

Biology B  
Advanced  
PAPER 3: General and Practical Principles in Biology

Wednesday 21 June 2023 – Morning

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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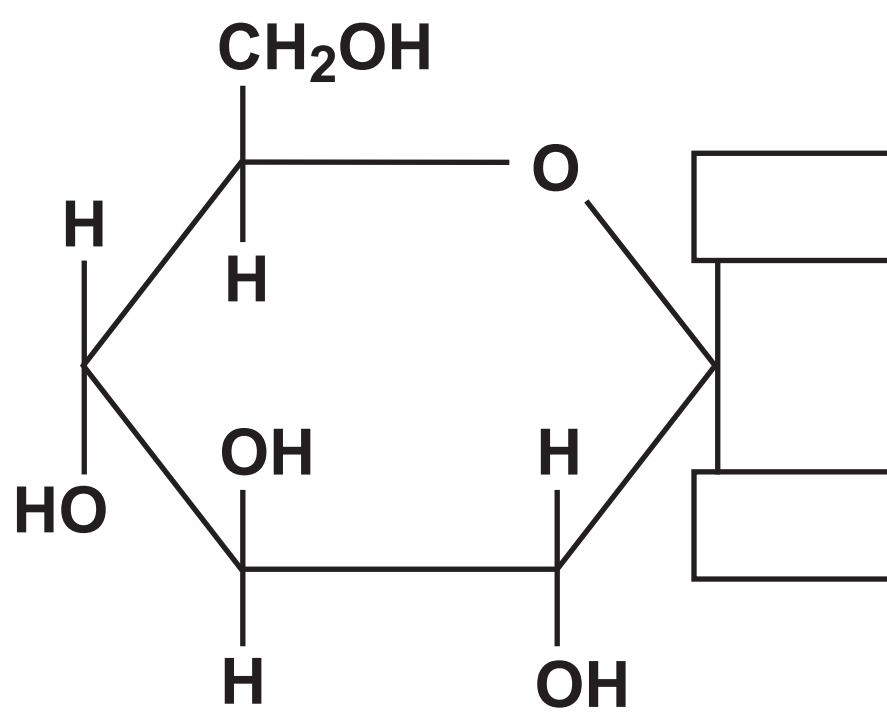
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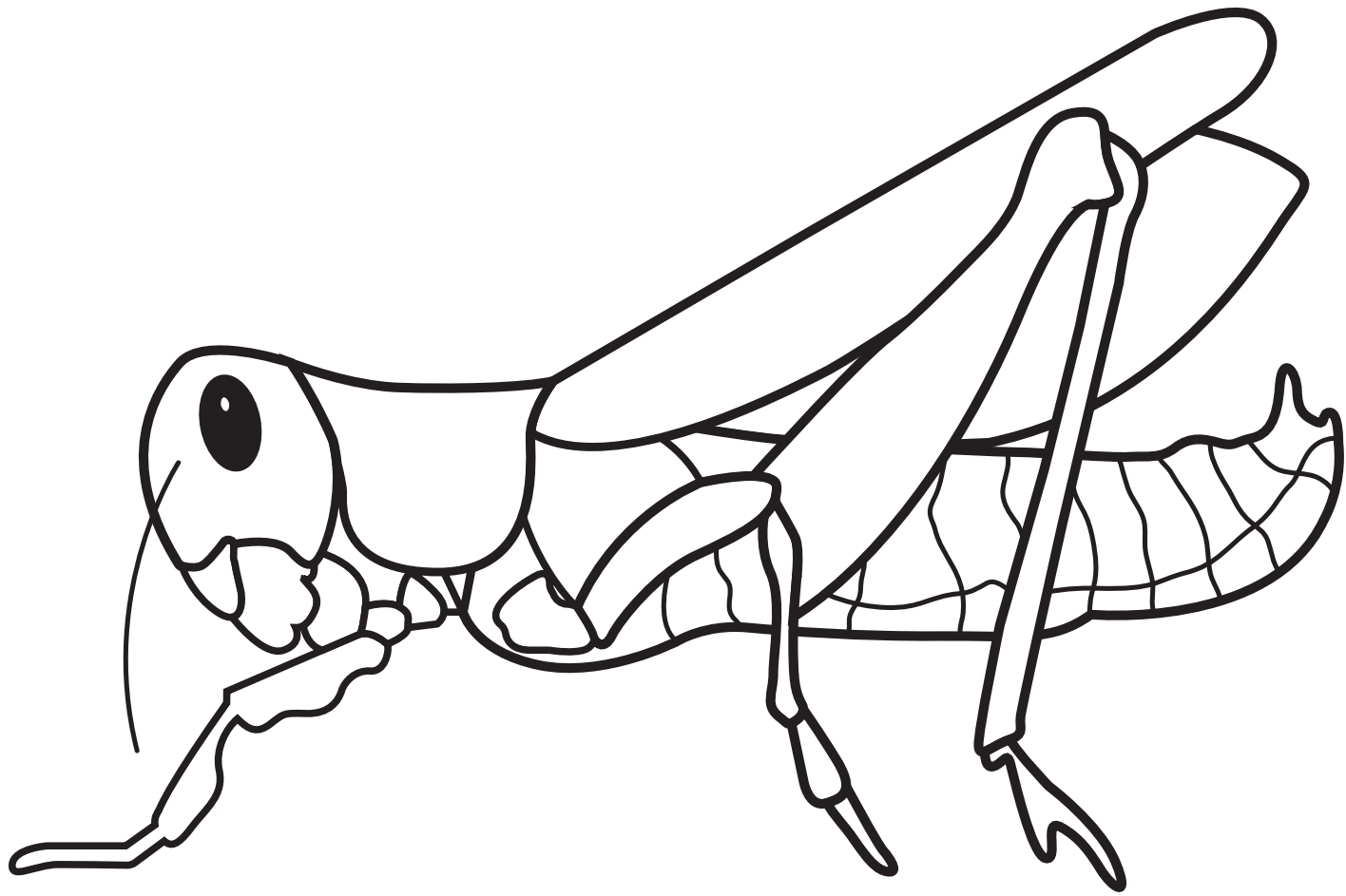
### **Spare Copies**

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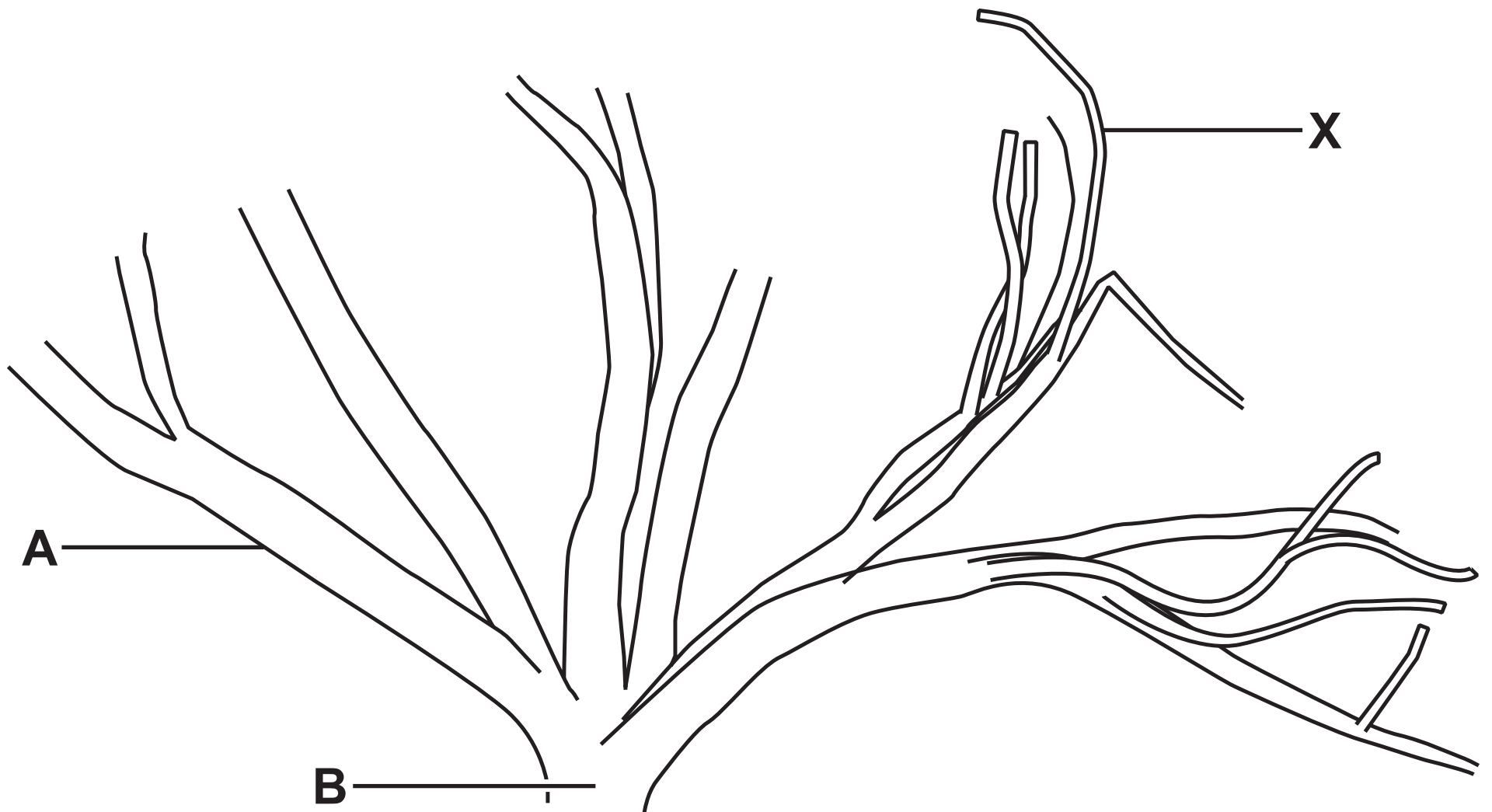
## Question 1(a)



Question 2(a)(i)



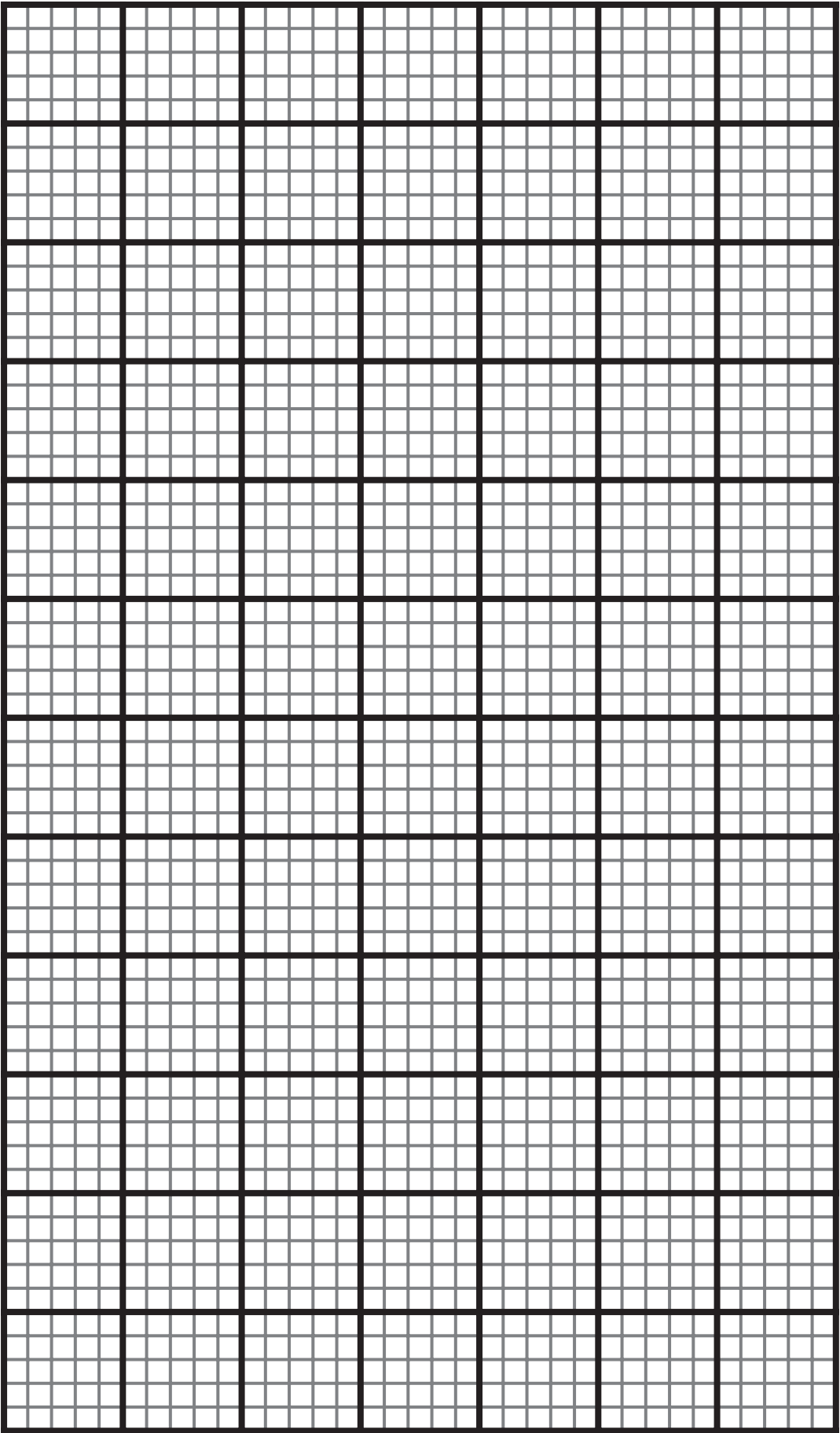
## Question 2(b)(i)



Question 6(b)

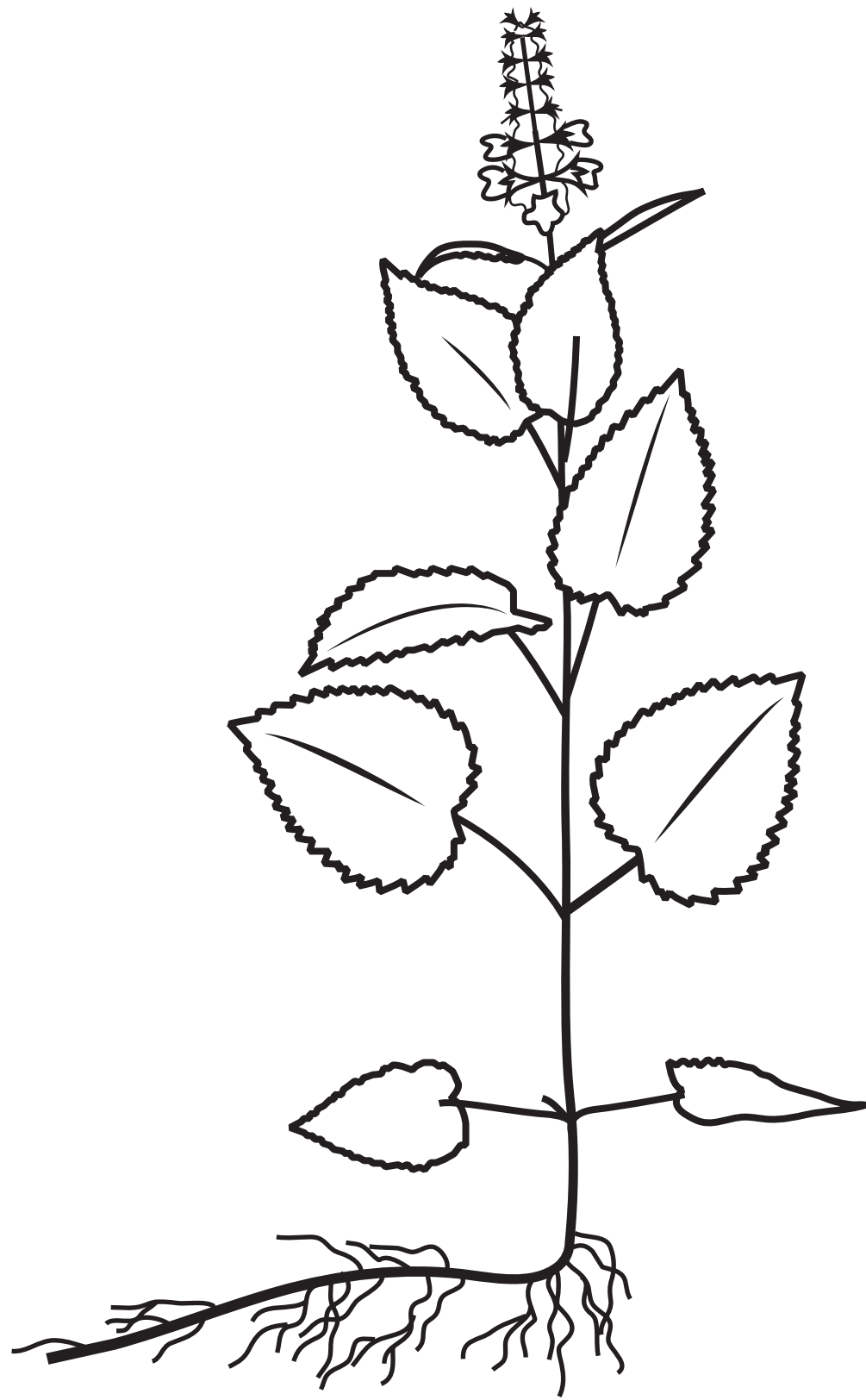
Concentration of sucrose solution / mol dm <sup>-3</sup>	0·0	0·1	0·2	0·3	0·4	0·5
Percentage change in mass of potato disc	+14·2	+1·9	-9·8	-22·7	-31·9	-37·1

Question 6(b)(i)

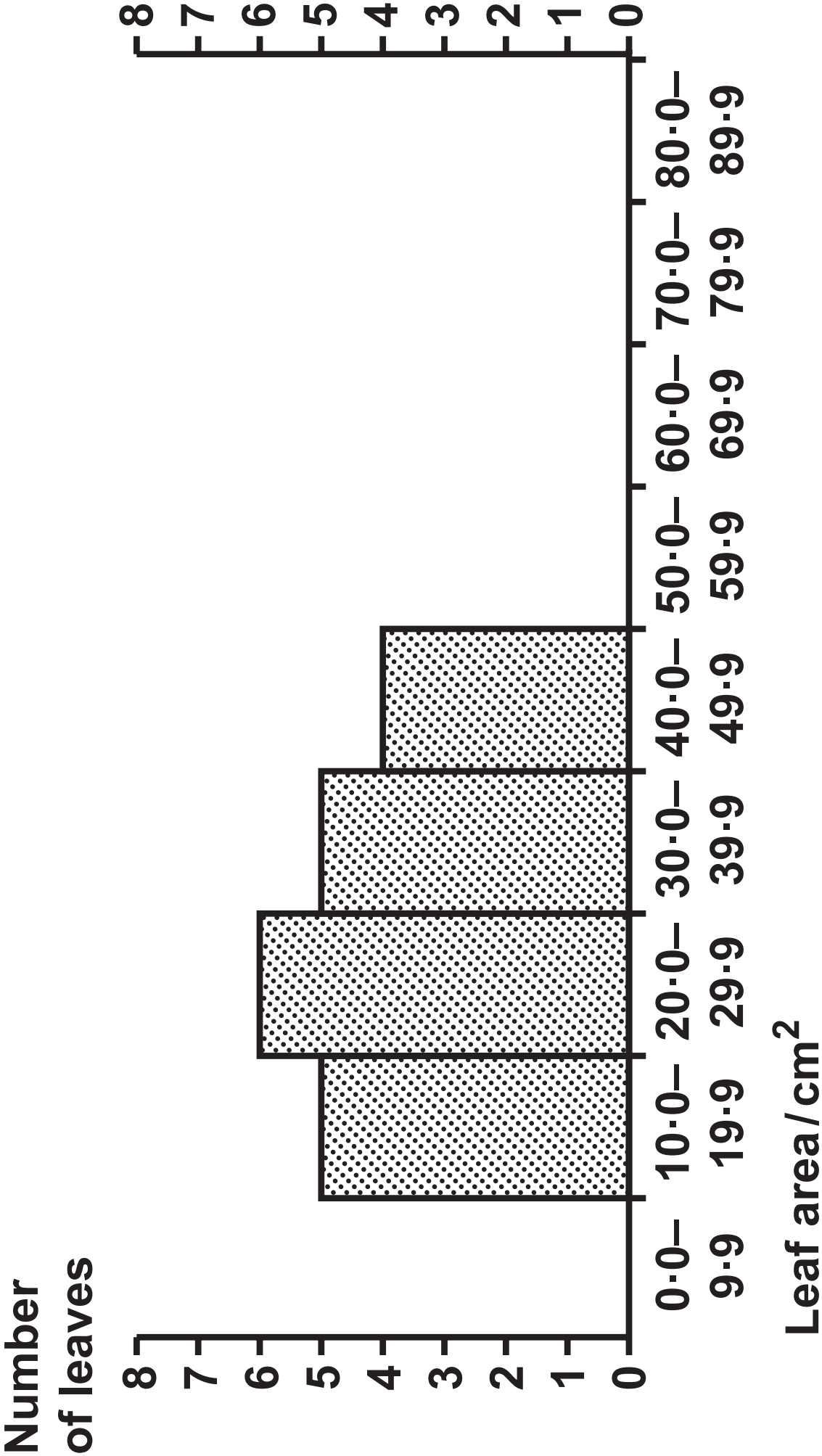




## Question 7

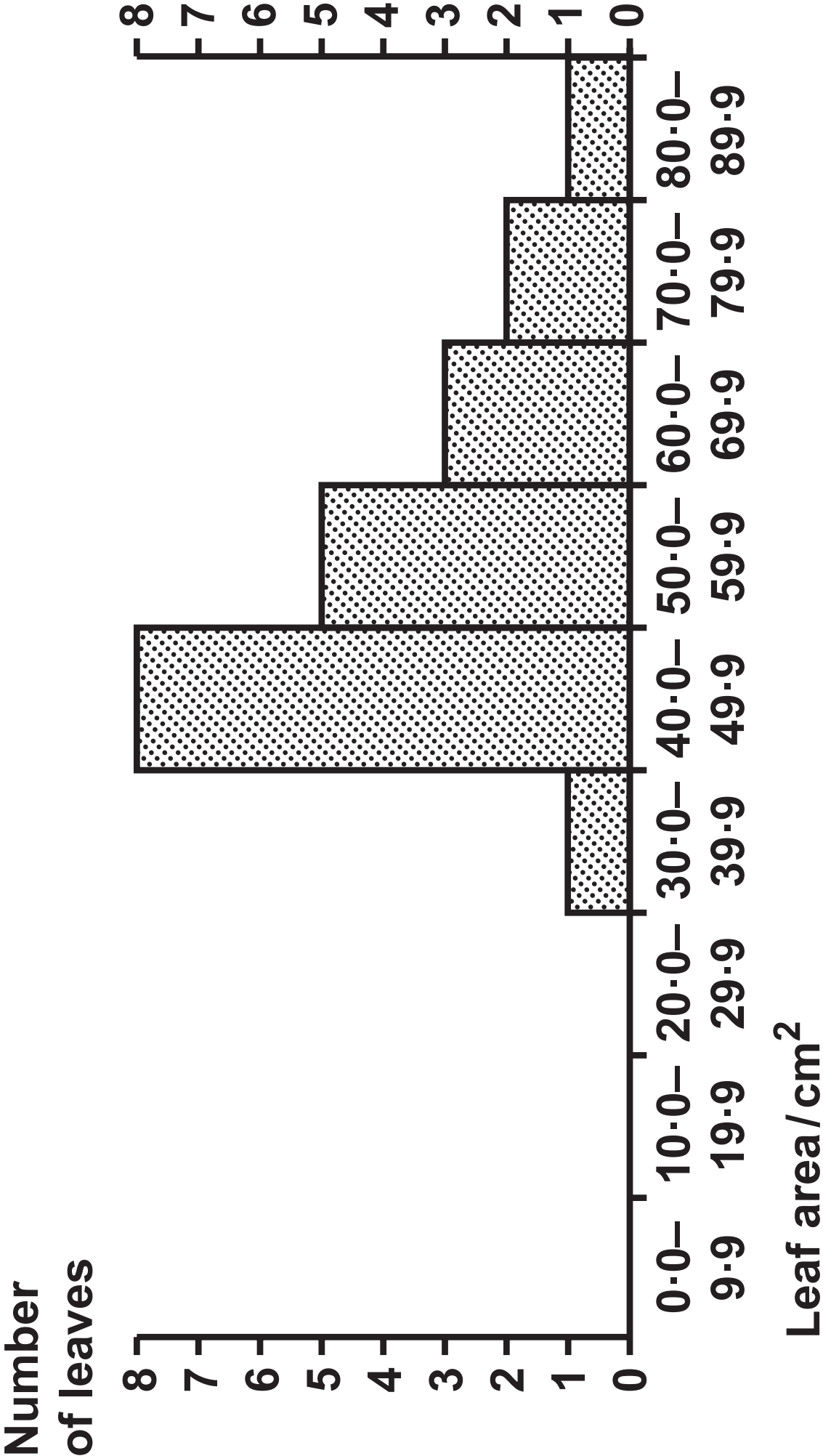


Plants growing in full sun



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Plants growing in shady conditions

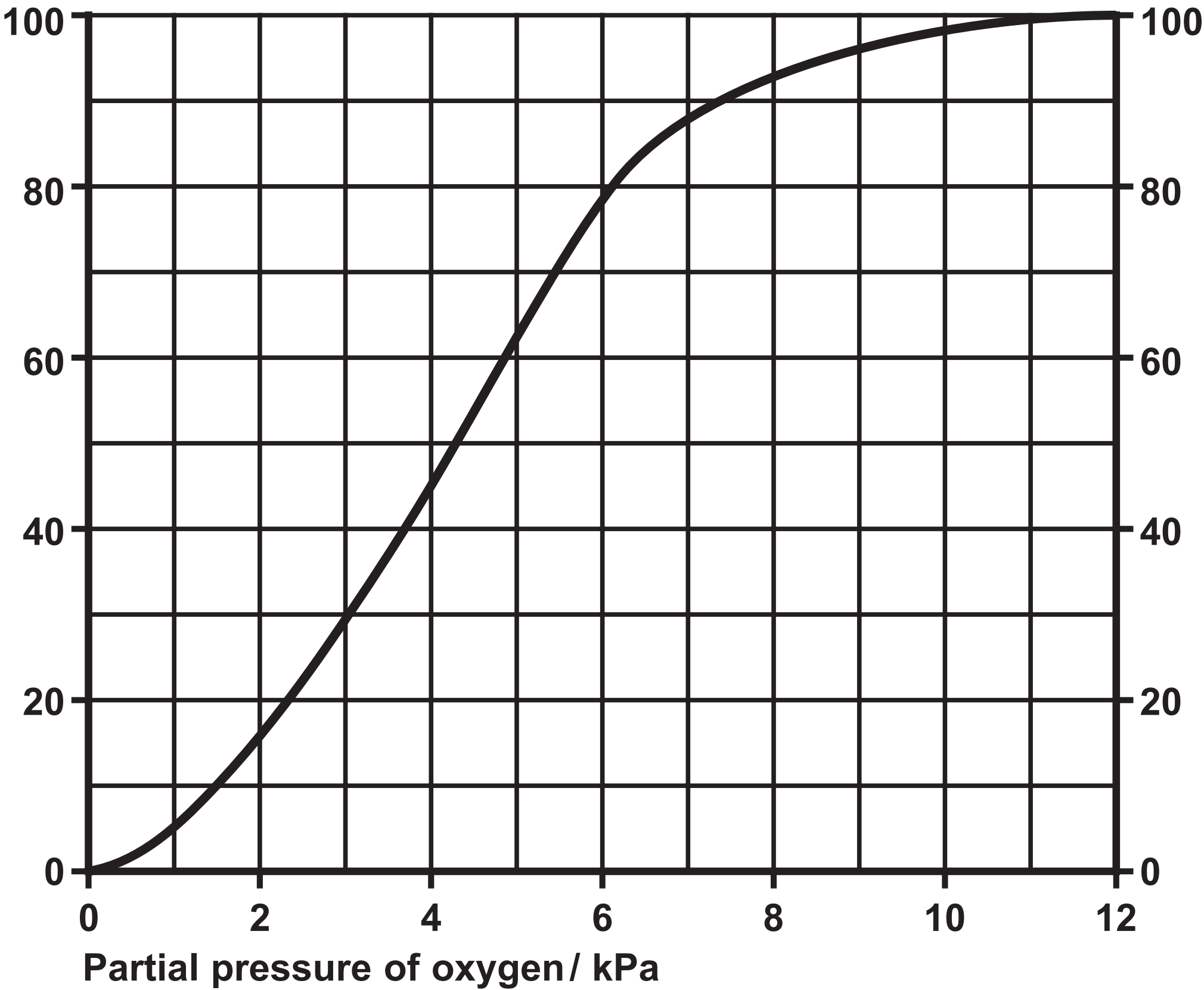


Question 7(b)(iii)

Degrees of freedom	p = 0.10	p = 0.05	p = 0.01
20	1.73	2.09	2.85
21	1.72	2.08	2.83
22	1.72	2.07	2.82
23	1.71	2.07	2.81
24	1.71	2.06	2.80
25	1.71	2.06	2.79
26	1.71	2.06	2.78
27	1.70	2.05	2.77
28	1.70	2.05	2.76
29	1.70	2.05	2.76
30	1.70	2.04	2.75
31	1.70	2.04	2.74
32	1.69	2.04	2.74
33	1.69	2.03	2.73
34	1.69	2.03	2.73
35	1.69	2.03	2.72
36	1.69	2.03	2.72
37	1.69	2.03	2.72
38	1.69	2.02	2.71
39	1.69	2.02	2.71
40	1.68	2.02	2.70

Question 8(a)(ii)

Percentage saturation of haemoglobin  
with oxygen (%)

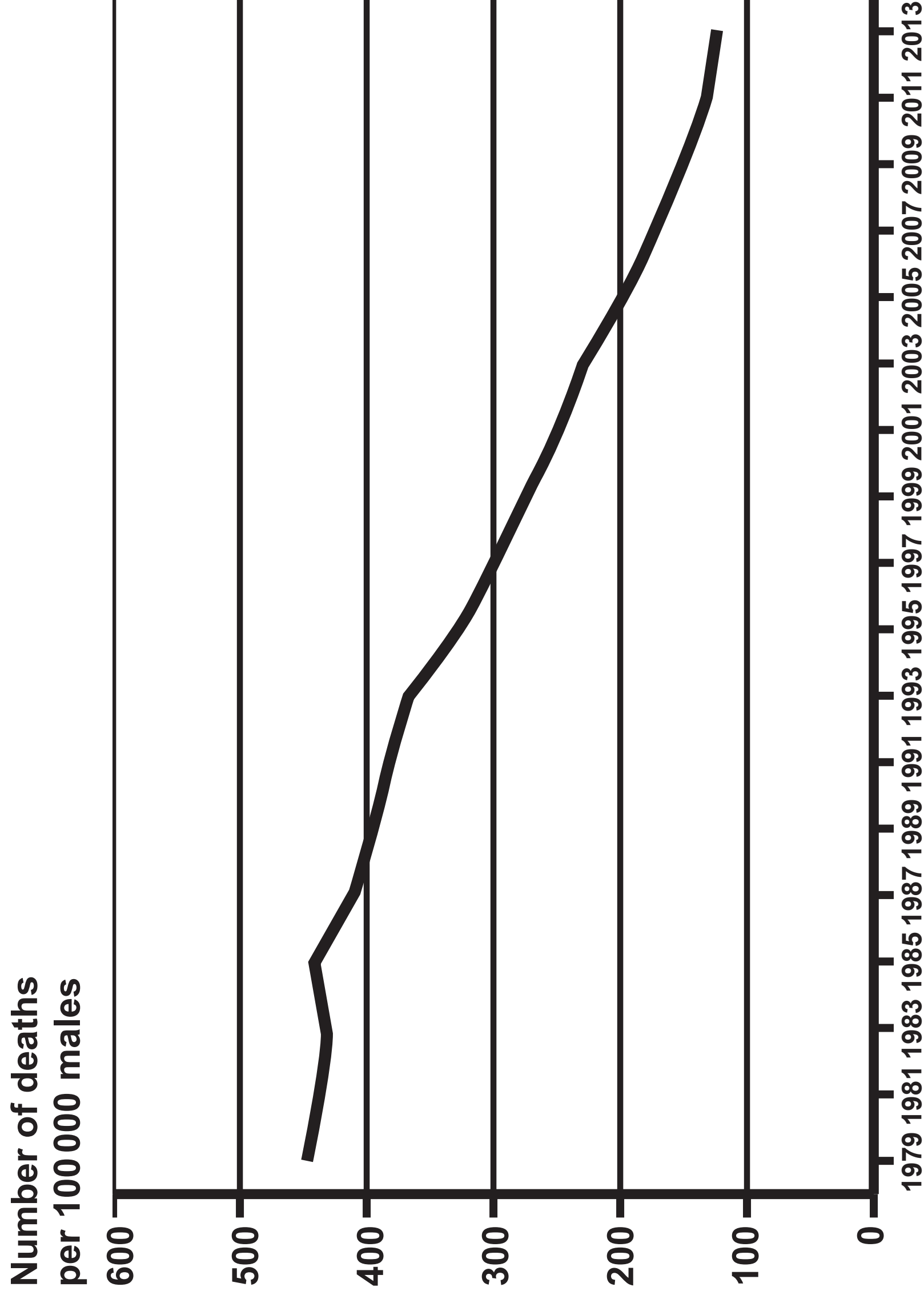


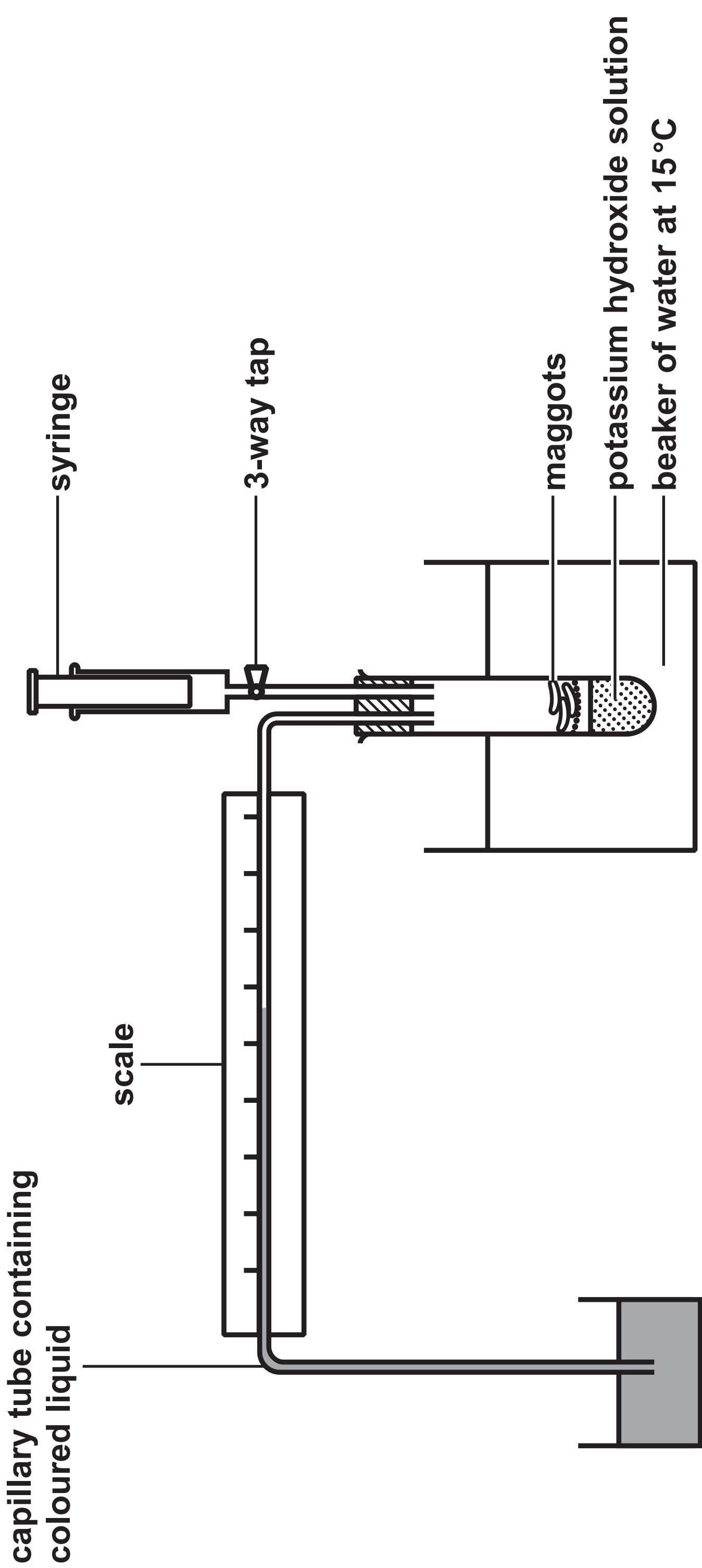
## Question 9(b)

Country or region	Number of deaths per 100 000 of population		Percentage change from 1990 to 2019 (%)
	1990	2019	
Albania	389	314	–19
Bulgaria	701	541	–23
France	196	91	–53
Montenegro	418	436	+4
Republic of Ireland	357	133	–63
UK	314	132	–58
Europe (all countries)	393	242	–38

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Turn over





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10 continued.

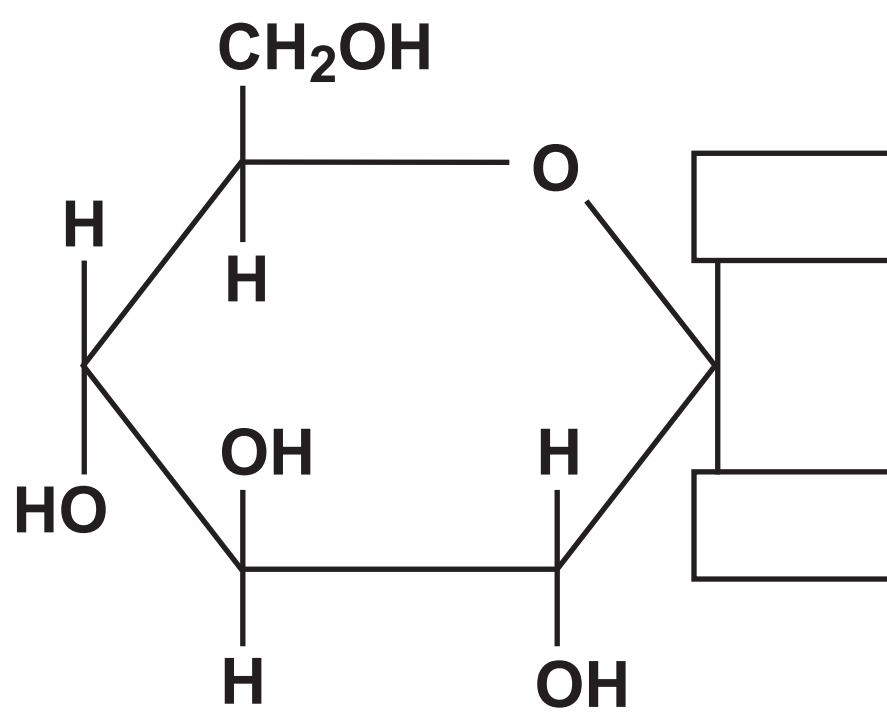
Group number	1	2	3	4	5
Rate of oxygen uptake /mm <sup>3</sup> min <sup>-1</sup> g <sup>-1</sup>	0·14	0·16	0·13	0·12	0·14

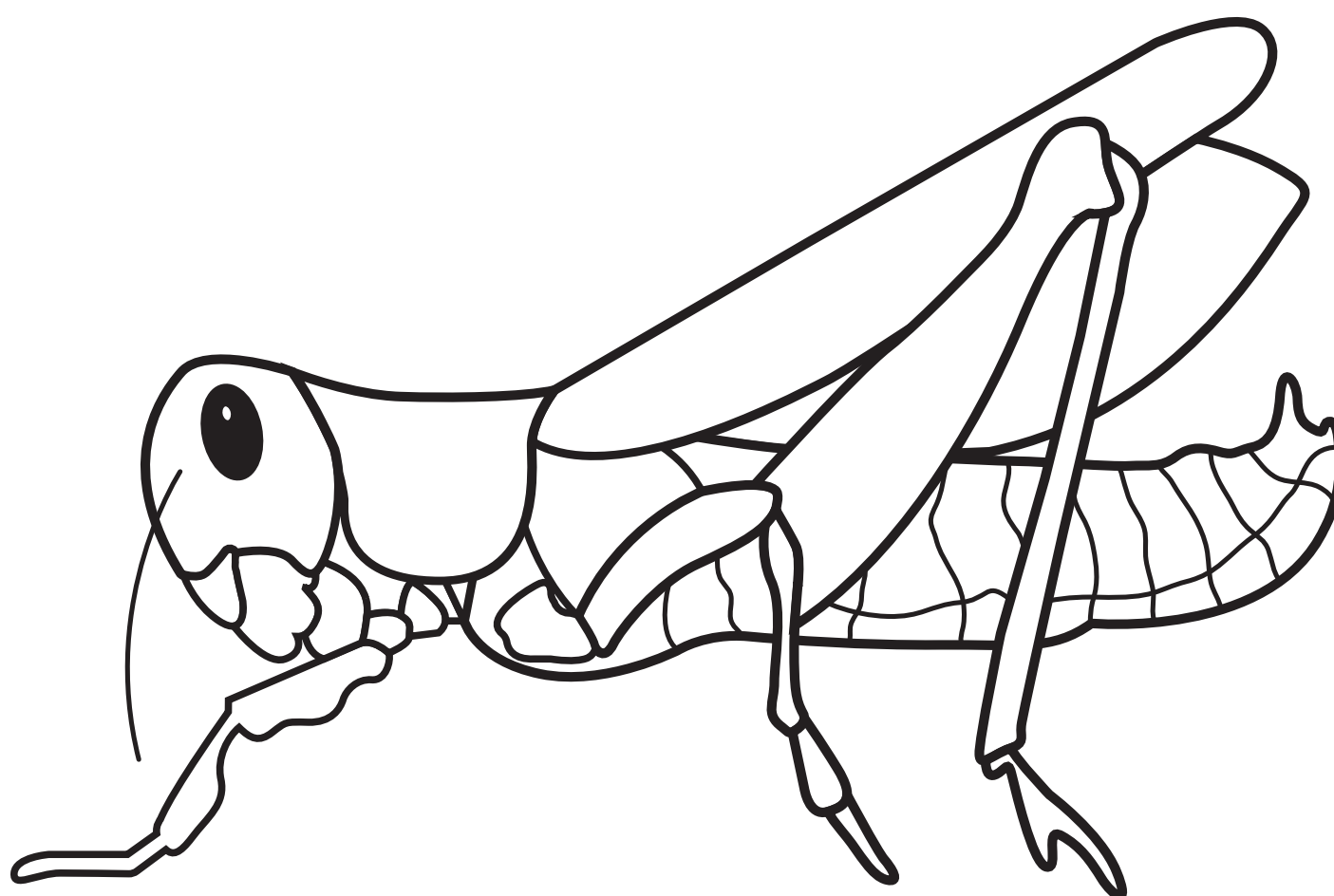
Question 11

Wild plant species	Total number of flowers recorded in 2020	Percentage change from 2019 (%)
Daisy	208 589	−40
White clover	101 117	+16
Selfheal	73 344	−11
Creeping buttercup	56 719	+48
Bird’s-foot trefoil	30 646	−32

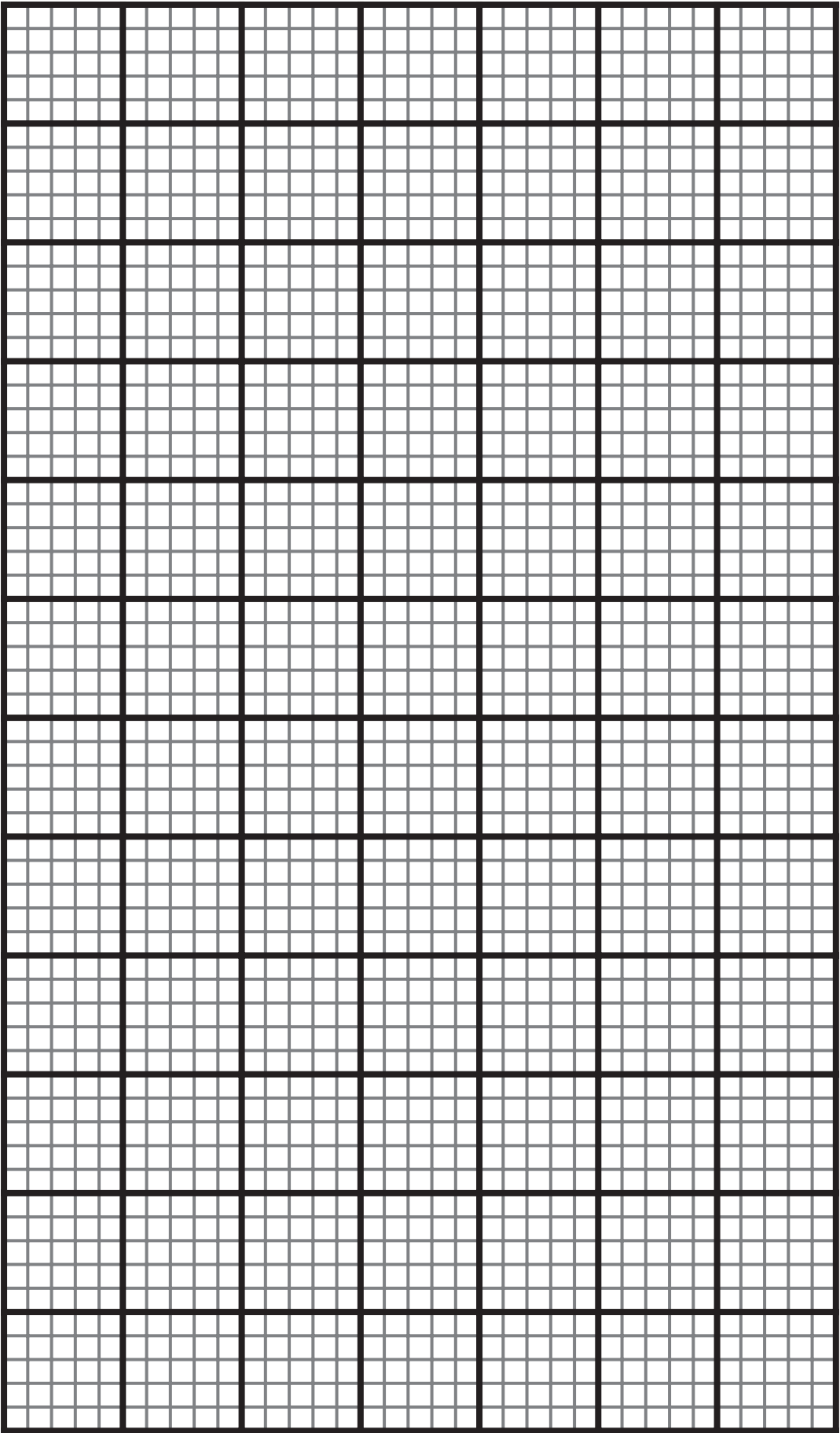
2019		2020	
Mean mass of nectar sugar /mg m <sup>-2</sup>	Mean number of bees supported per m <sup>2</sup>	Mean mass of nectar sugar /mg m <sup>-2</sup>	Mean number of bees supported per m <sup>2</sup>
41 912	3·8	38 885	

## Question 1(a)



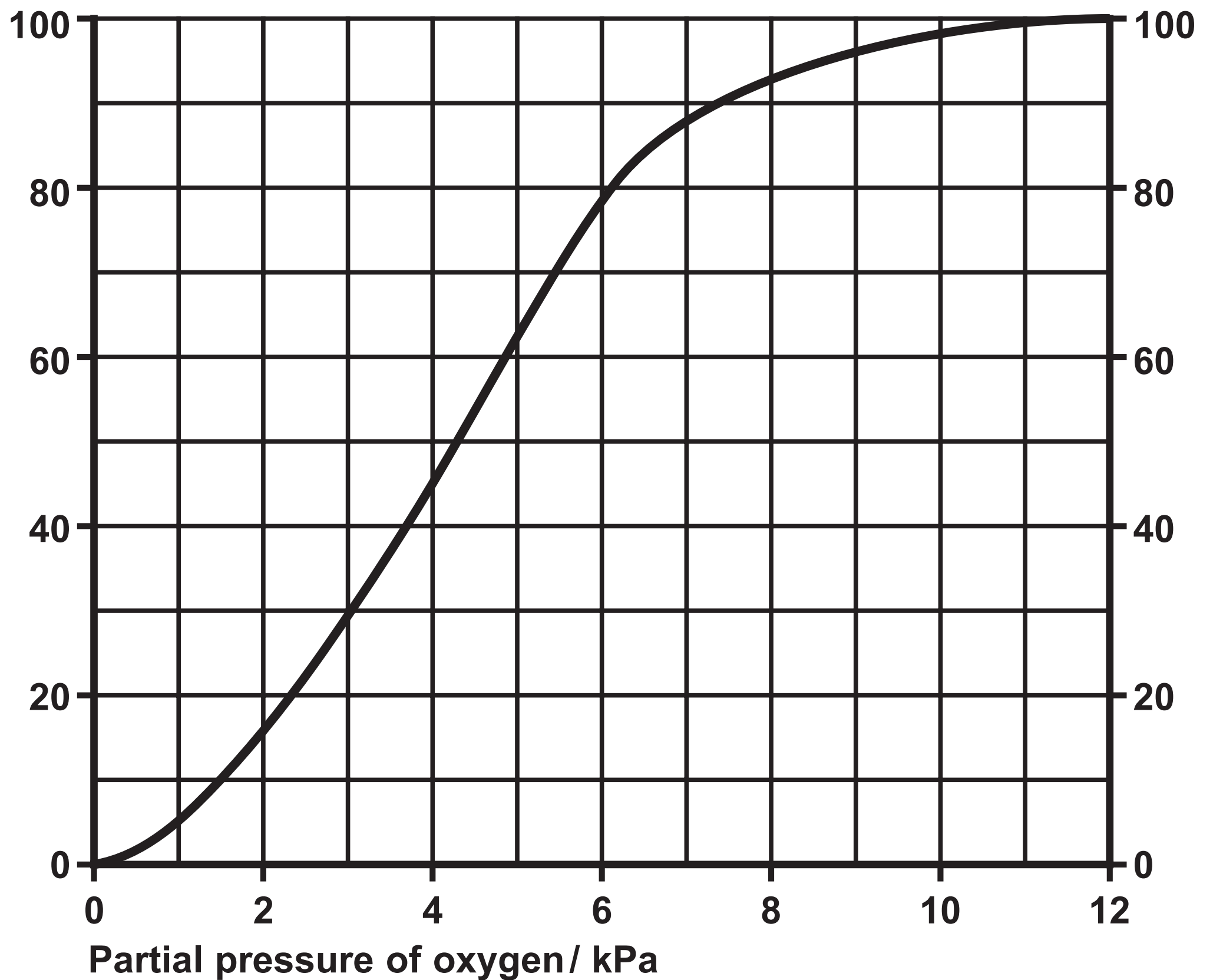
**Question 2(a)(i)**

Question 6(b)(i)



## Question 8(a)(ii)

Percentage saturation of haemoglobin  
with oxygen (%)



## **Source information**

### **Question 2**

**(Source adapted from: © blickwinkel/Alamy Stock Photo)**

### **Question 7**

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