

**Paper Reference(s) 9BI0/03**  
**Pearson Edexcel Level 3 GCE**

**Biology B**

**Advanced**

**PAPER 3: General and Practical Principles in Biology**

**Diagram Booklet**

## INSTRUCTIONS

**THIS DIAGRAM BOOKLET MUST NOT BE RETURNED WITH  
THE QUESTION PAPER AT THE END OF THE EXAMINATION.**

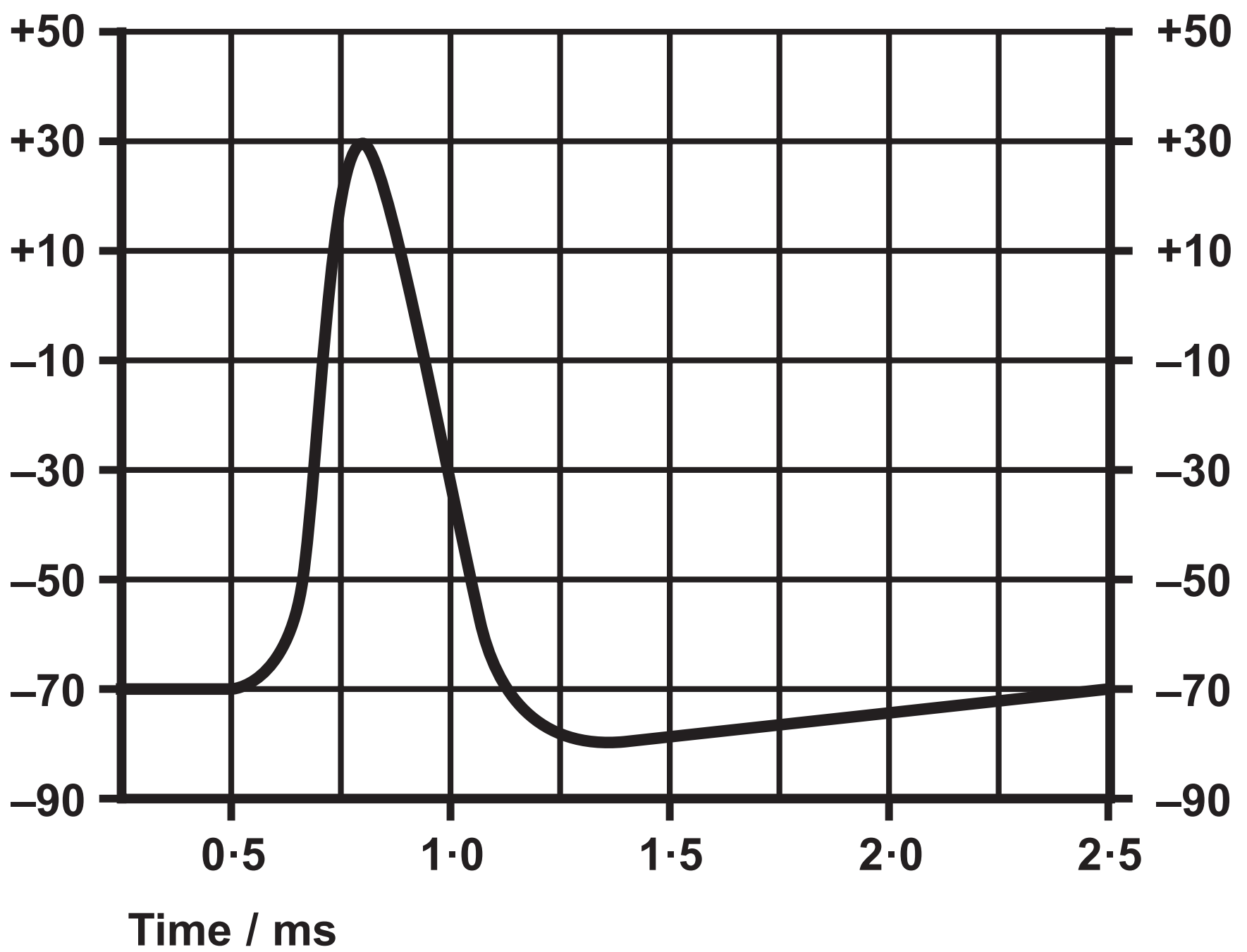
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## Question 1(a)(ii)

Membrane  
potential / mV



## Question 1(b)

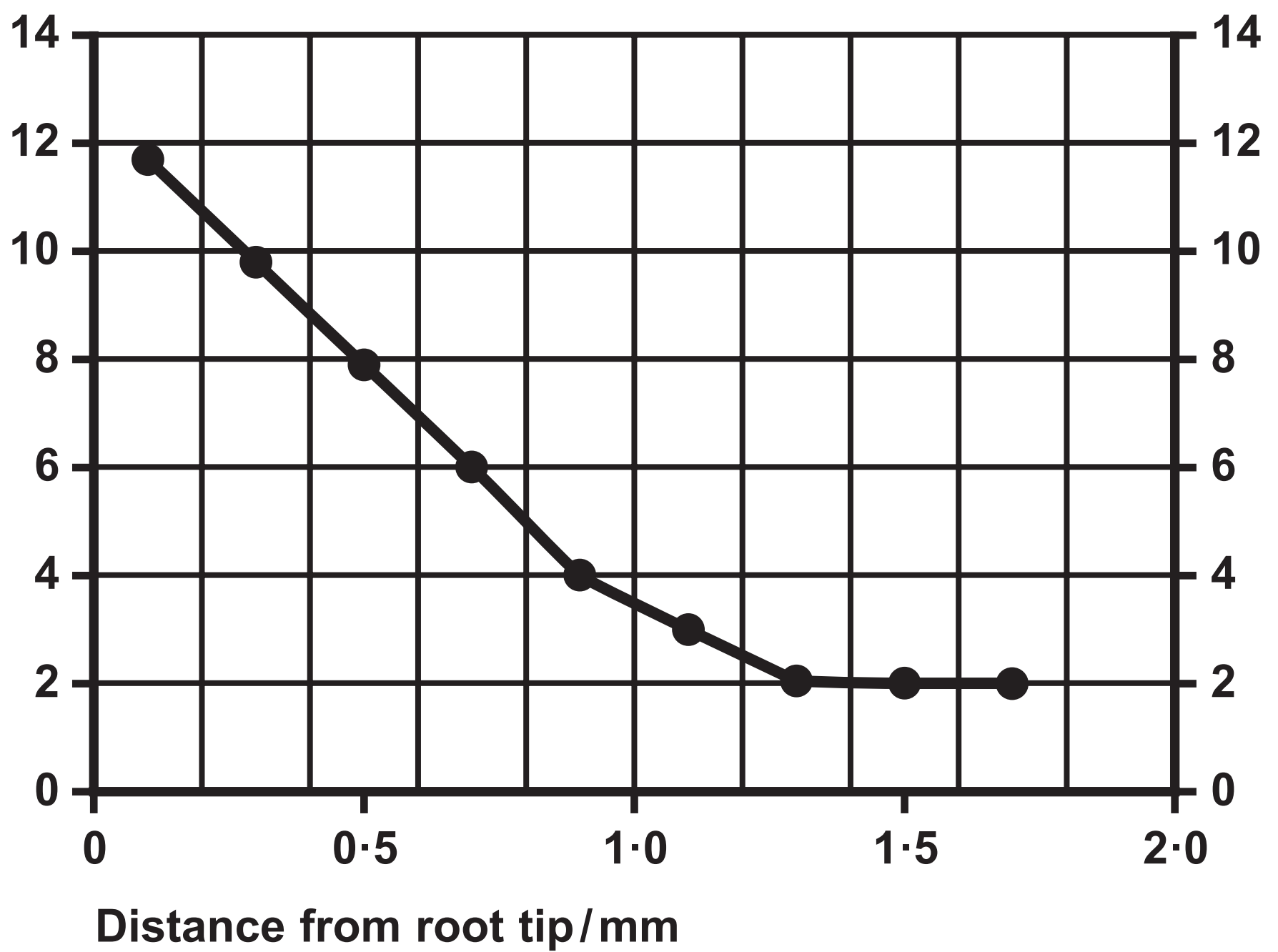
<b>Stimulus voltage / mV</b>	<b>Response</b>
<b>25</b>	<b>No action potential</b>
<b>35</b>	<b>No action potential</b>
<b>45</b>	<b>No action potential</b>
<b>55</b>	<b>Action potential</b>
<b>65</b>	<b>Action potential</b>
<b>75</b>	<b>Action potential</b>

Question 2(a)

Number of cells at each stage of the cell cycle				
Prophase	Metaphase	Anaphase	Telophase	Interphase
4	2	1	1	90

## Question 2(a)(ii)

Mitotic  
index



**Question 3(a)**

<b>Colour of indicator</b>	<b>Relative carbon dioxide concentration</b>
<b>yellow</b>	<b>highest</b>
<b>orange</b>	<b>higher than atmospheric air</b>
<b>red</b>	<b>same as atmospheric air</b>
<b>magenta</b>	<b>lower than atmospheric air</b>
<b>purple</b>	<b>lowest</b>



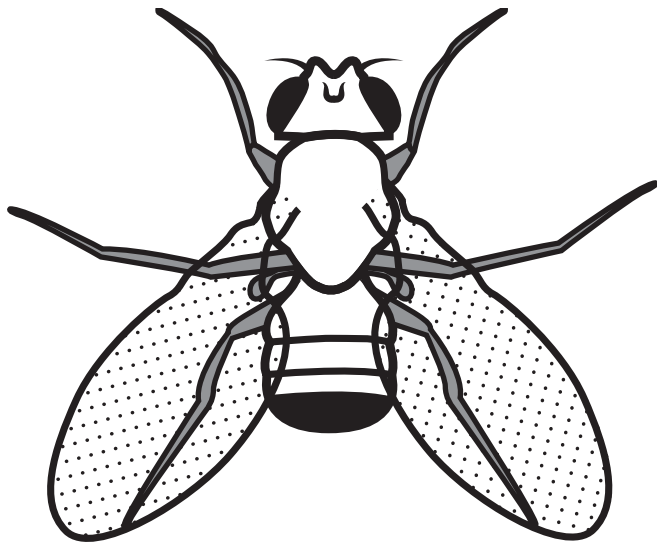
Question 3(a)

Distance from lamp / cm	5	15	25	35	45
Colour of indicator after 30 minutes	purple	purple	red	orange	orange
Position of gel beads in tube after 30 minutes	half-way up	less than half-way up	bottom	bottom	bottom

Question 4

Actual size = 3 mm

Male



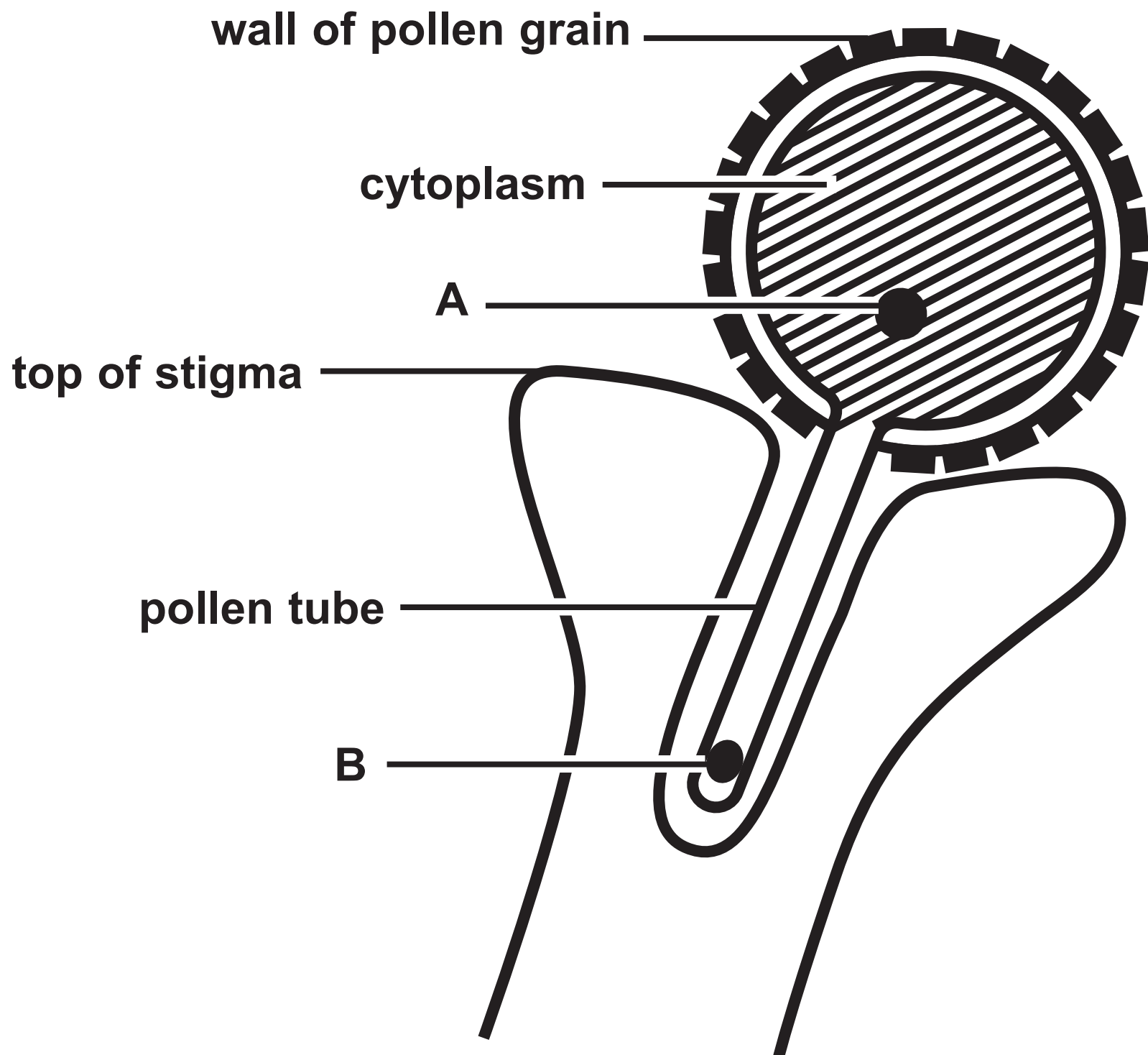
Female



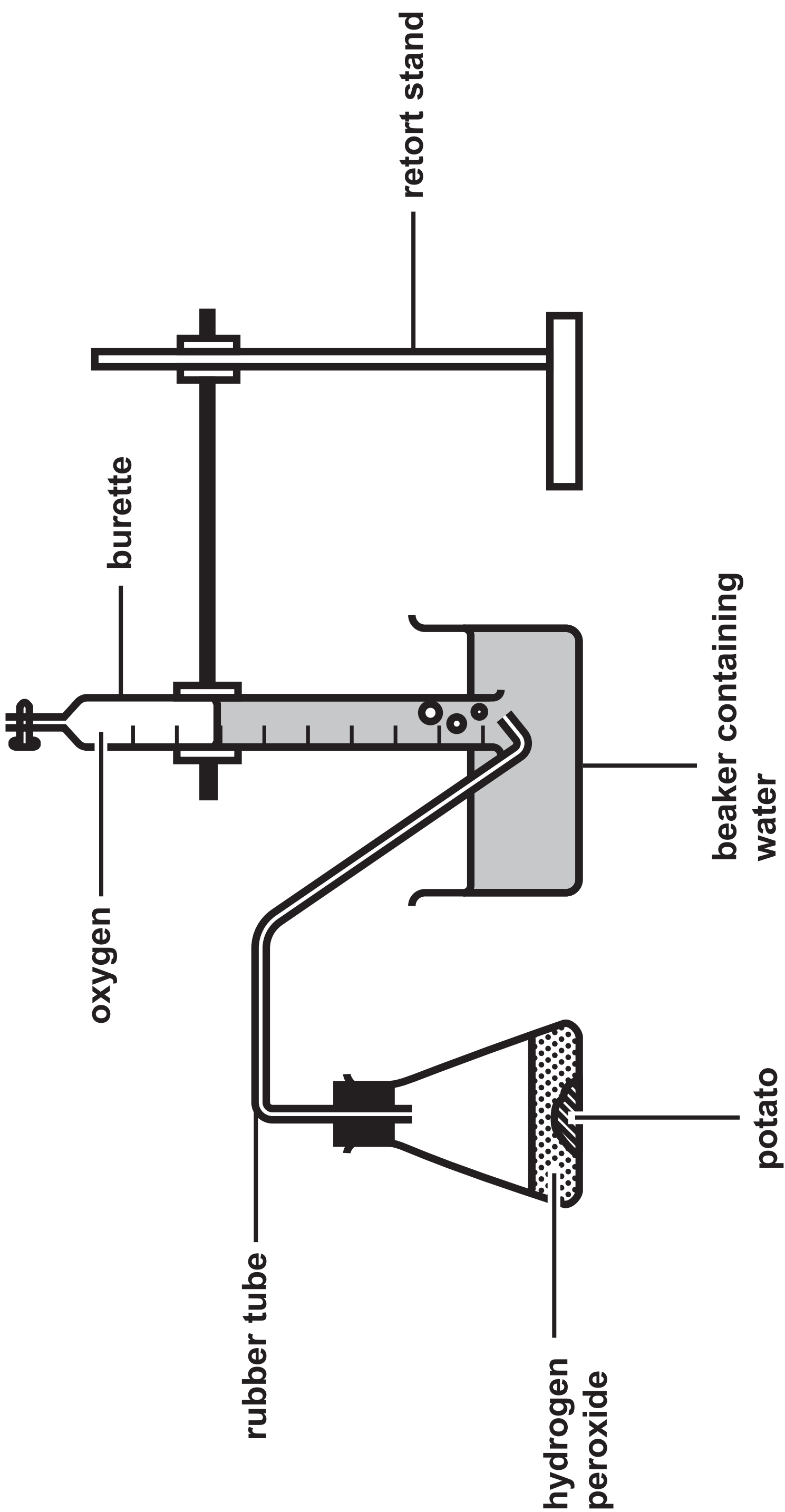
## Question 5(a)



## Question 5(b)(i)

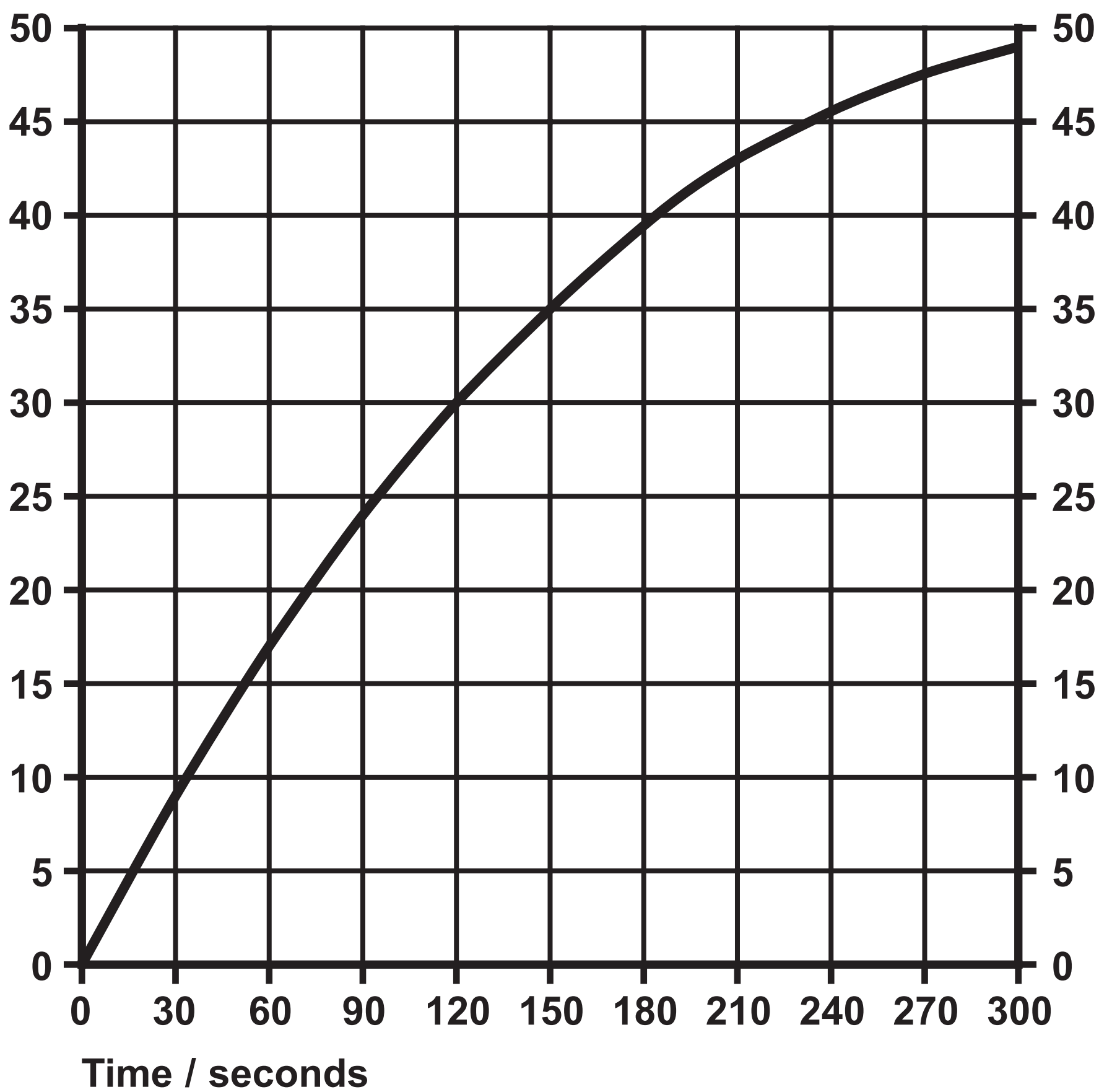


Question 8(b)

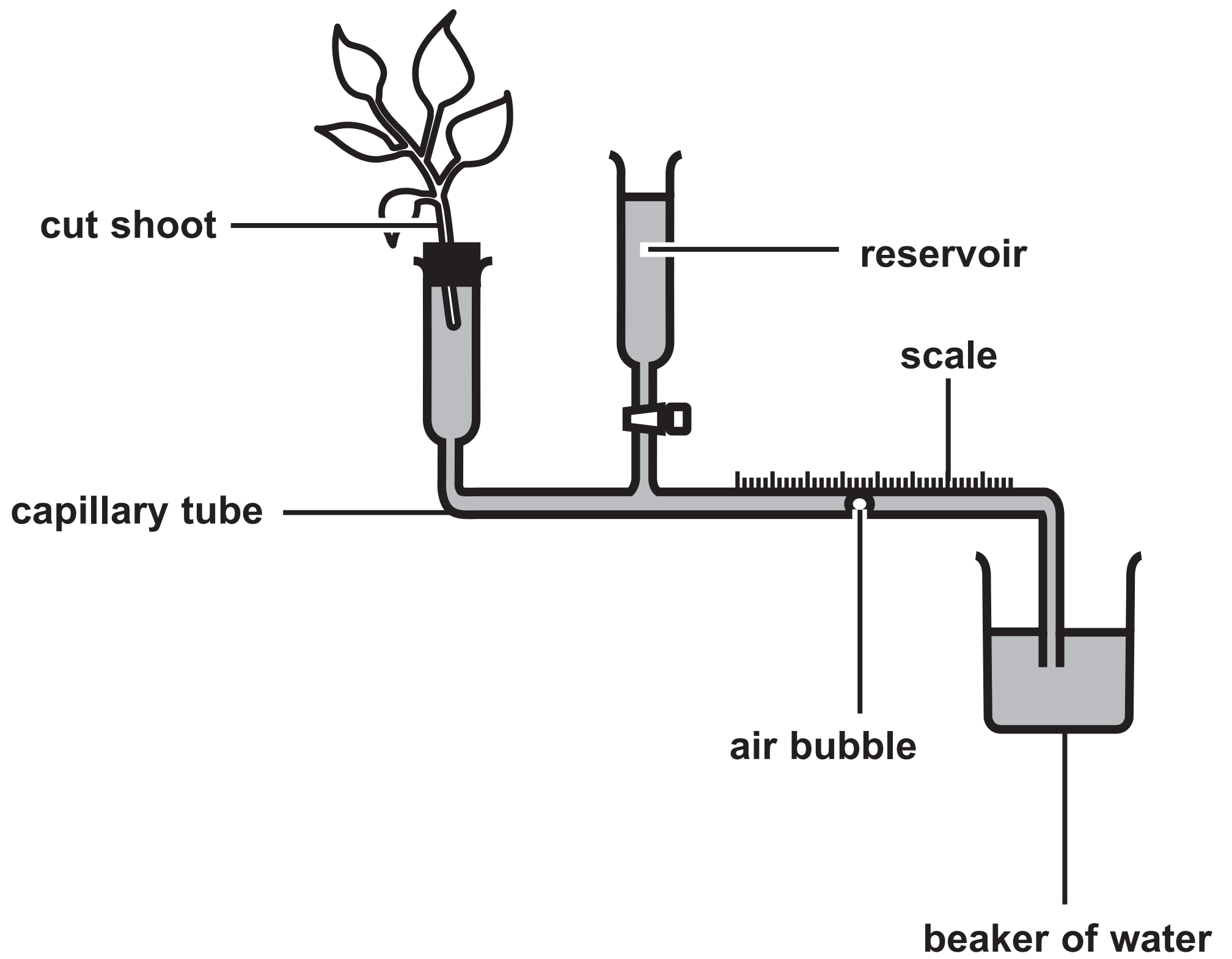


## Question 8(b)(ii)

Volume of oxygen  
produced /  $\text{cm}^3$



## Question 9(b)

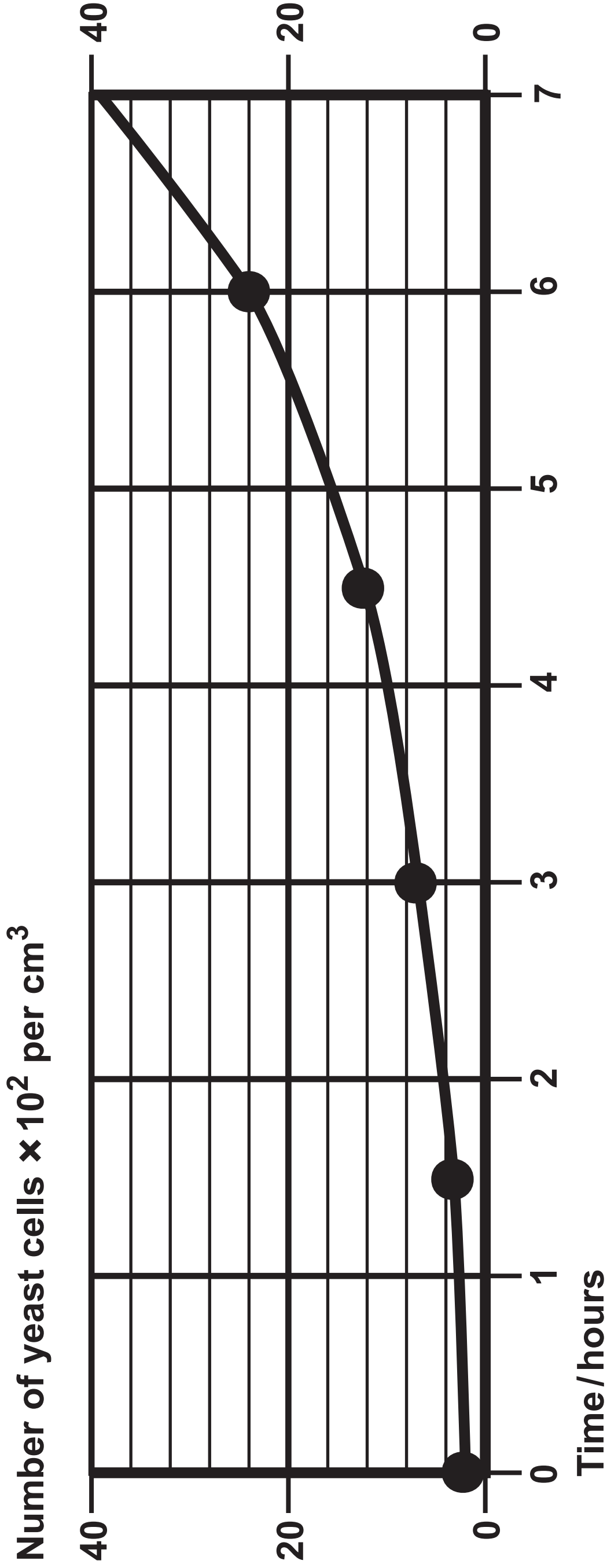


Question 9(b)

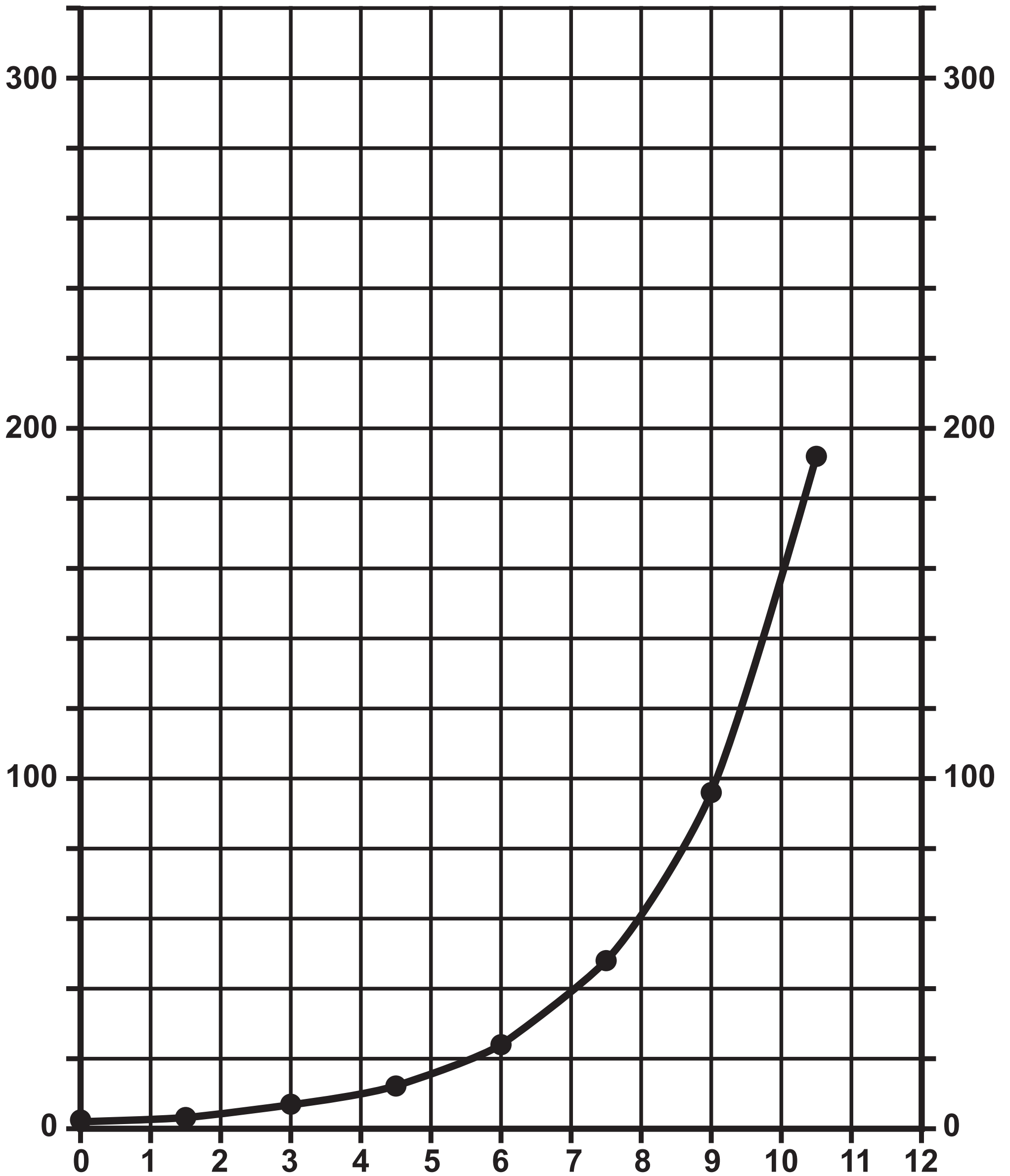
Conditions	Distance moved by the bubble in 5 minutes / cm					
	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Mean
Still air, in light	2·4	2·2	2·2	2·2	2·1	2·2
Moving air, in light	6·5	6·7	6·4	6·2	6·3	6·4
Still air, in dark	0·9	0·4	0·0	0·0	0·0	0·3
Moving air, in dark	1·7	0·8	0·0	0·0	0·0	0·5



Question 11(a)(i)

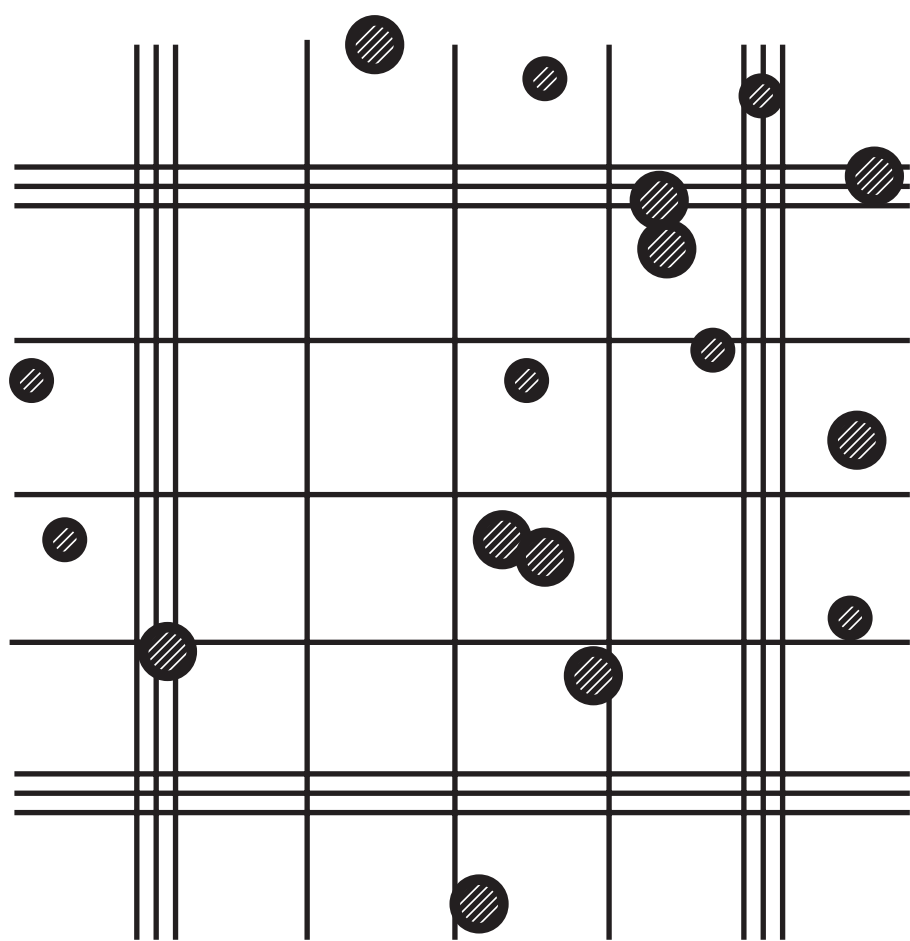


## Question 11(a)(ii)

Number of yeast cells  $\times 10^2$  per  $\text{cm}^3$ 

Time/hours

Question 11(c)(i)



Question 11(d)

Time / hours	Number of cells						
	1	2	3	4	5	Mean	Standard deviation (SD)
0·0	1	2	2	1	2	1·6	0·5
1·5	2	3	3	3	2	2·6	0·5
3·0	4	9	9	3	7	6·4	
4·5	13	10	12	9	16	12·0	2·7
6·0	43	31	18	14	15	24·2	12·5

**Question 5(a)**

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**Question 11**

**(Source adapted from: © Kateryna Kon/Shutterstock)**

**Question 11(c)(i)**

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