

Biology B
Advanced
PAPER 1: Advanced Biochemistry, Microbiology and Genetics

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.

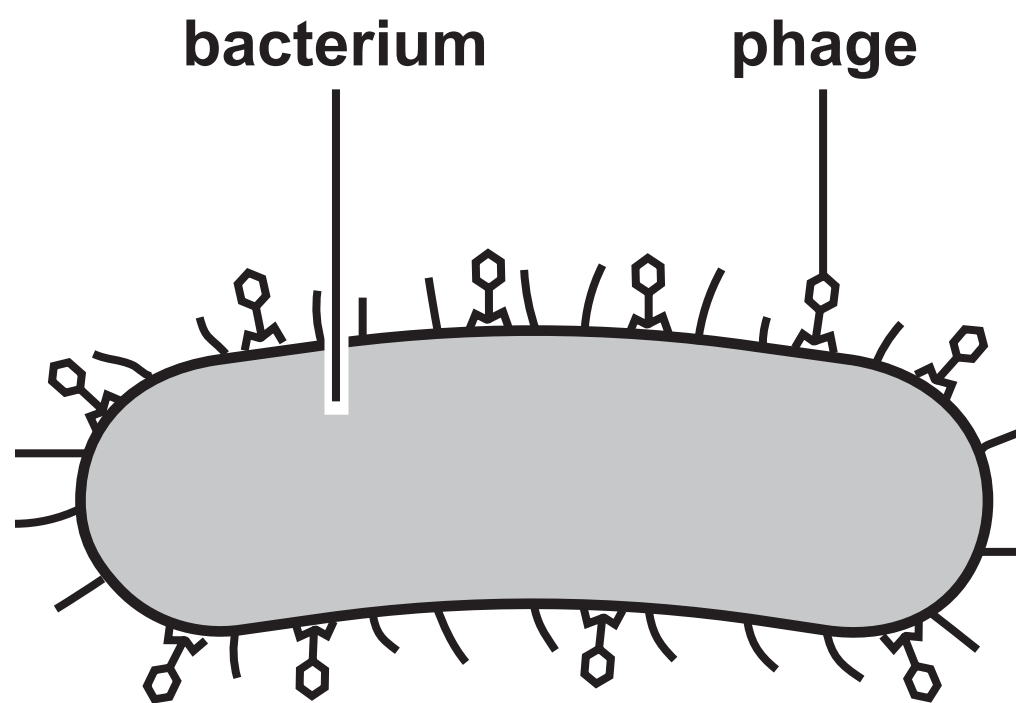
THIS DIAGRAM BOOKLET MUST BE RETURNED WITH THE QUESTION PAPER AT THE END OF THE EXAMINATION.

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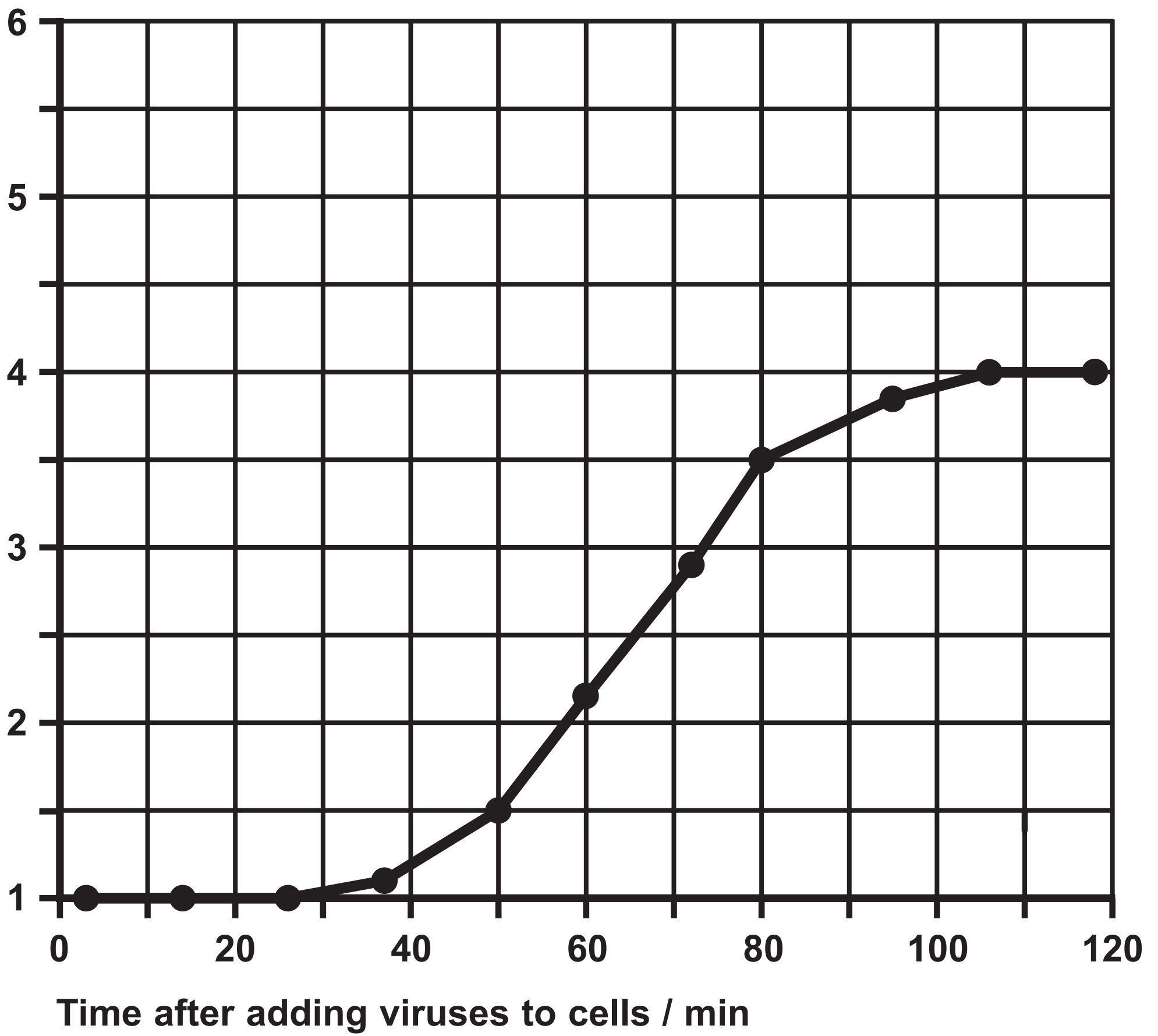
4	Question 4(b)
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Question 4(b)



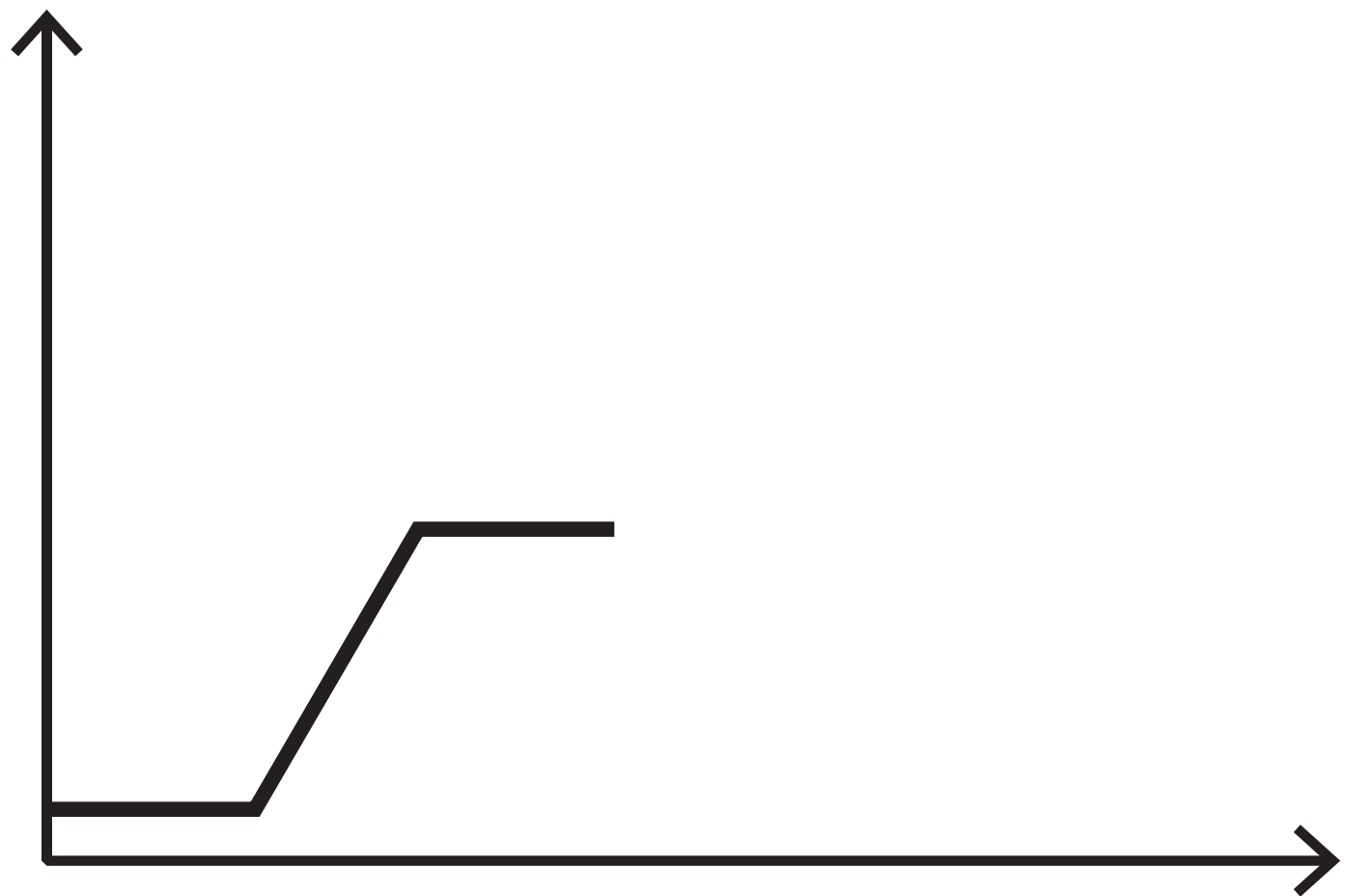
Question 4(c)

Log₁₀ number
of lysed cells



Question 4(c)(iii)

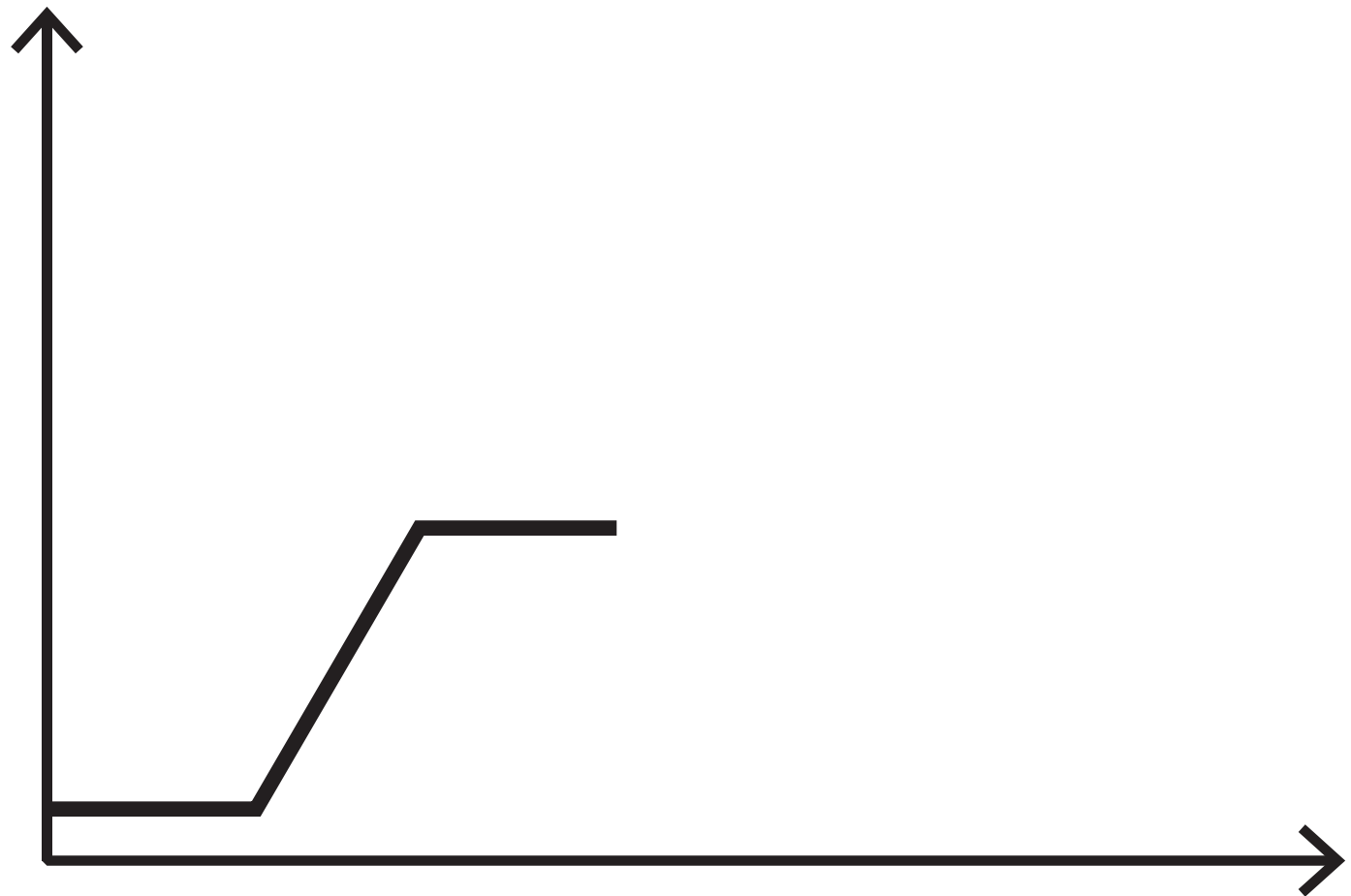
Log_{10} number
of lysed cells



Time after adding viruses to cells

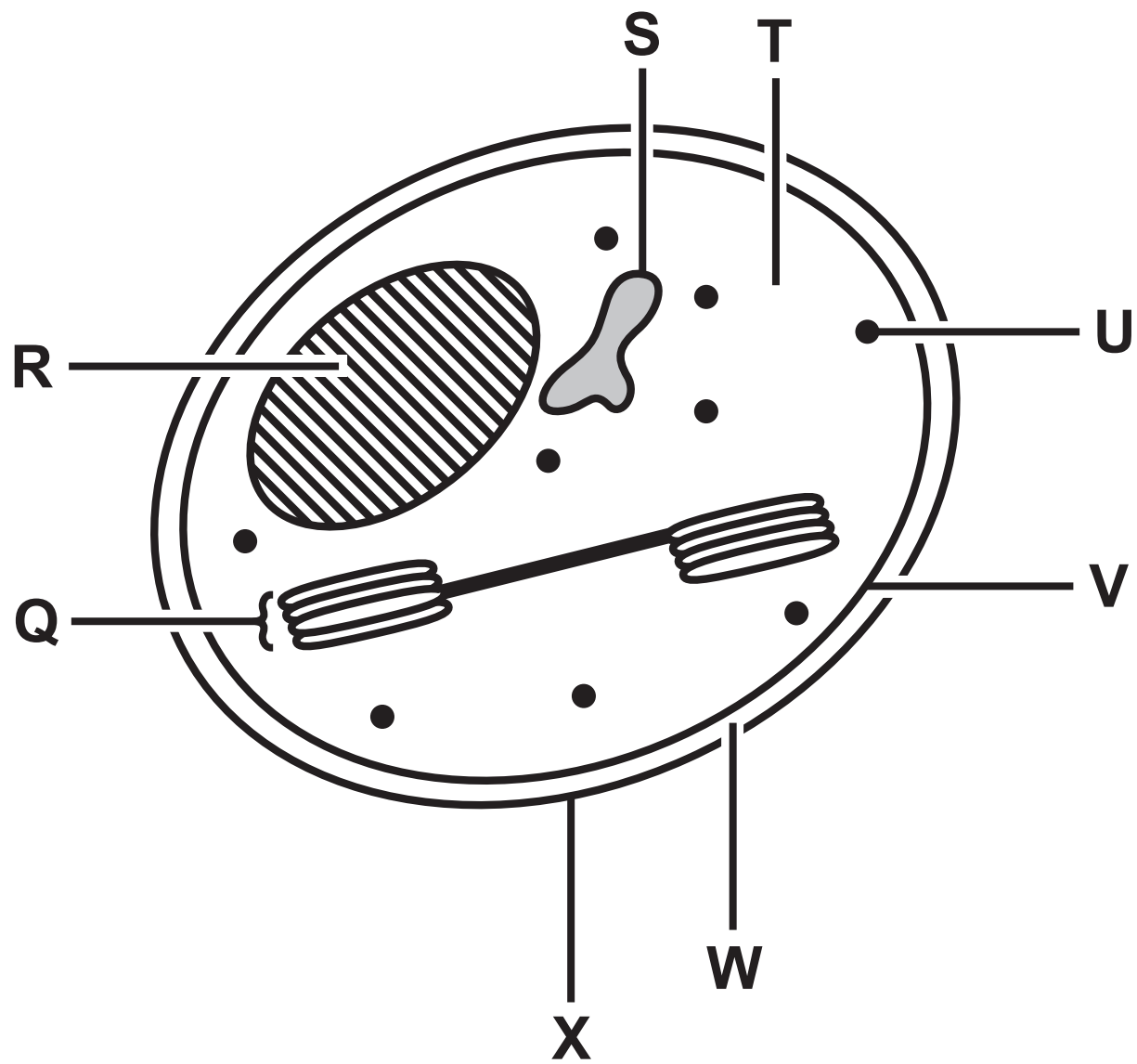
Question 4(c)(iii)

Log_{10} number
of lysed cells



Time after adding viruses to cells

Question 5(a)

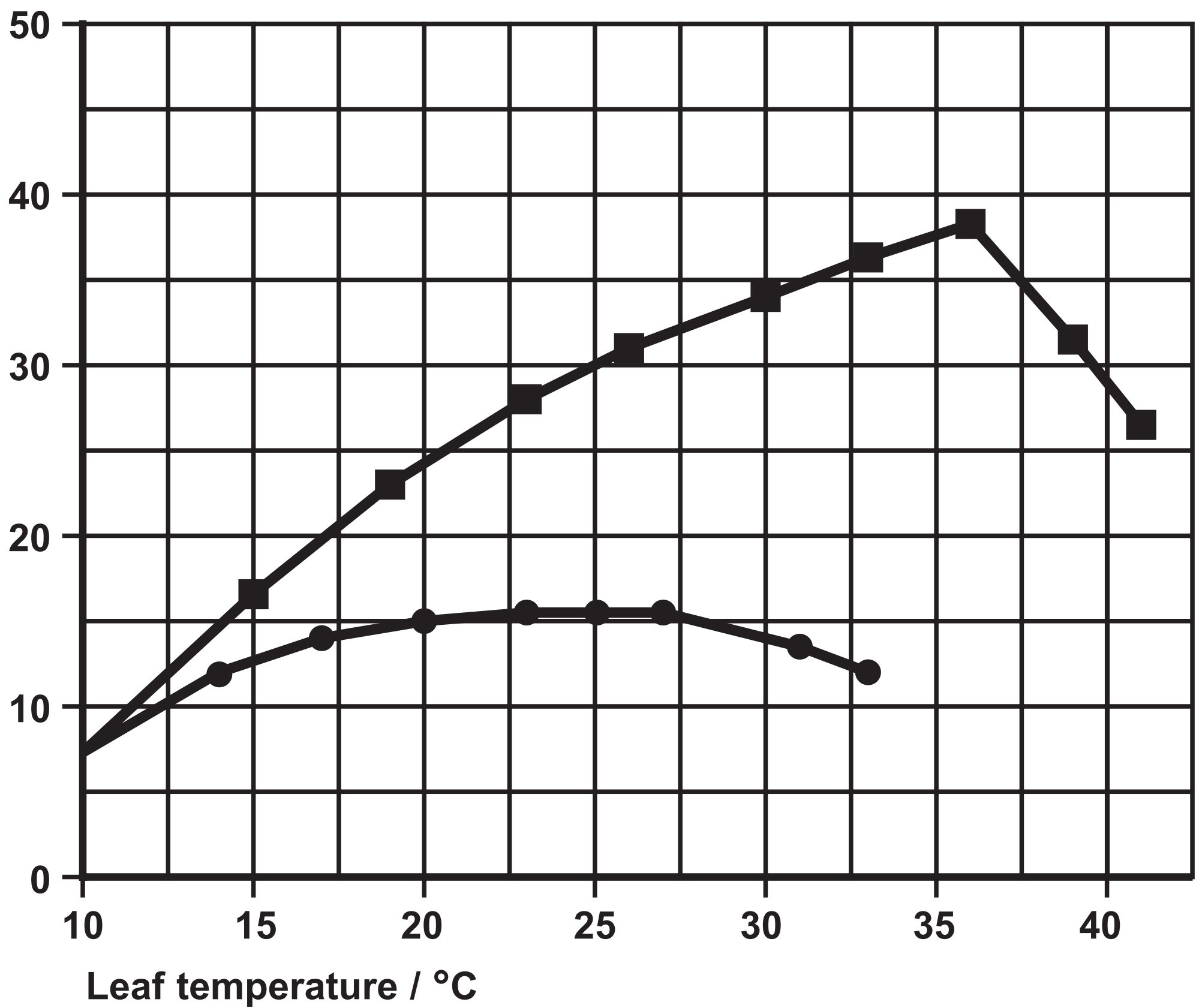


Question 5(b)

—■— plants grown in high levels of carbon dioxide

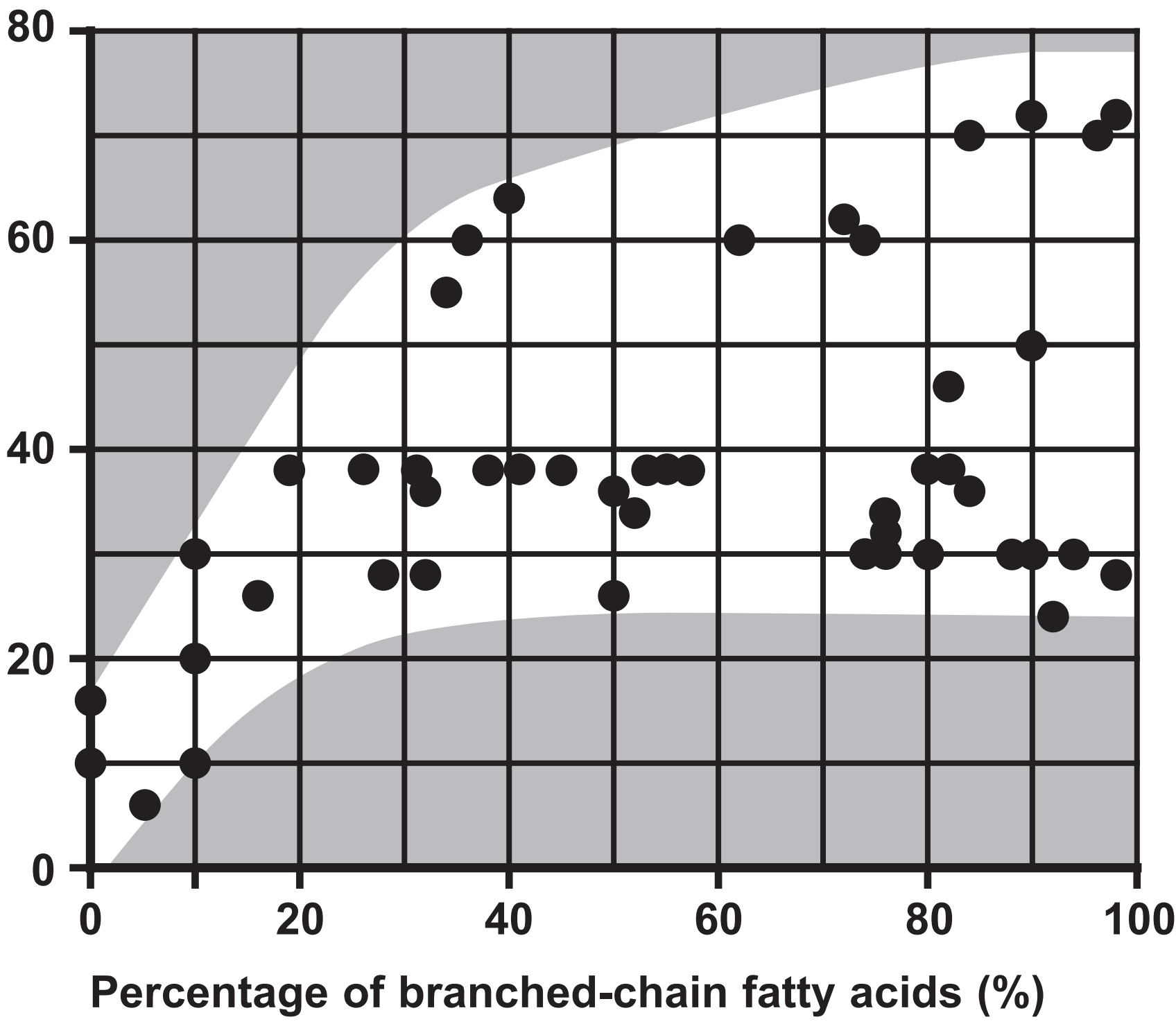
—●— plants grown in low levels of carbon dioxide

Rate of
photosynthesis

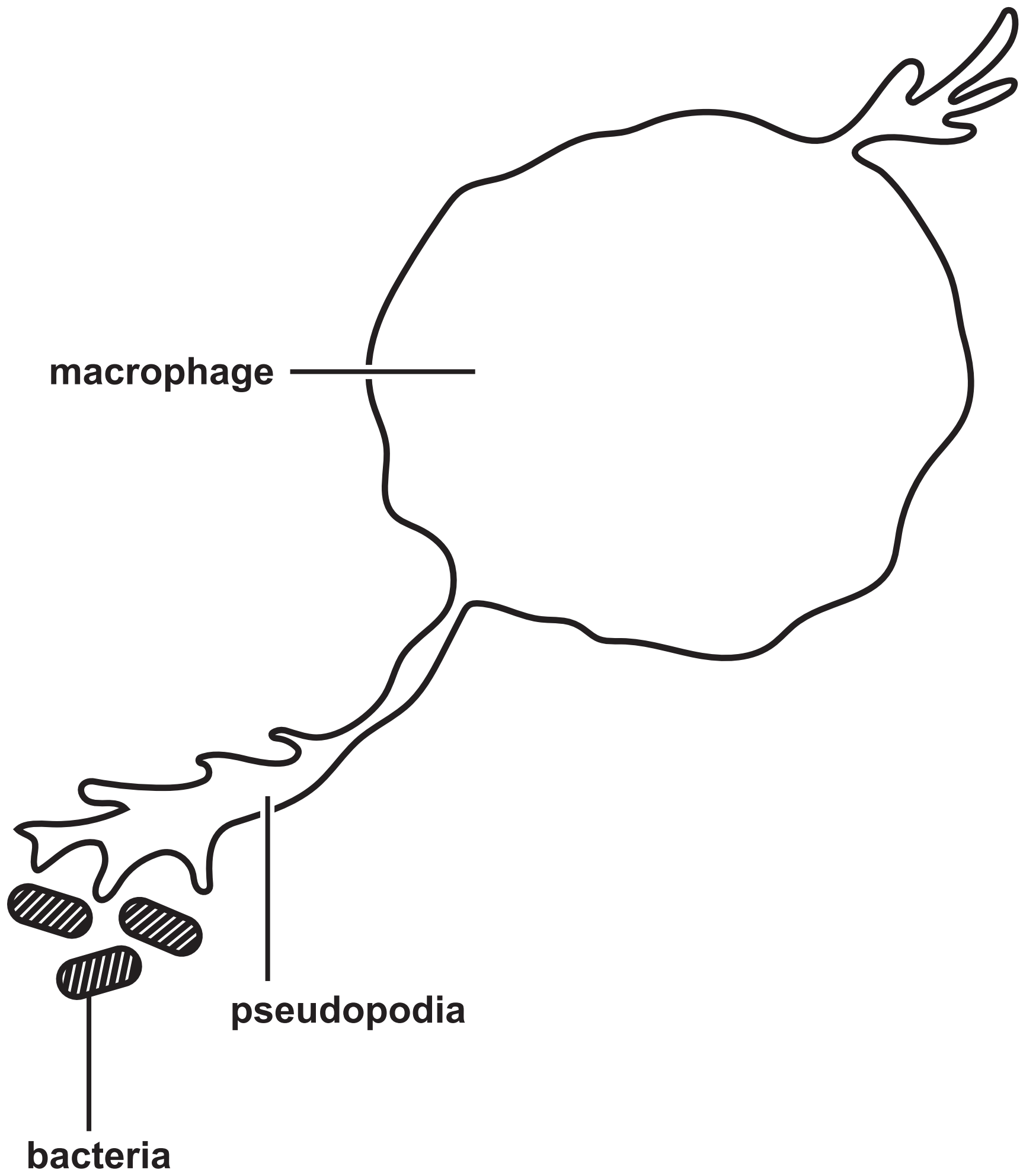


Question 6(c)

Optimum growth
temperature of
bacteria / °C



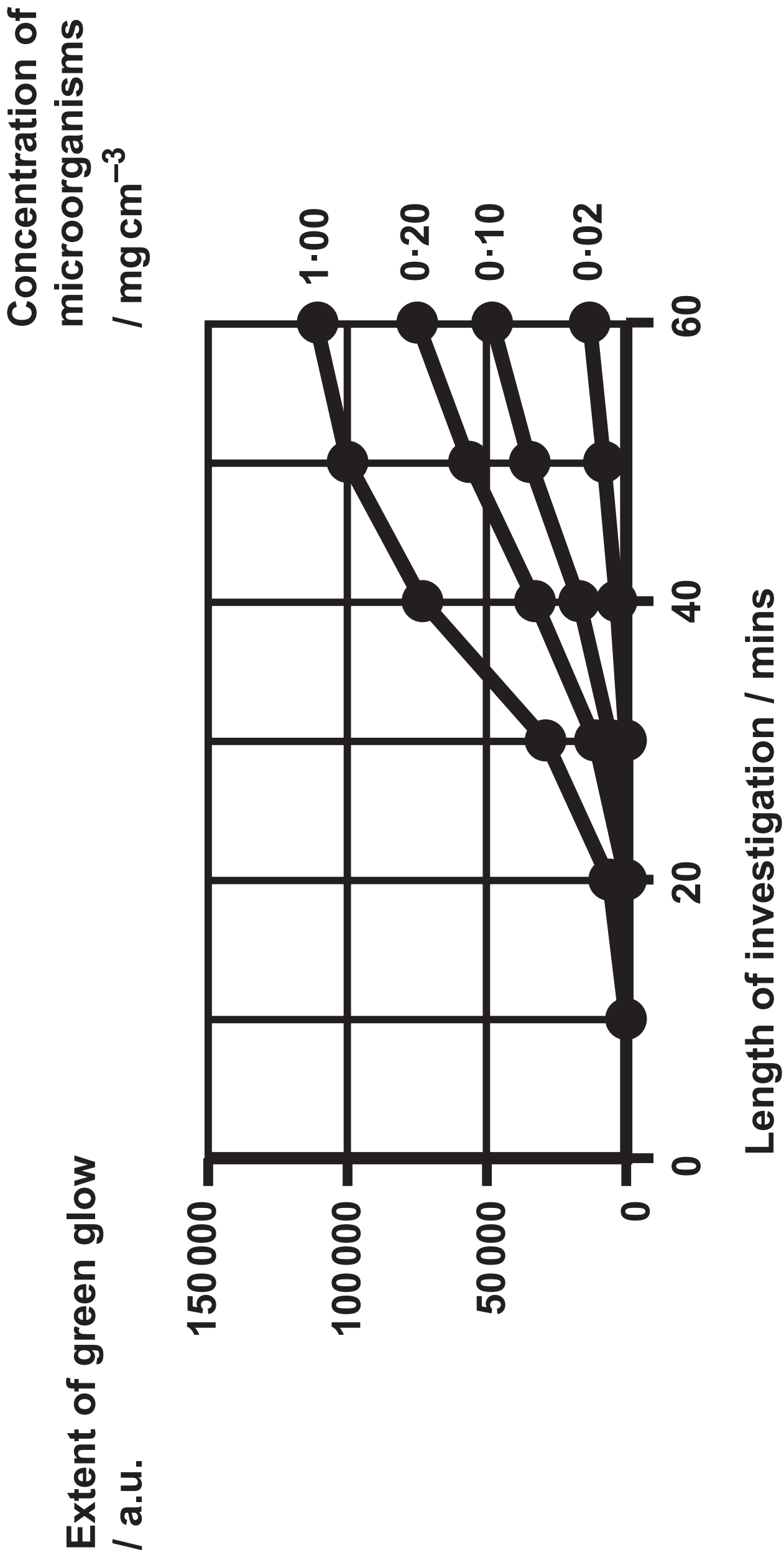
Question 7(a)



Question 7(a)

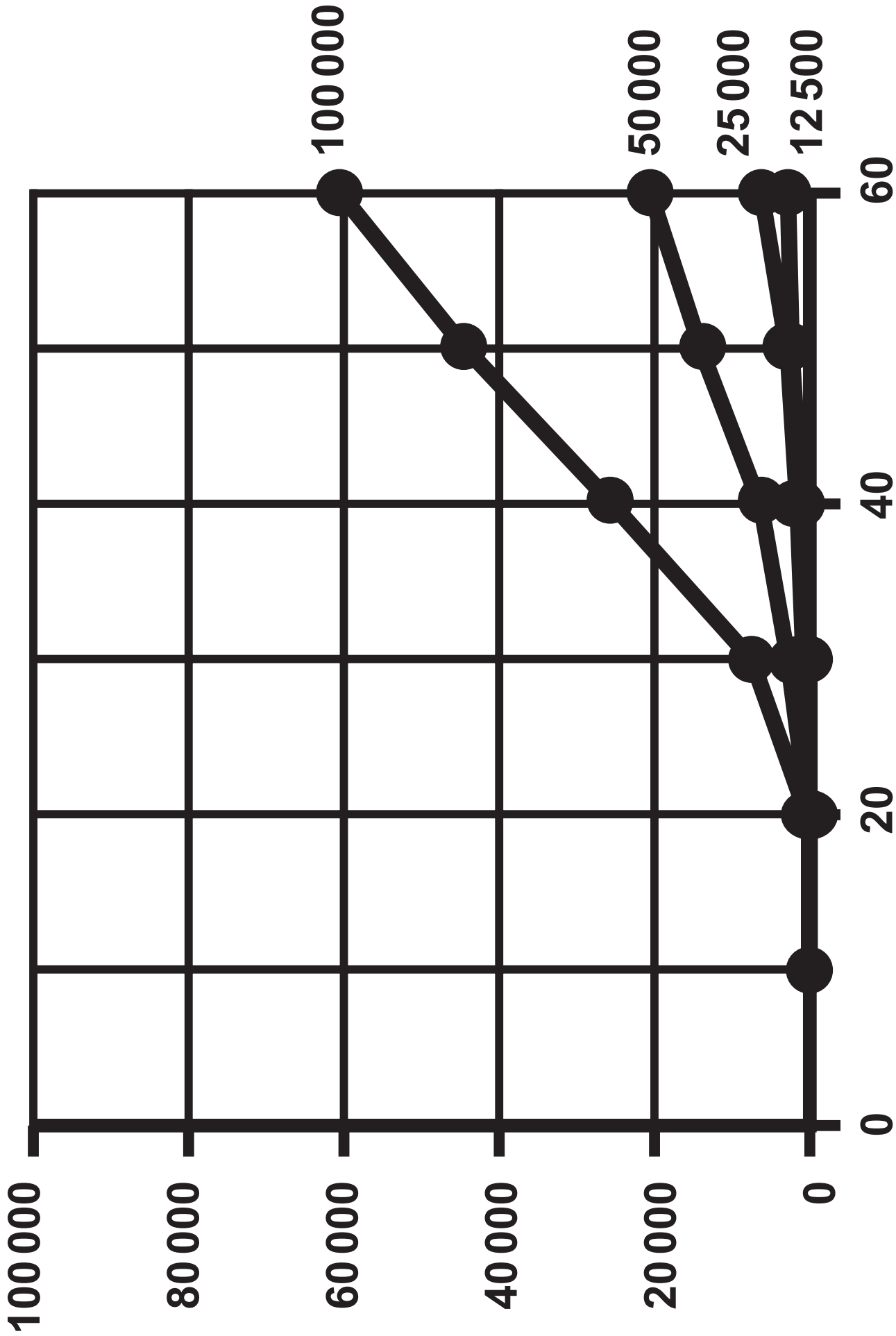
- STEP 1** **antibody binds to the cell surface of the macrophage**
- STEP 2** **fibrous proteins in the cytoplasm, close to the antibody binding site, break down to form soluble components**
- STEP 3** **water flows into the part of the cell where the soluble components are located**
- STEP 4** **pseudopodia start to form around the bacteria**

Question 7(b)



Question 7(b)

Extent of green glow / a.u. Number of macrophages per culture



Length of investigation / mins

Question 7(b)

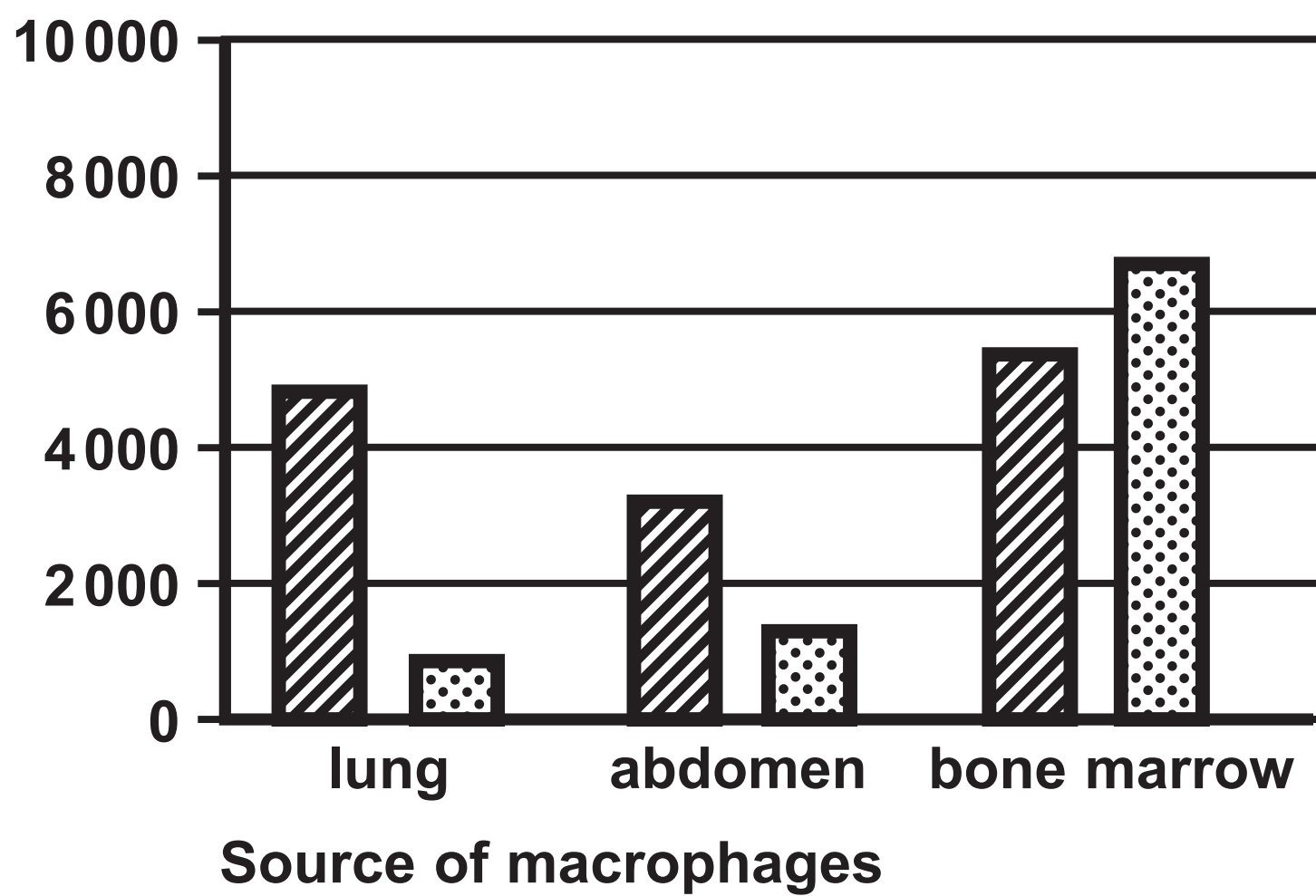
KEY



bacteria A

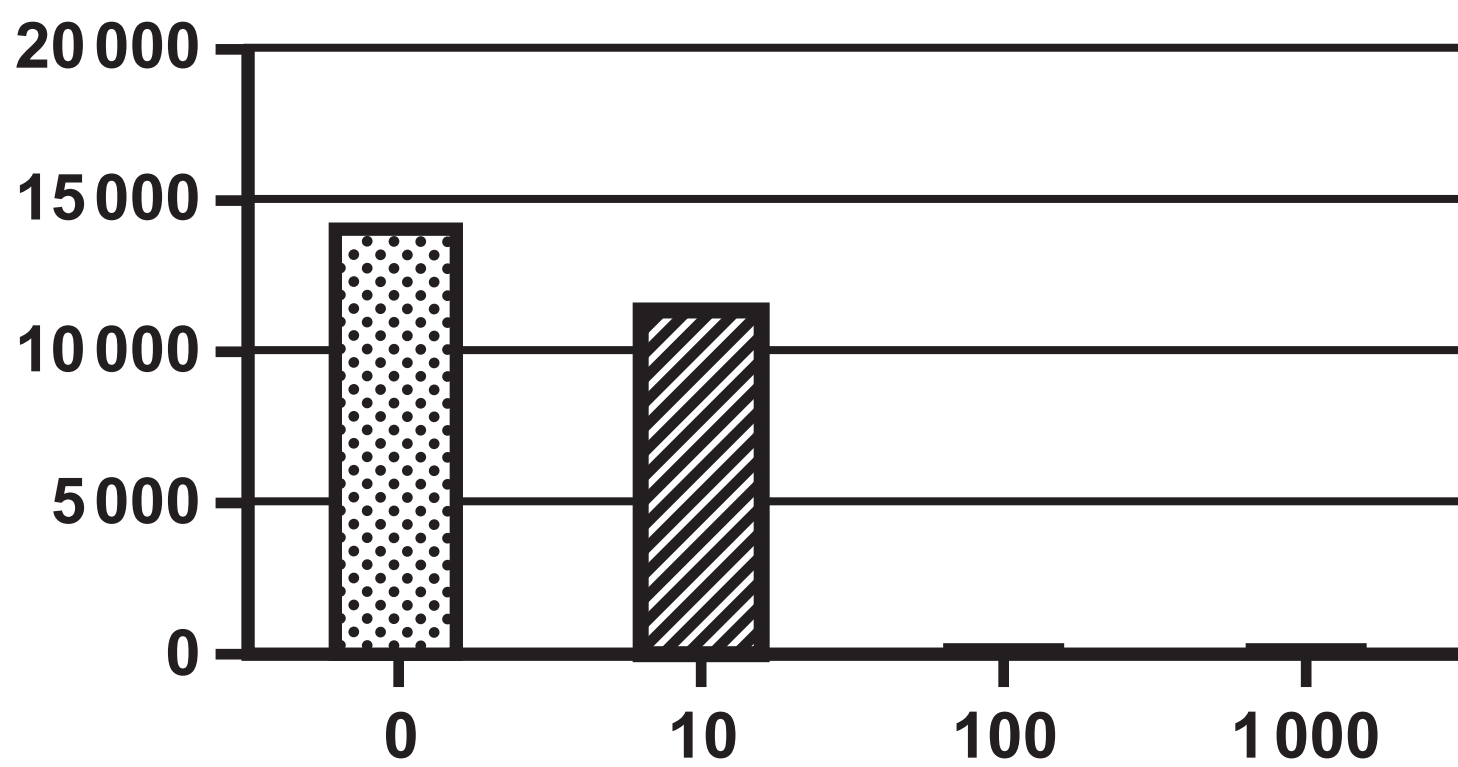


bacteria B

Extent of green
glow / a.u.

Question 7(b)

Extent of green
glow / a.u.



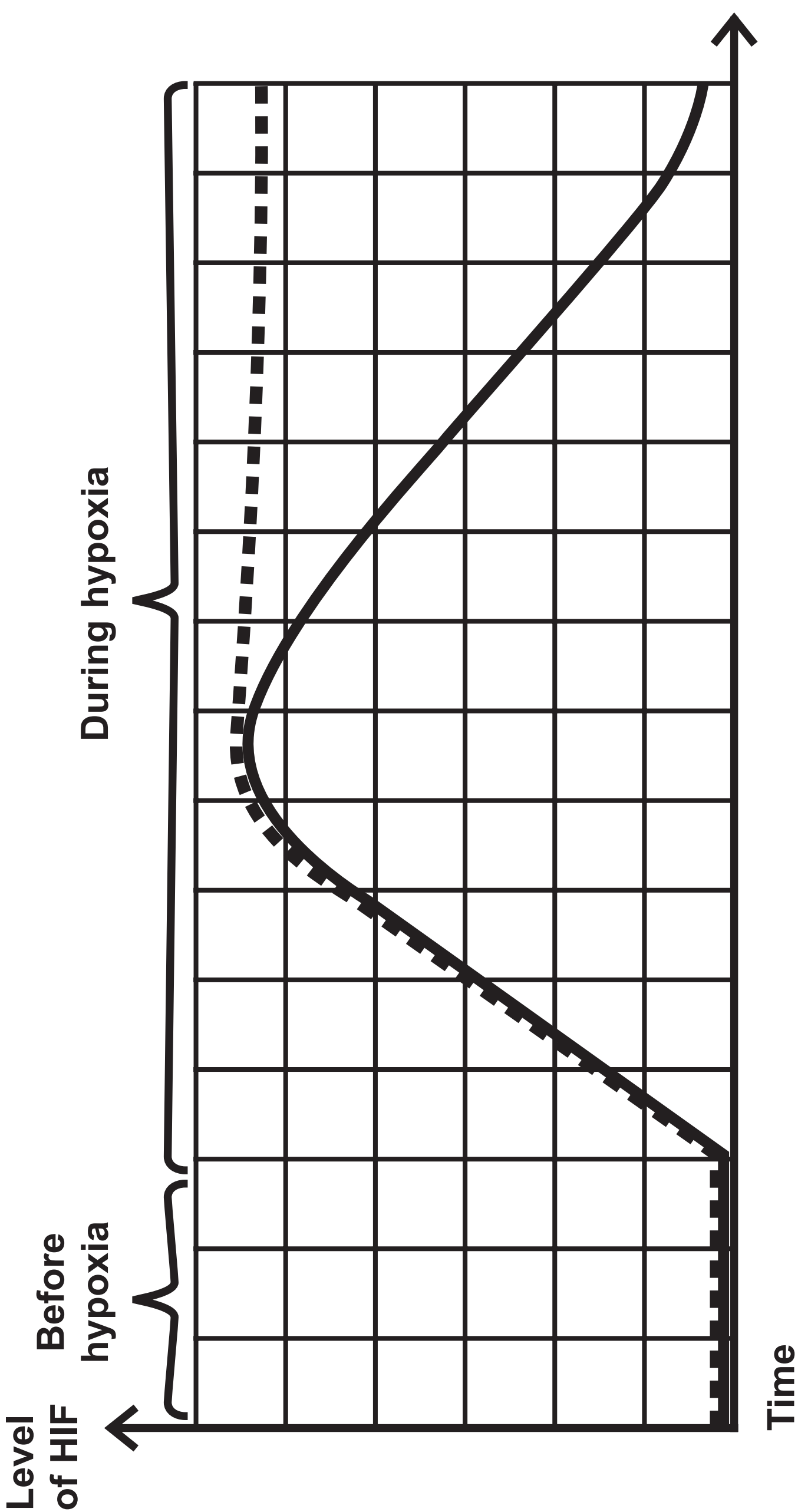
Concentration of ATP synthase inhibitor / a.u.

Question 8(a)

Tissue	Partial pressure of oxygen / kPa
Pulmonary arterial blood	5.3
Other arterial blood	13.3

Question 8(b)(iii)

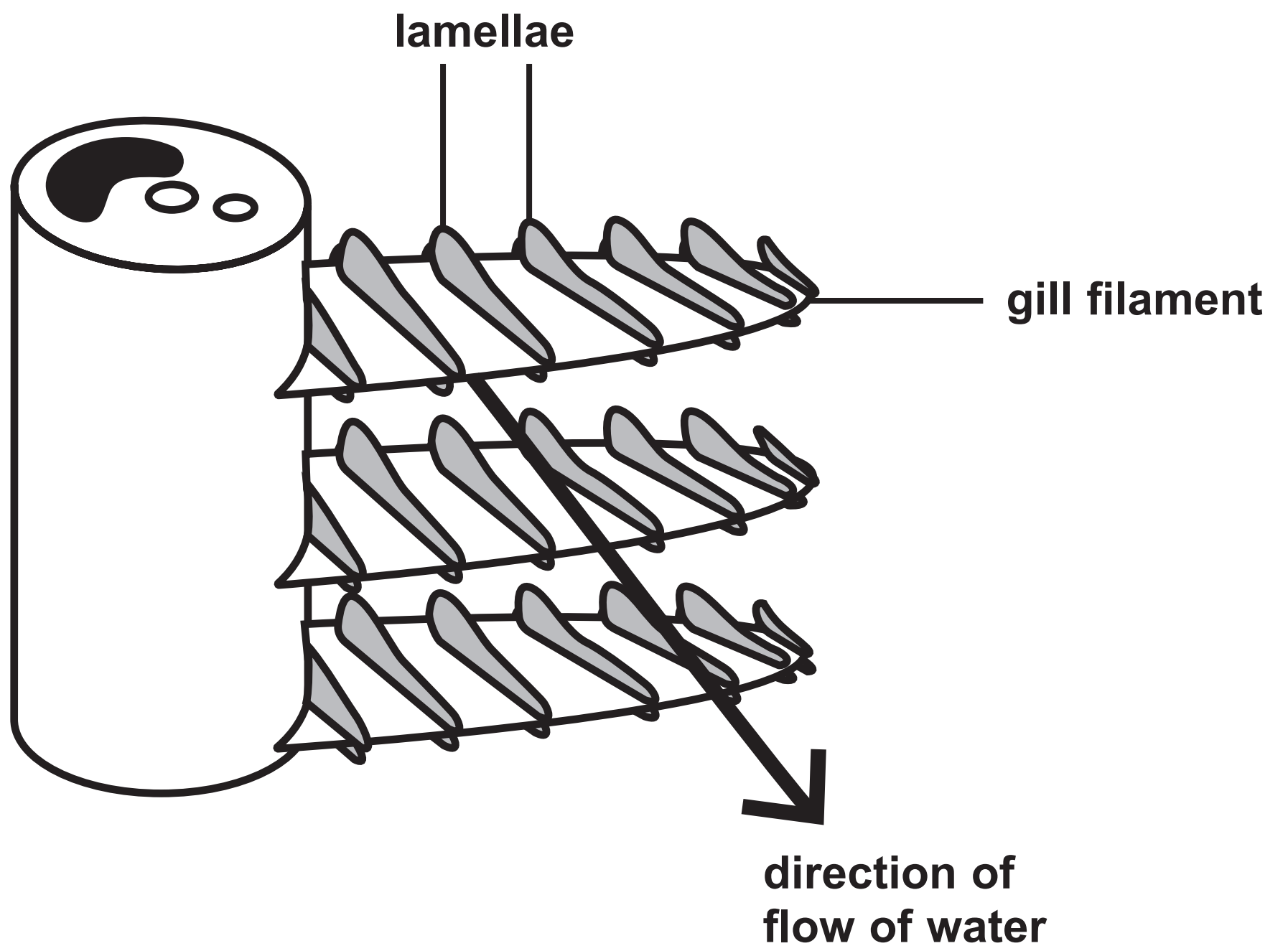
— HIF-1
- - - HIF-2



Question 9(b)

Percentage humidity (%)	Water loss from insects / mg hr^{-1}	
	Insects in air	Insects in air high in carbon dioxide
0	0·10	0·90
20	0·13	0·68
40	0·15	0·50
60	0·13	0·35
80	0·07	0·07

Question 9(c)



Question 9(c)

Species of fish	Mass of fish / g	Total number of gill filaments	Number of lamellae on each side of filament per mm	Surface area of gills / cm ² per g of fish	Diffusion distance between water and blood / μm
Active species					
Trachurus	26	1665	39	7·8	2·2
Lucioperca	70	1811	15	18·0	no data
Salmo	394	1606	19	2·0	6·4
Katsuwonus	3258	6066	32	13·5	0·6
Thunnus	26600	6480	24	8·9	no data
Inactive species					
Callionymus	39	478	16	2·1	no data
Ictalurus	239	no data	10	1·2	no data
Opsanus	251	660	11	1·9	5·0
Tinca	268	1764	22	1·8	2·5

Question 4(b)

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Question 7(a)

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