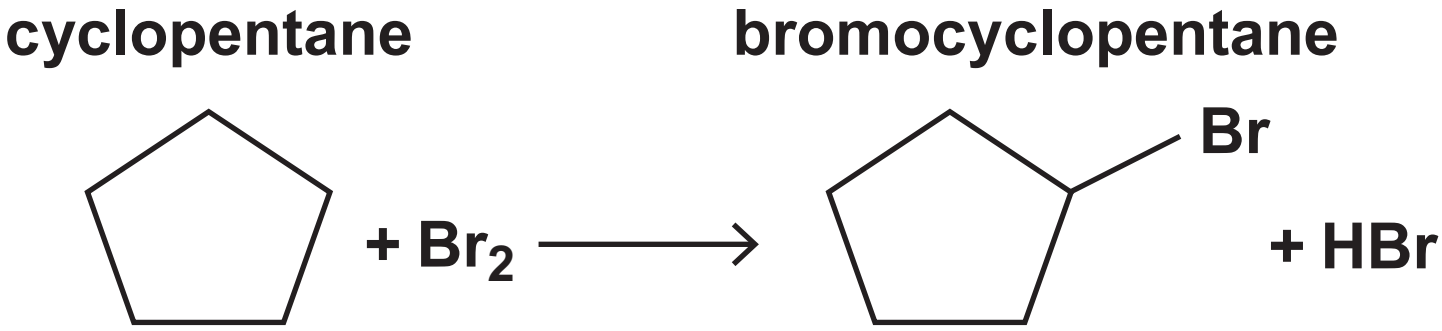
Question 3(e)



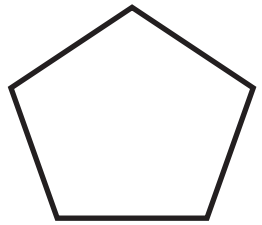
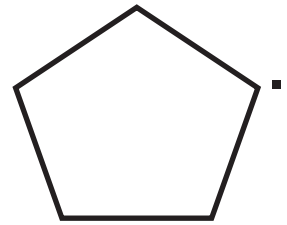
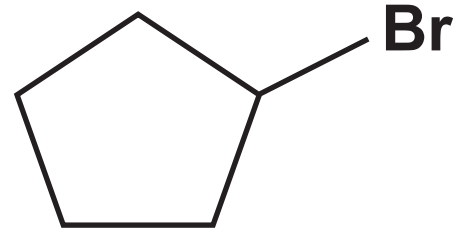
Question 5(a)



Question 5(c)

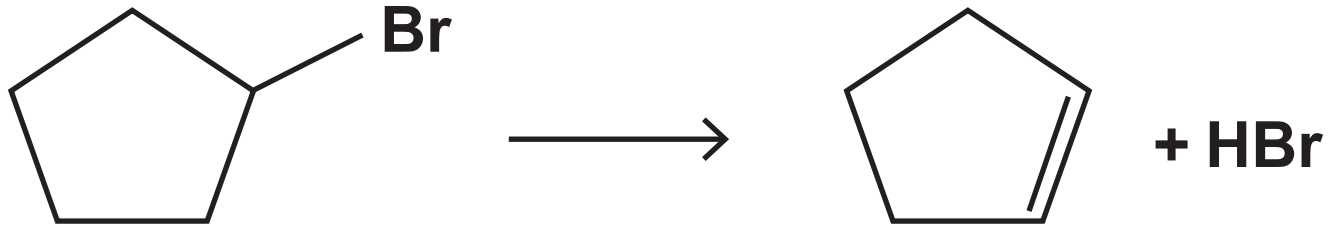


Question 5(c)(ii)

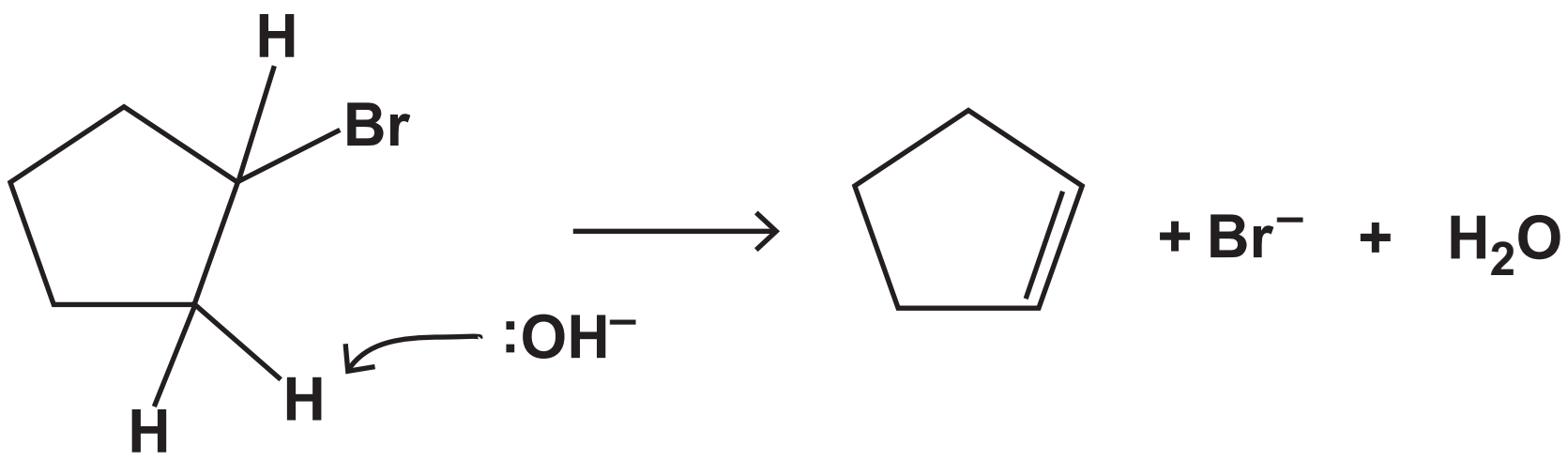
Step	Equation(s)
Initiation	
Propagation	1.  + $Br^{\cdot}$ ⟶  + HBr 2.
Termination	⟶ 

Question 5(c)(iii) – Blank

Question 5(d)



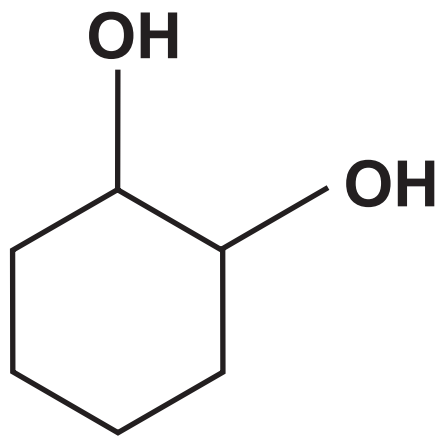
Question 5(d)(iii)



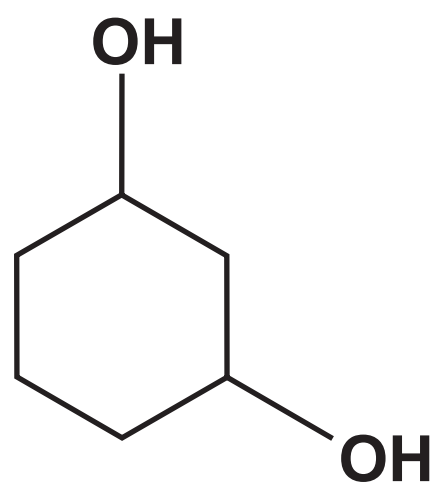
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Question 6(d)

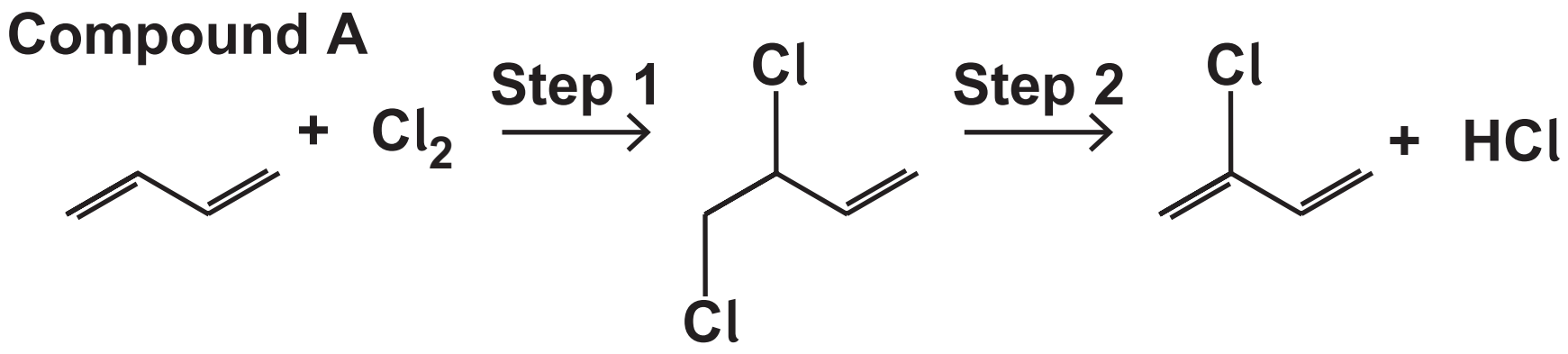
cyclohexane-1,2-diol



cyclohexane-1,3-diol

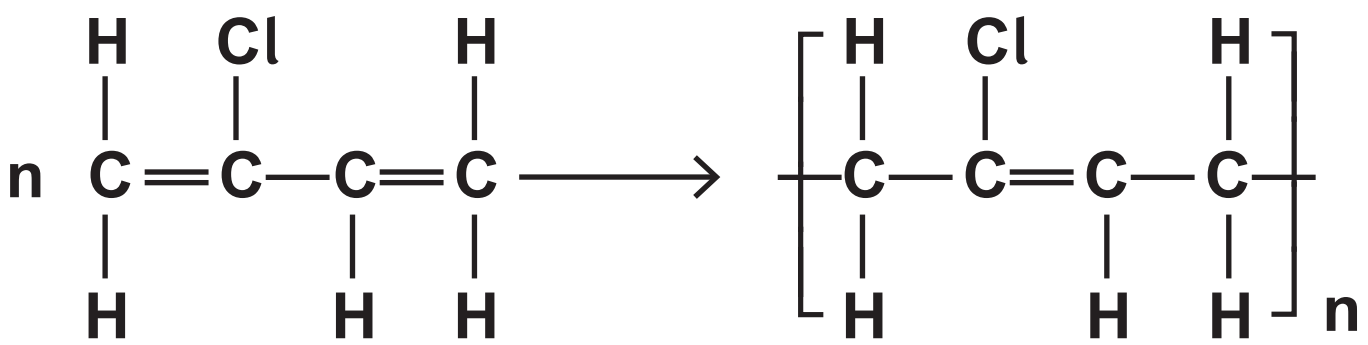


Question 7(c)



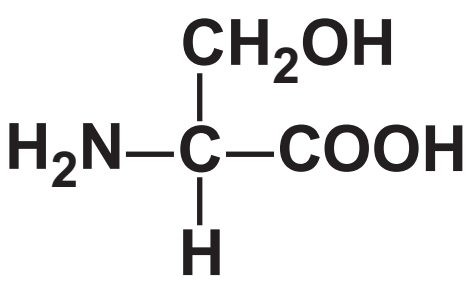
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Question 7(c)(iii)

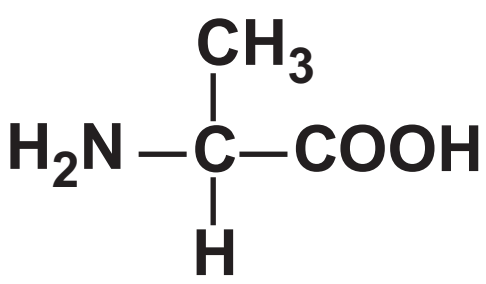


Question 8

serine



alanine

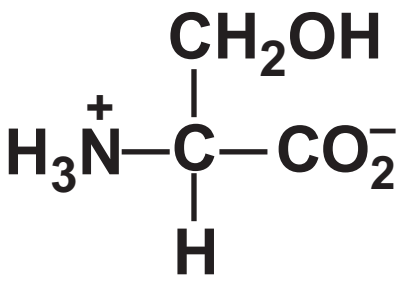


Question 8(a)(ii) – Blank

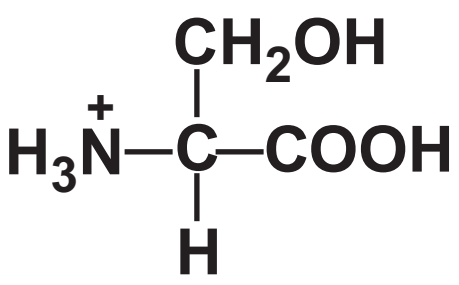
Question 8(b)

Question 8(c)

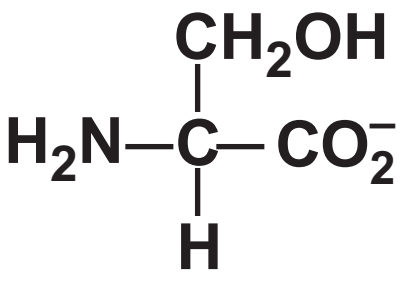
FORMULA A



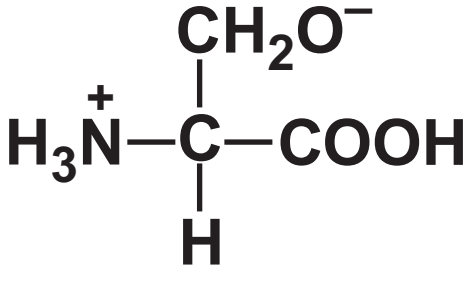
FORMULA B

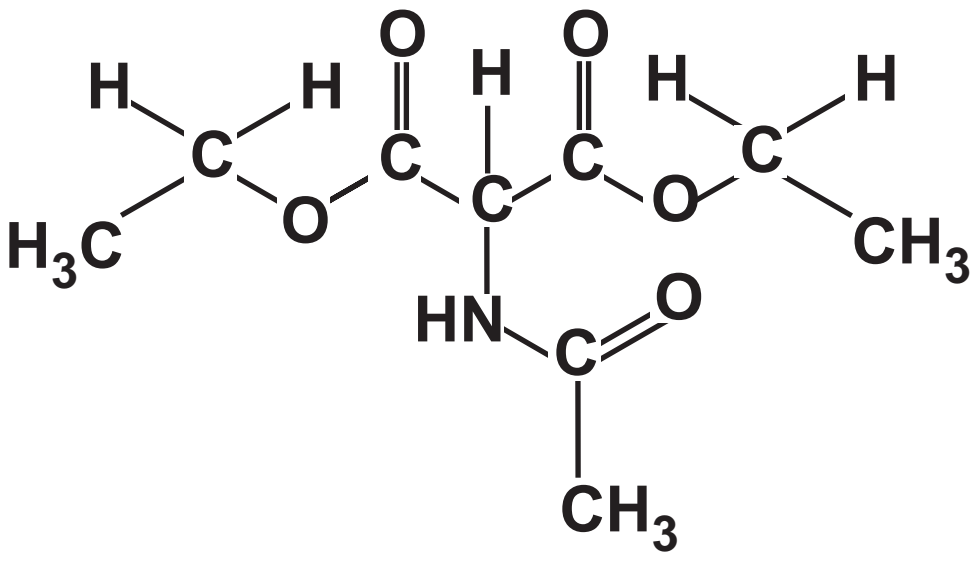


FORMULA C



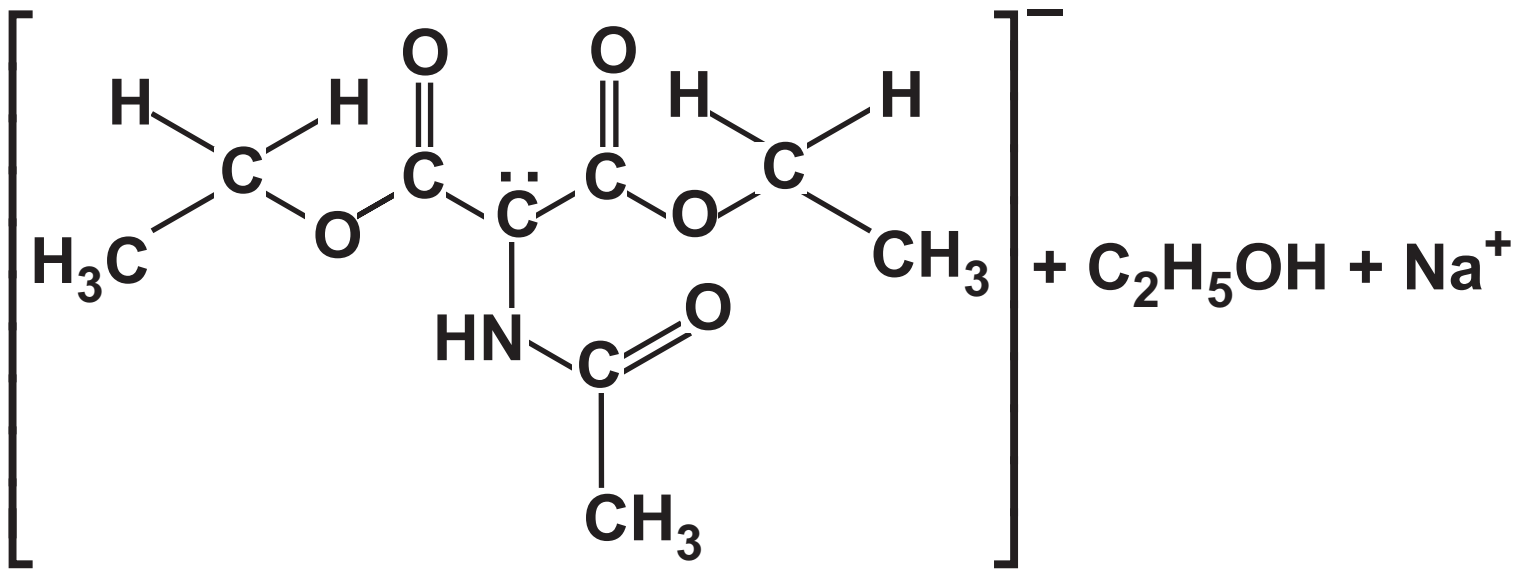
FORMULA D





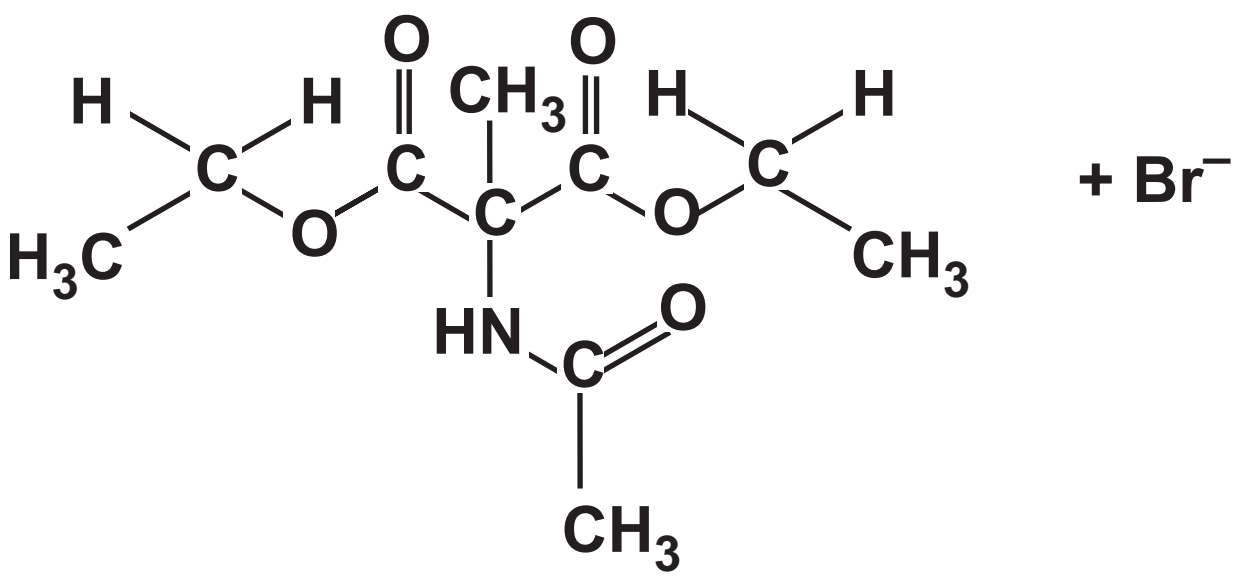
Compound X

Step 1 $C_2H_5O^-Na^+$



+ C_2H_5OH + Na^+

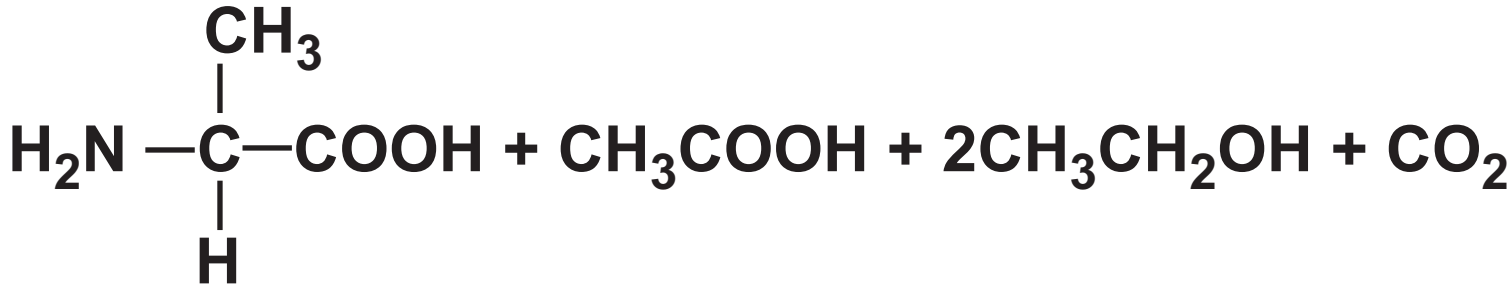
Step 2 CH_3Br



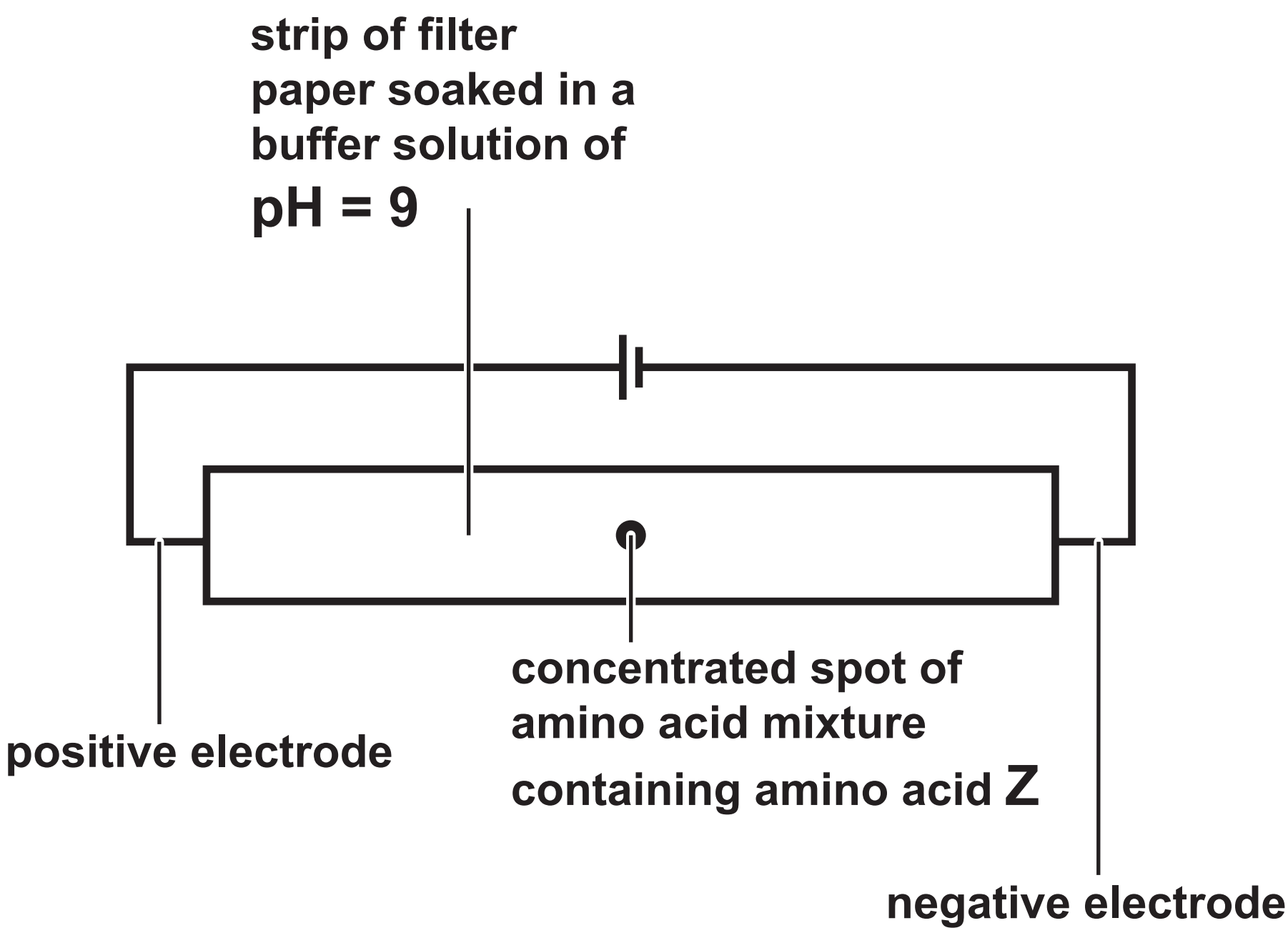
+ Br^-

Compound Y

Step 3

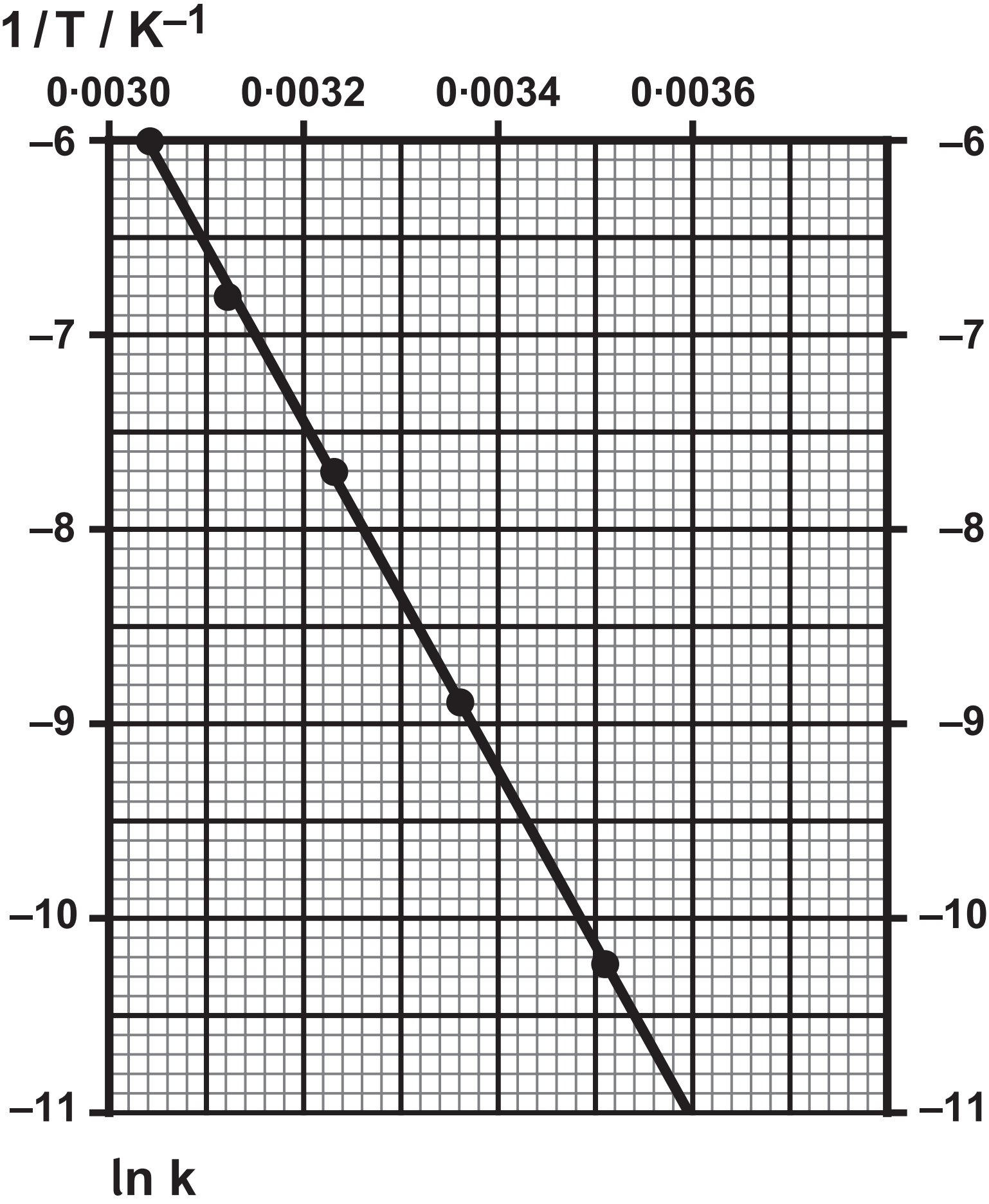


Question 8(e)

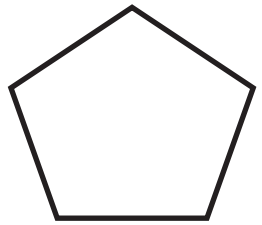
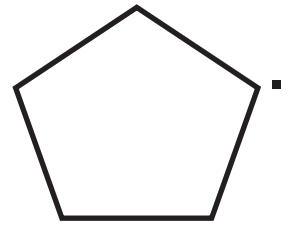
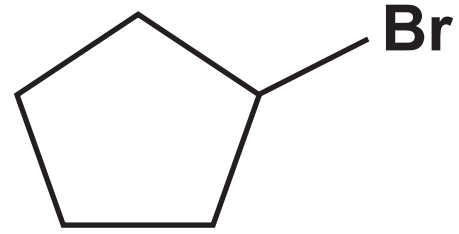

strip of filter paper soaked in a buffer solution of pH = 9
positive electrode
concentrated spot of amino acid mixture containing amino acid Z
negative electrode

Question 3(a) – Blank

Question 3(e)

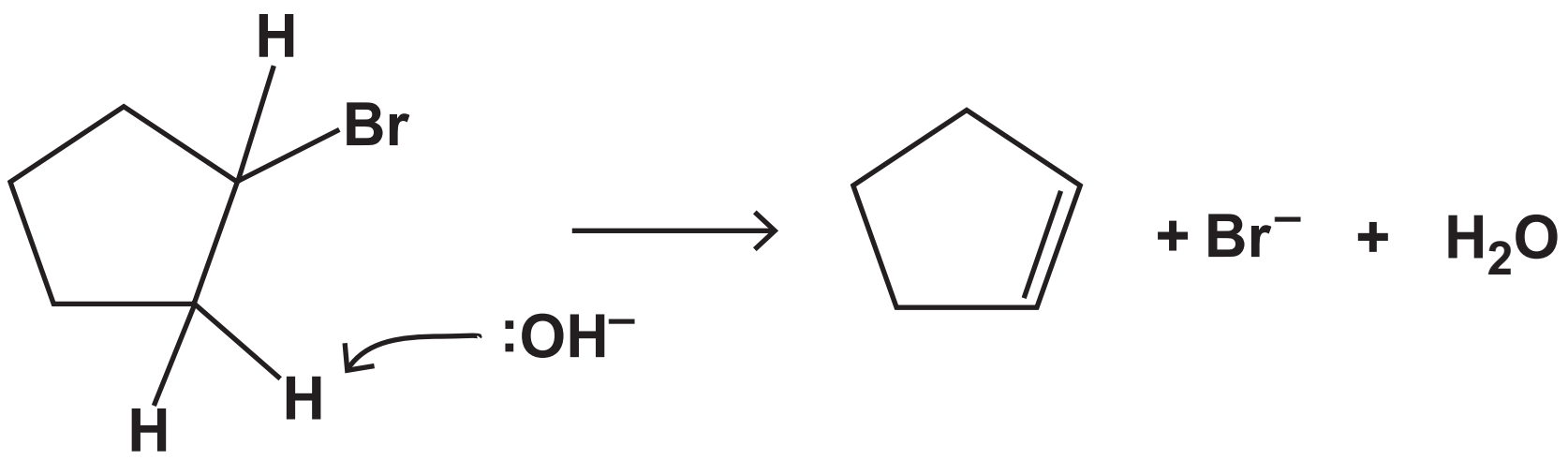


Question 5(c)(ii)

Step	Equation(s)
Initiation	
Propagation	1.  + $Br^{\cdot}$ ⟶  + HBr 2.
Termination	⟶ 

Question 5(c)(iii) – Blank

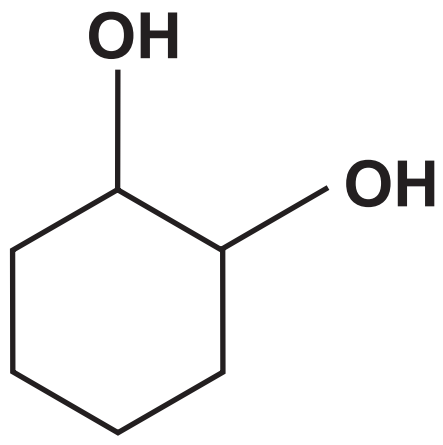
Question 5(d)(iii)



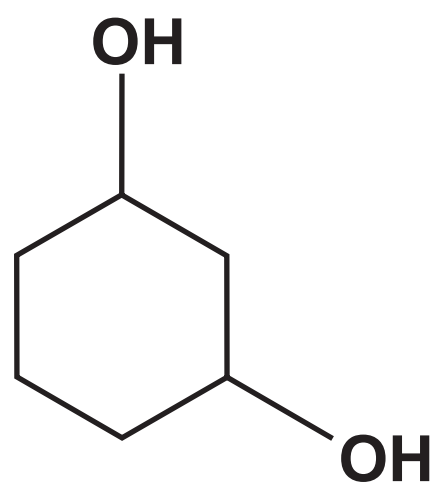
Question 6(c)(ii) – Blank

Question 6(d)

cyclohexane-1,2-diol



cyclohexane-1,3-diol



Question 7(c)(i) – Blank

Question 8(a)(ii) – Blank

Question 8(b)