

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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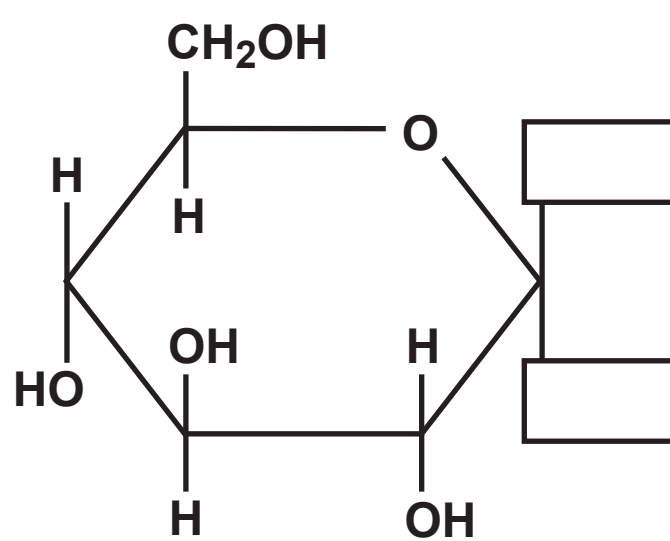
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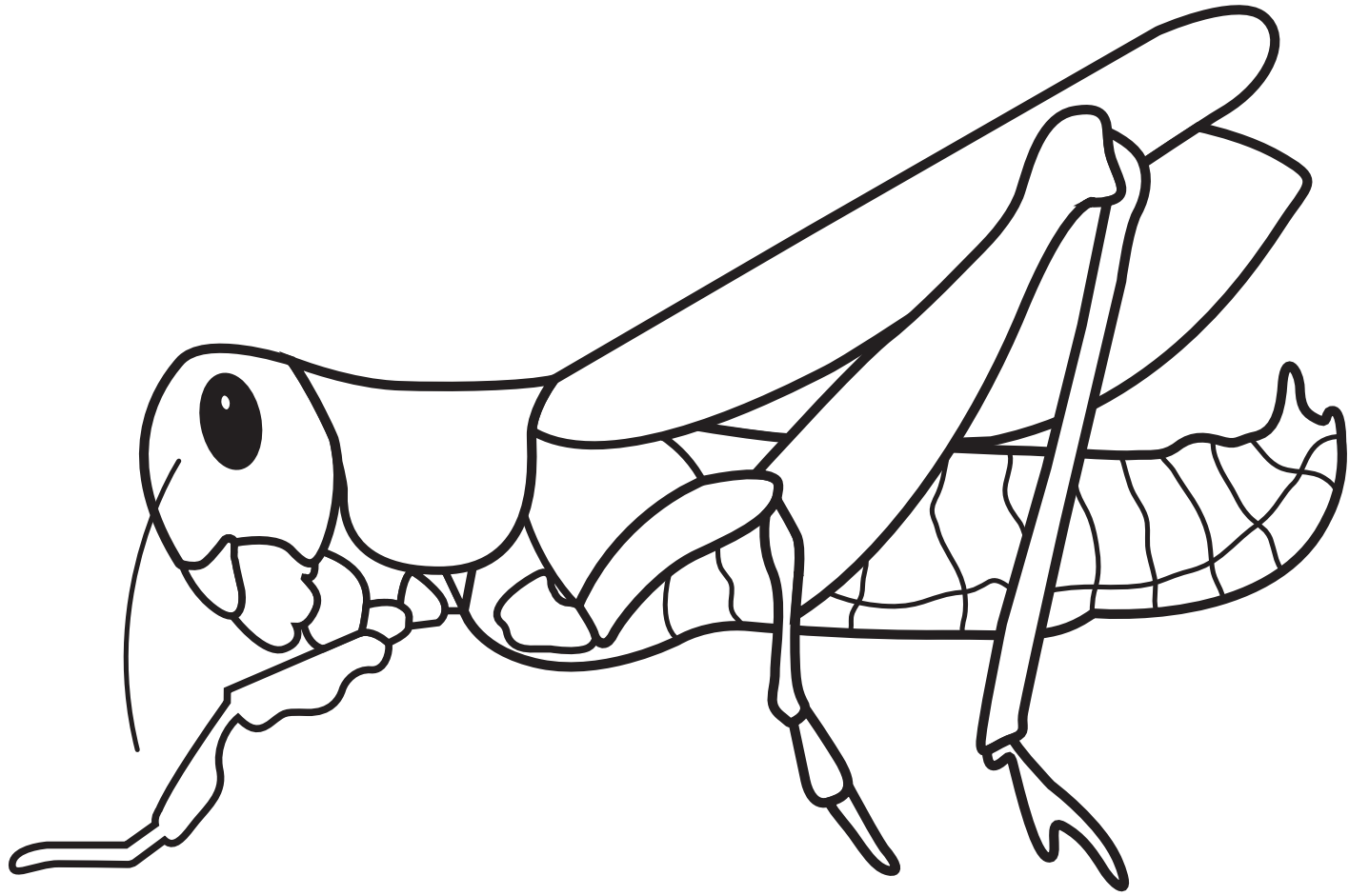
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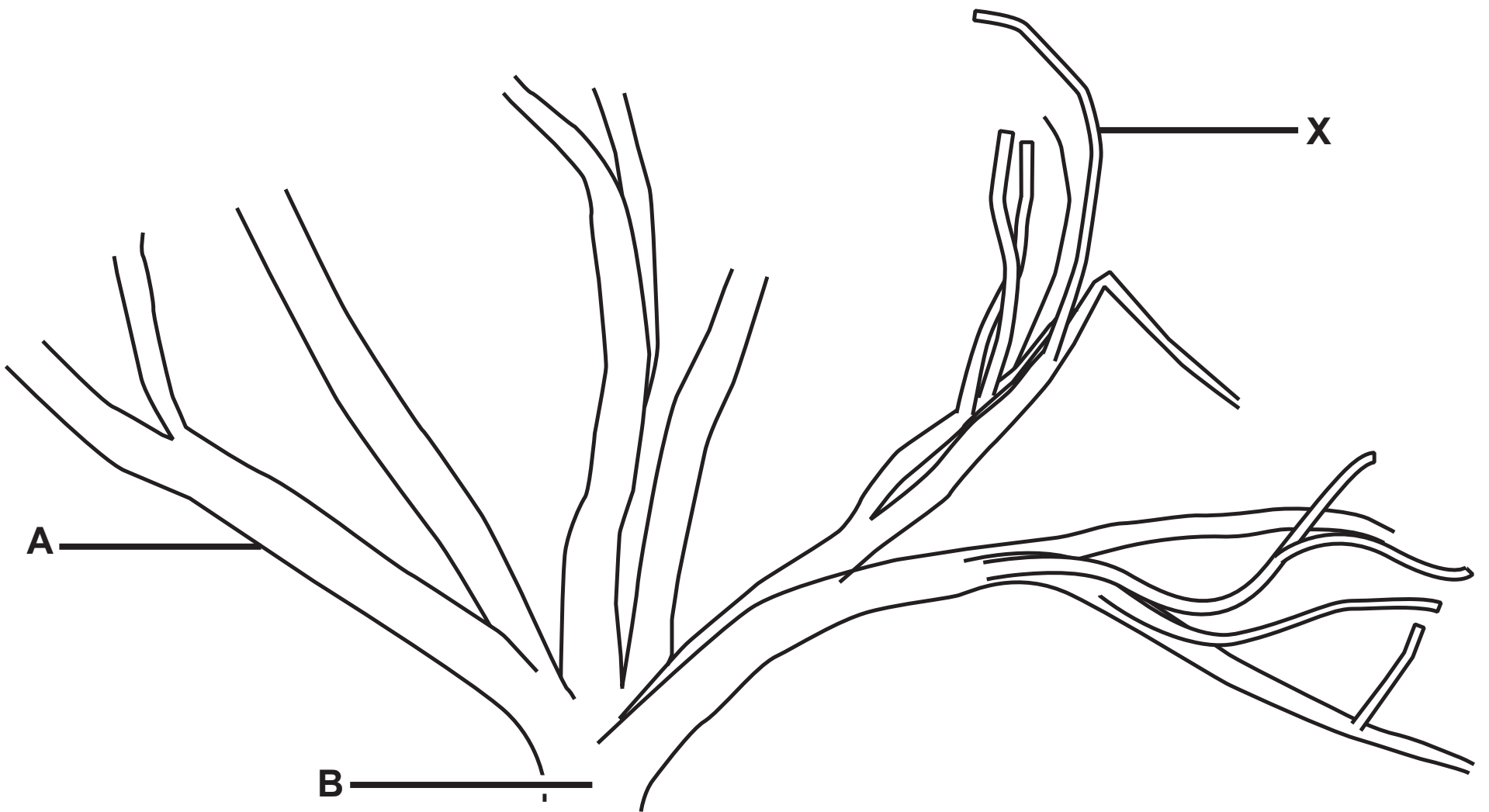
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Question 1(a)



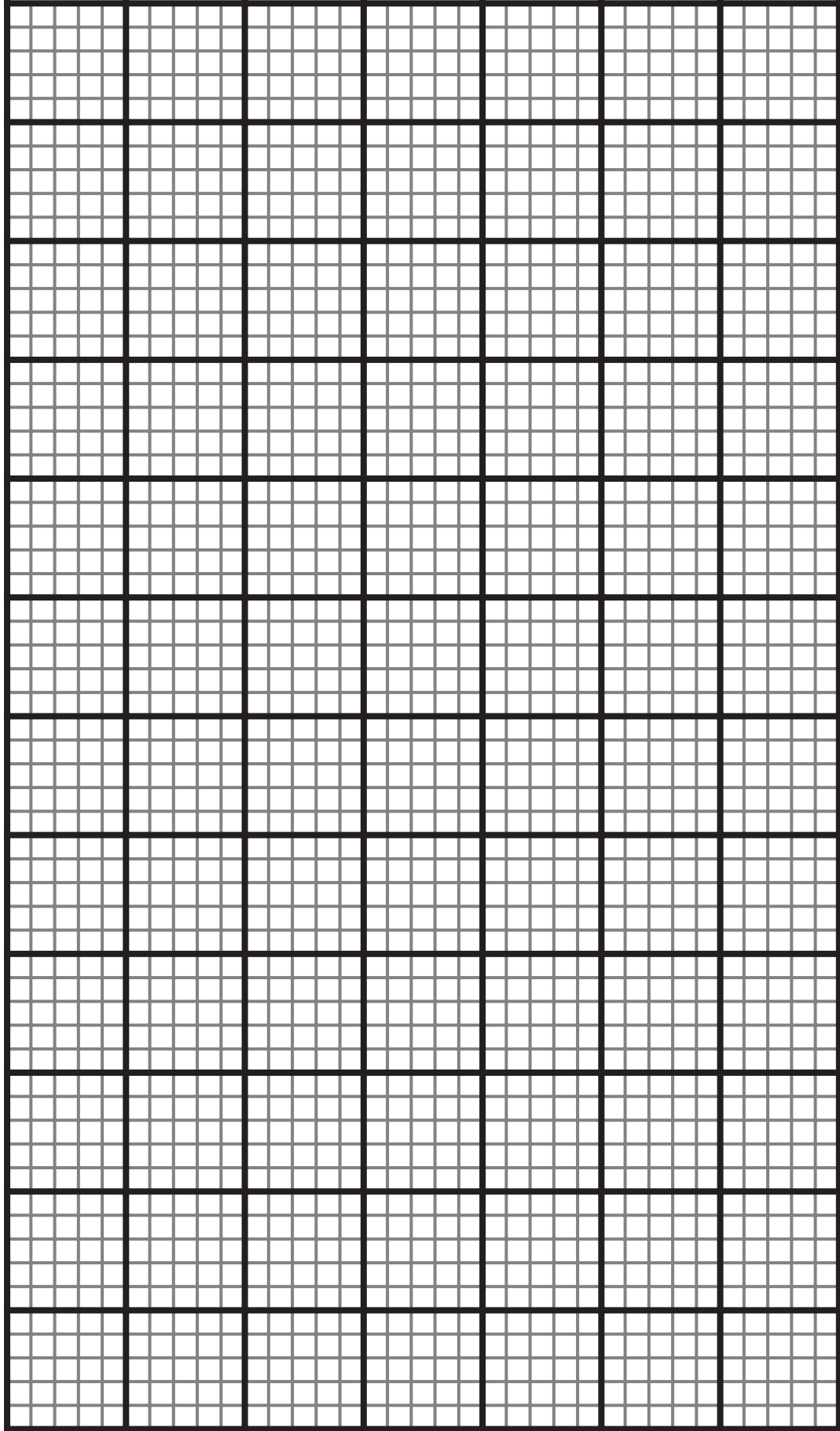
Question 2(a)(i)

Question 2(b)

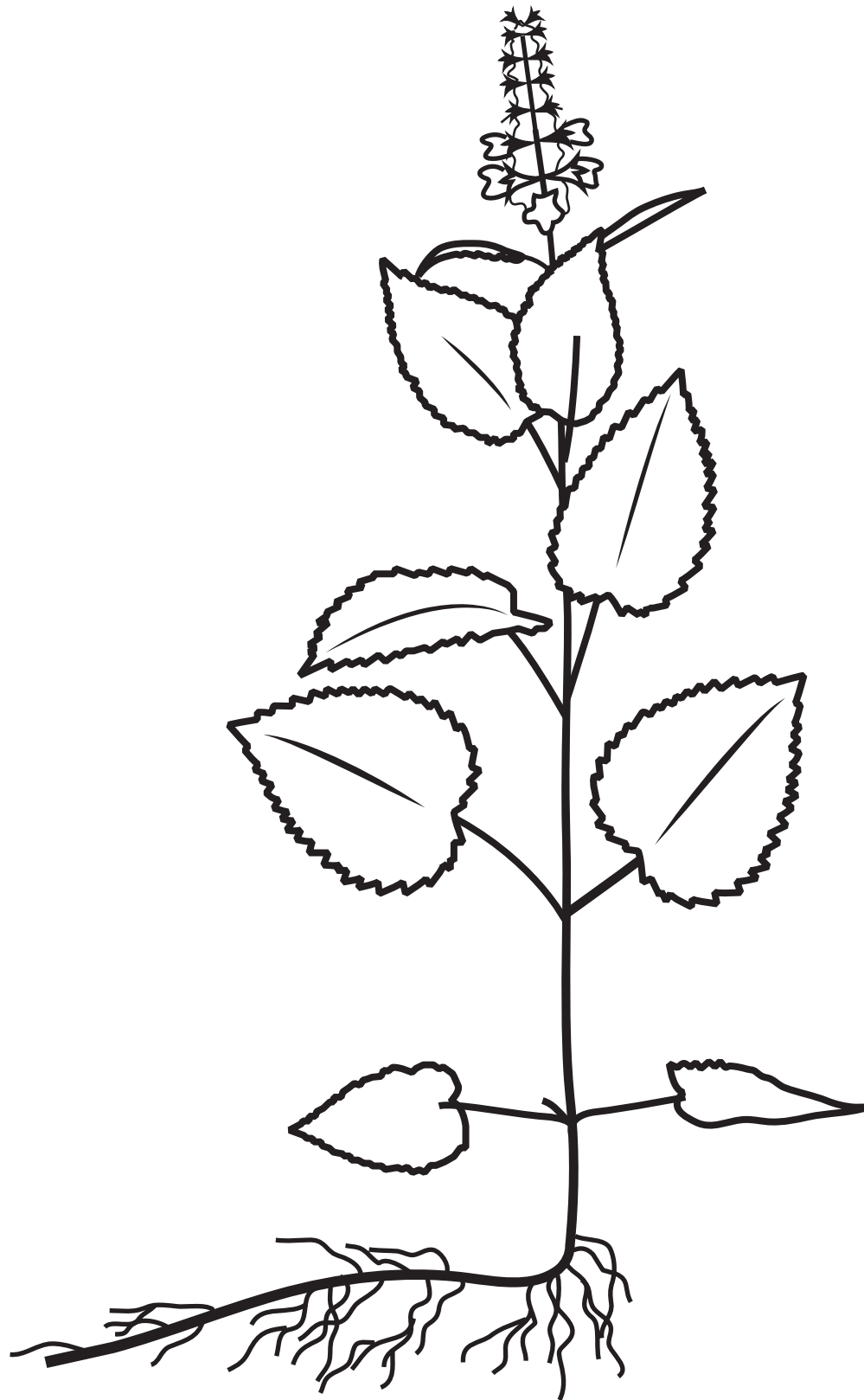


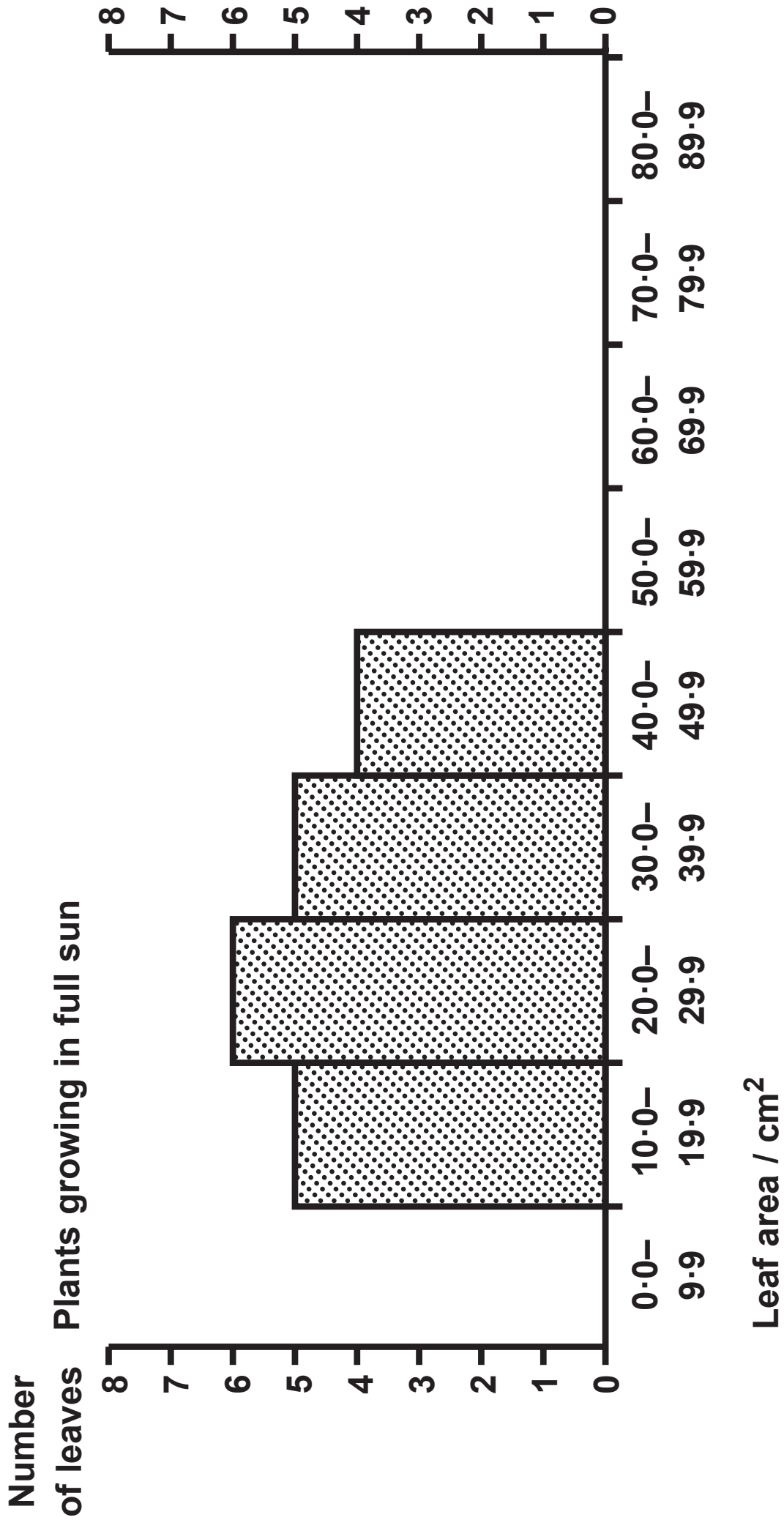
Question 6(b)

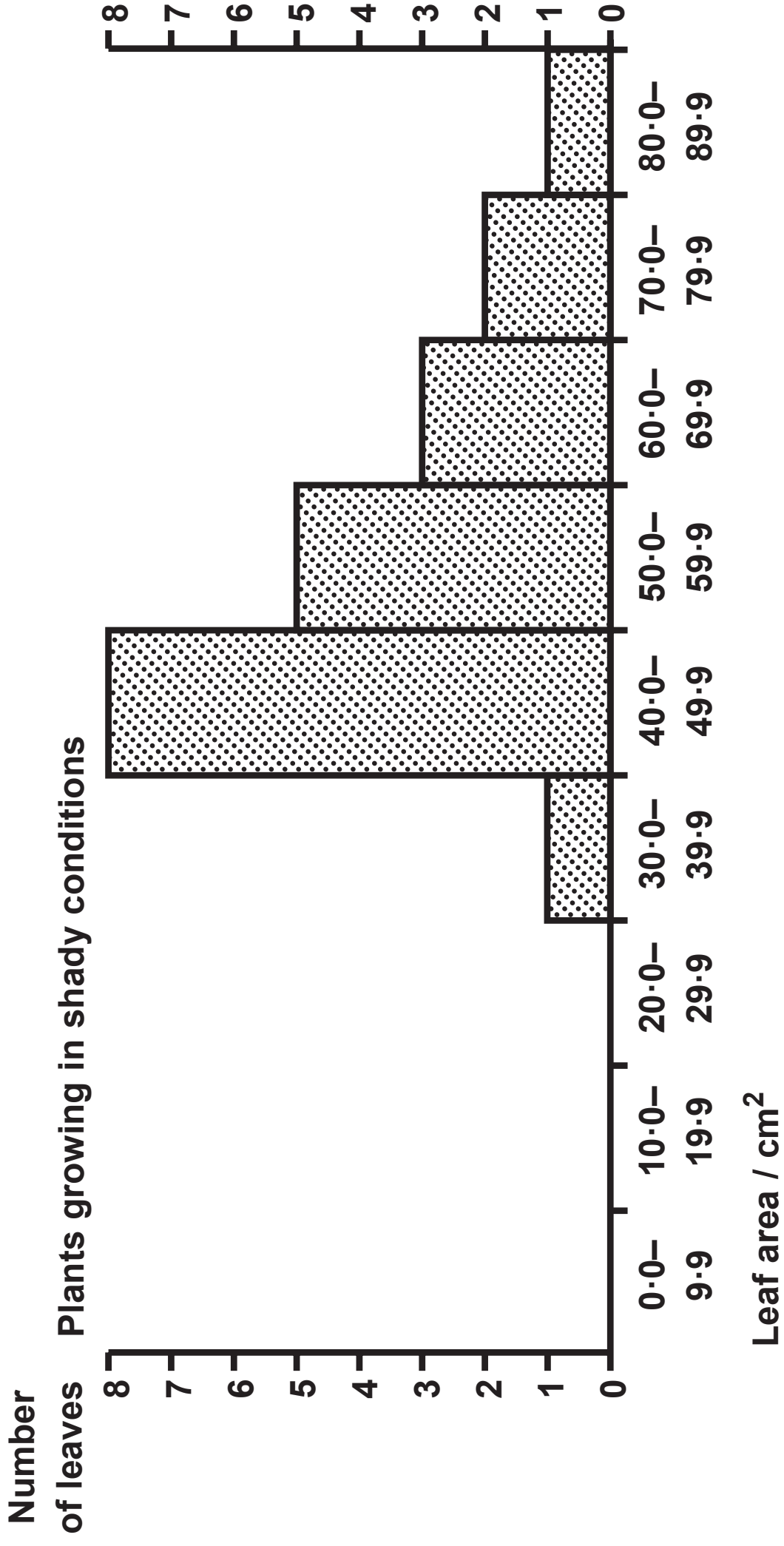
Concentration of sucrose solution/mol dm ⁻³	0·0	0·1	0·2	0·3	0·4	0·5
Percentage change in mass of potato disc	+14·2	+1·9	−9·8	−22·7	−31·9	−37·1

Question 6(b)(i)

Question 7





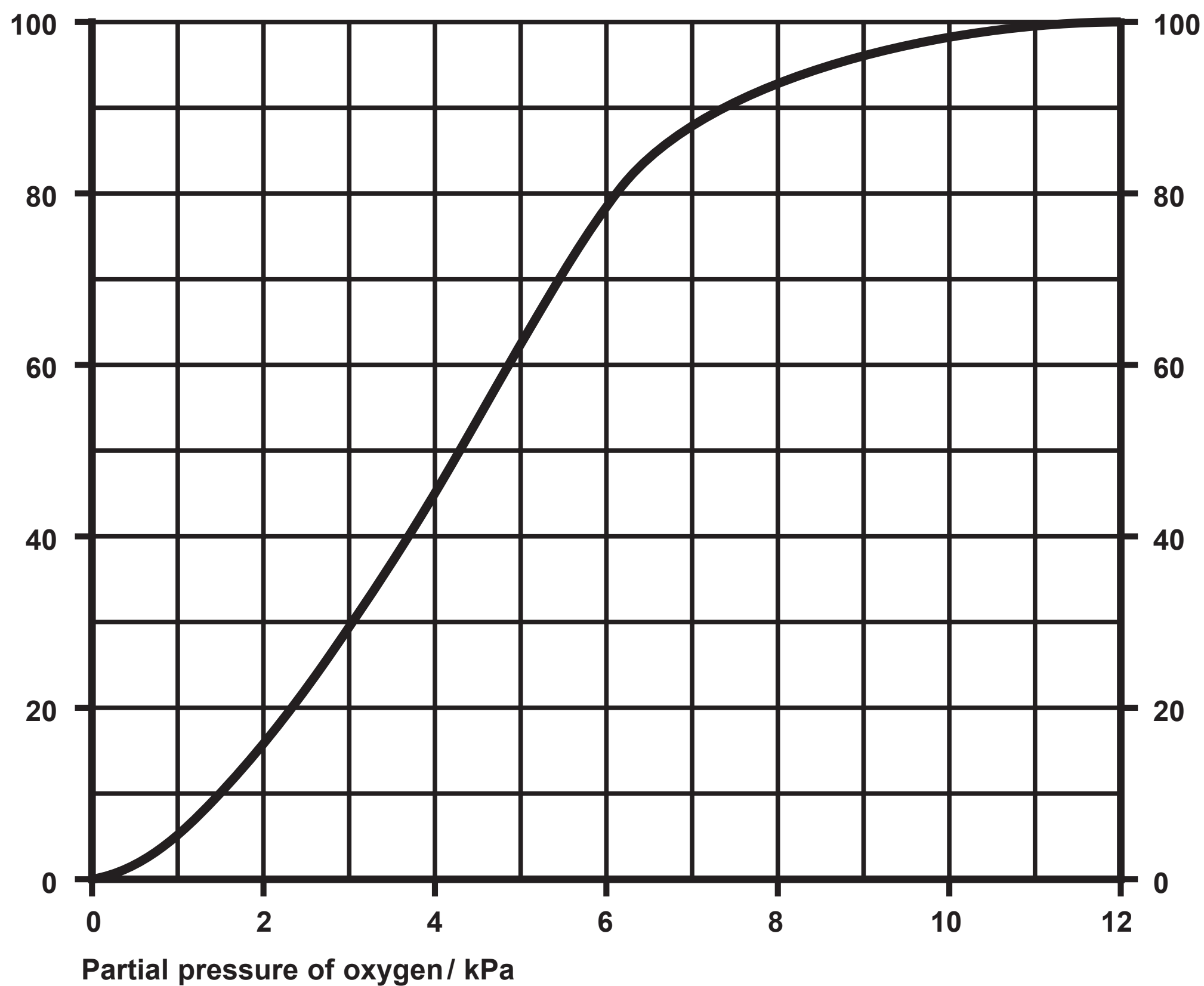


Question 7(b)(iii)

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)

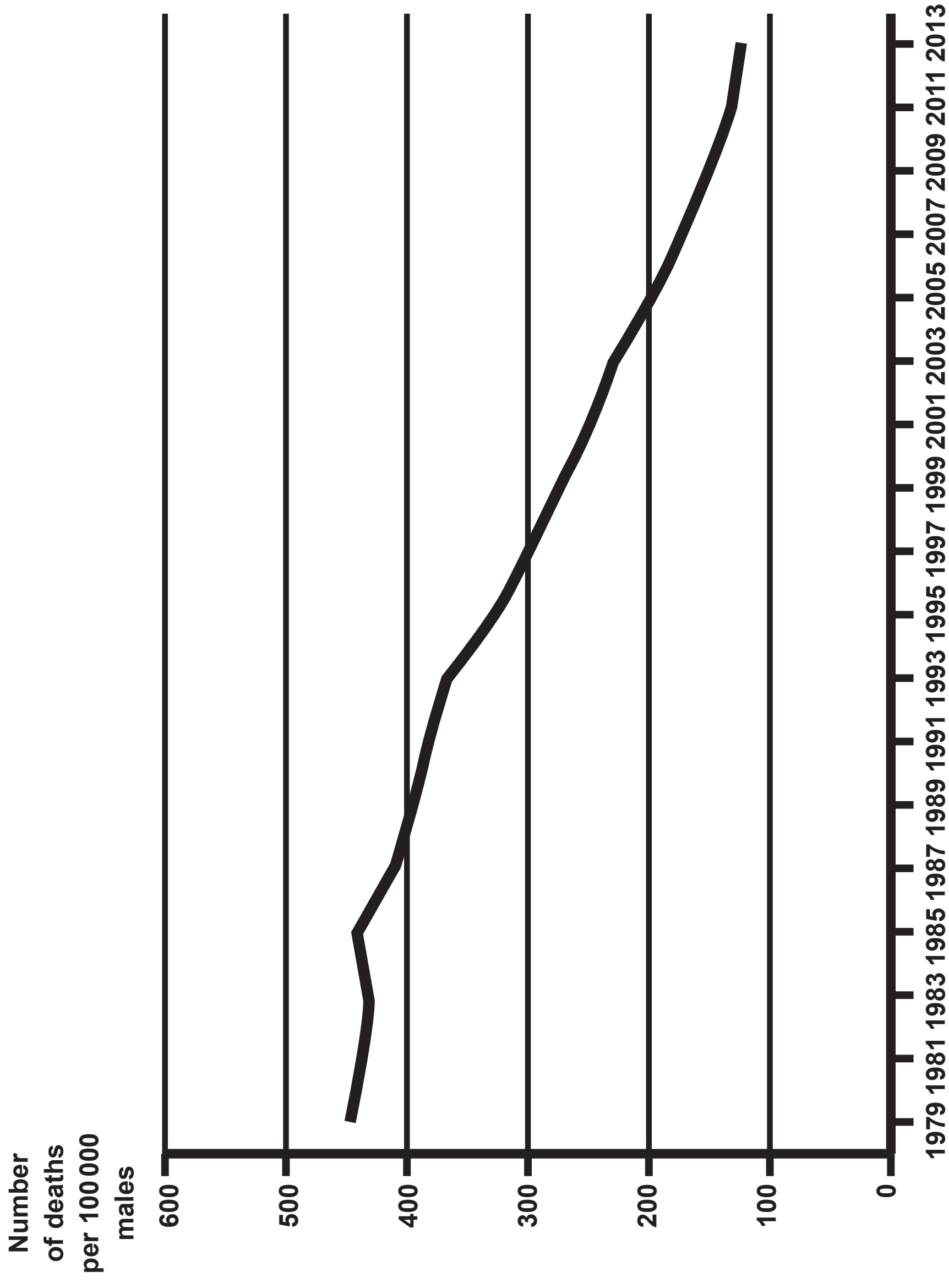
Percentage saturation of
haemoglobin with oxygen (%)

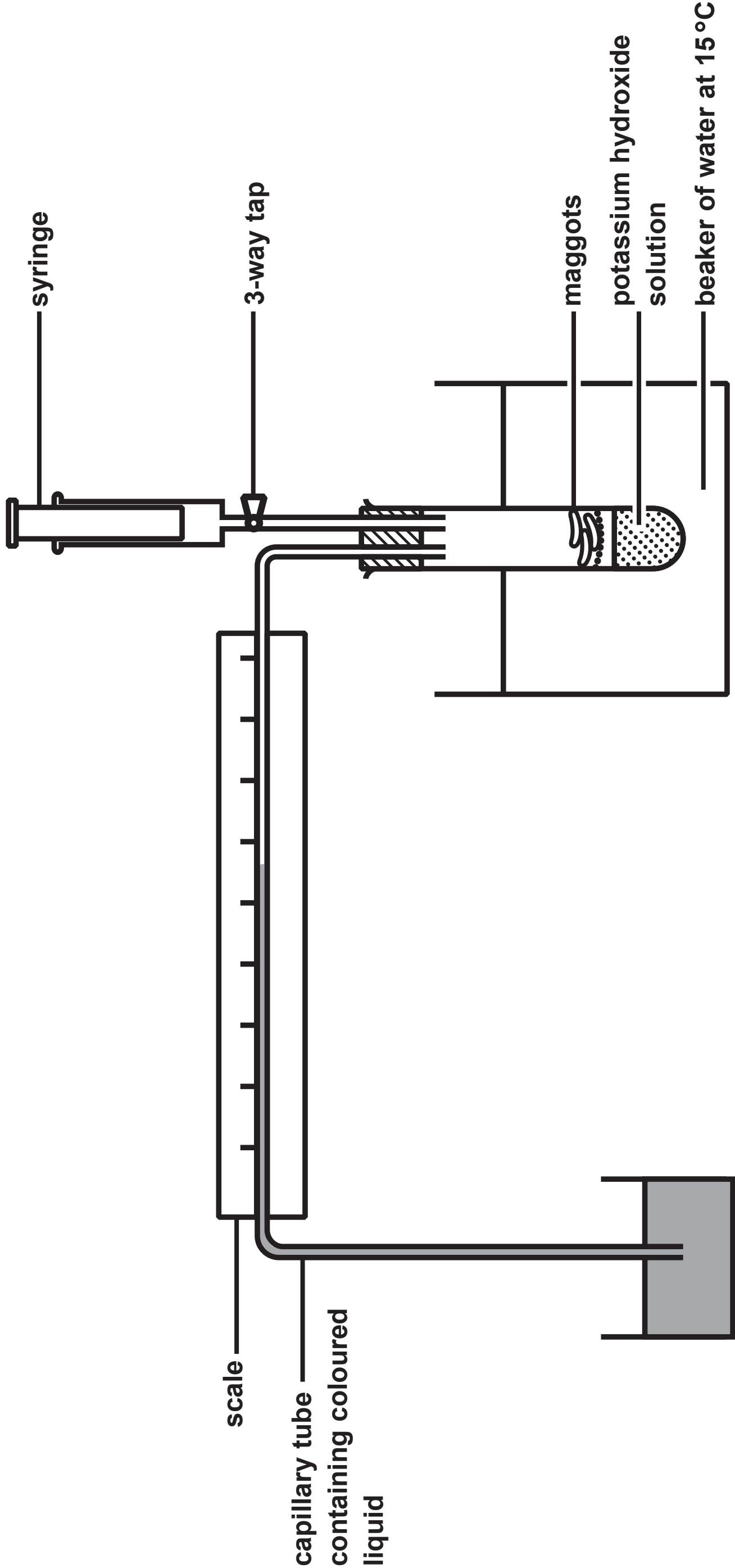


Question 9(b)

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

(continued on the next page)





10 continued.

Group number	1	2	3	4	5
Rate of oxygen uptake / mm ³ min ⁻¹ g ⁻¹	0.14	0.16	0.13	0.12	0.14

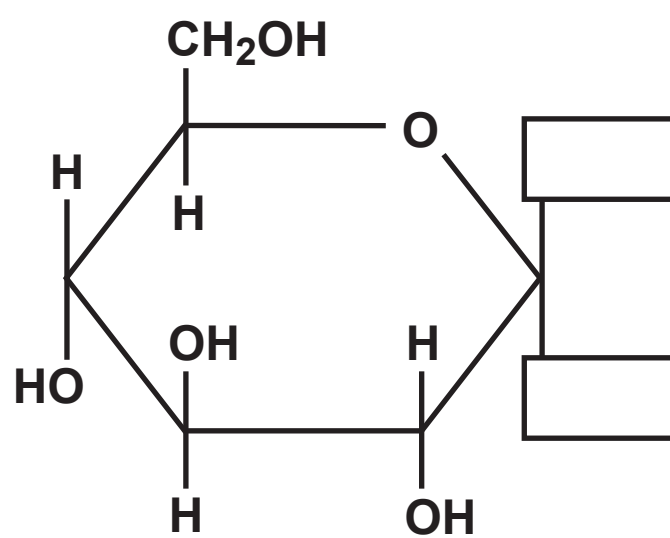
Question 11

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

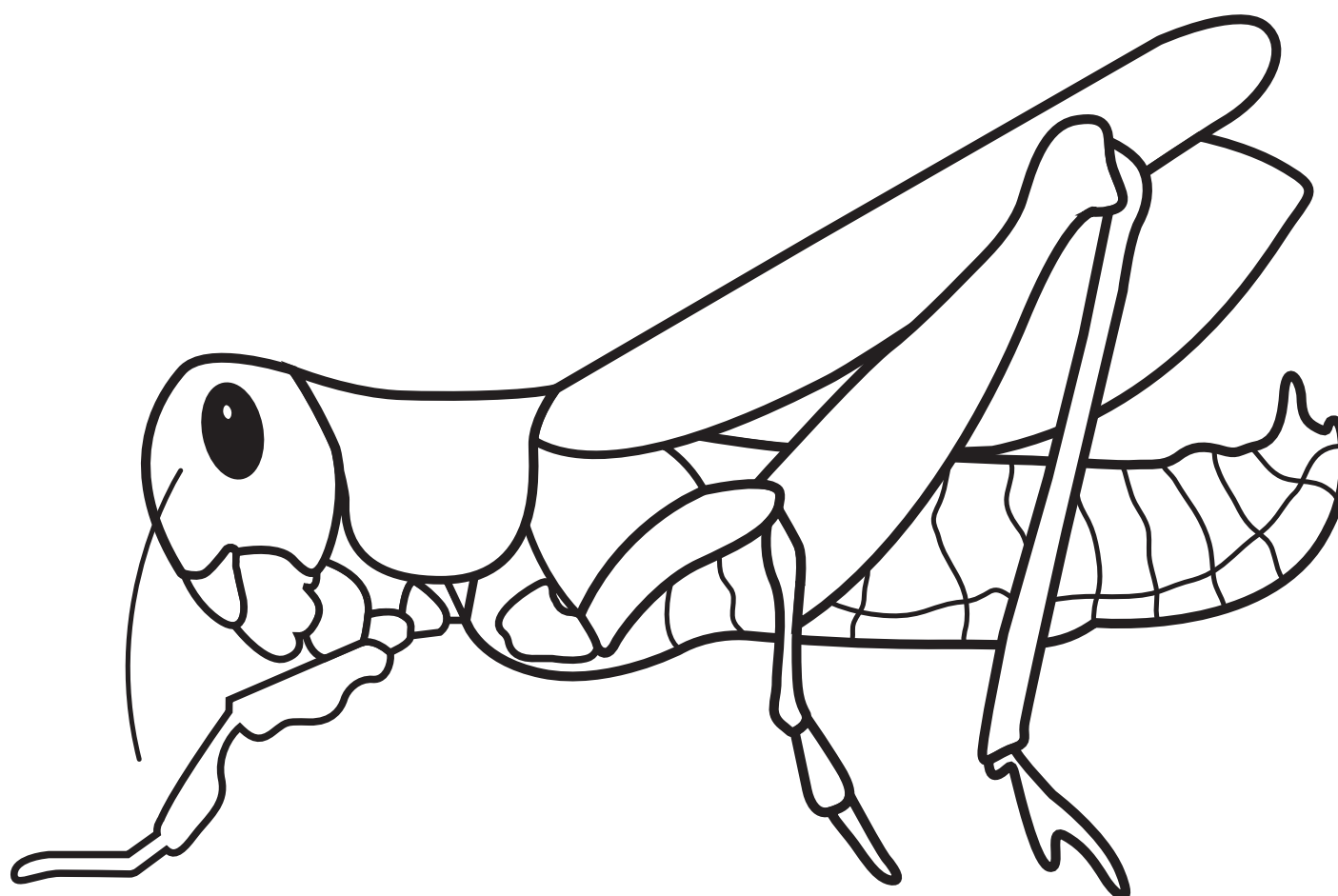
Question 11(c)(i)

2019		2020	
Mean mass of nectar sugar / mg m^{-2}	Mean number of bees supported per m^2	Mean mass of nectar sugar / mg m^{-2}	Mean number of bees supported per m^2
41 912	3·8	38 885	

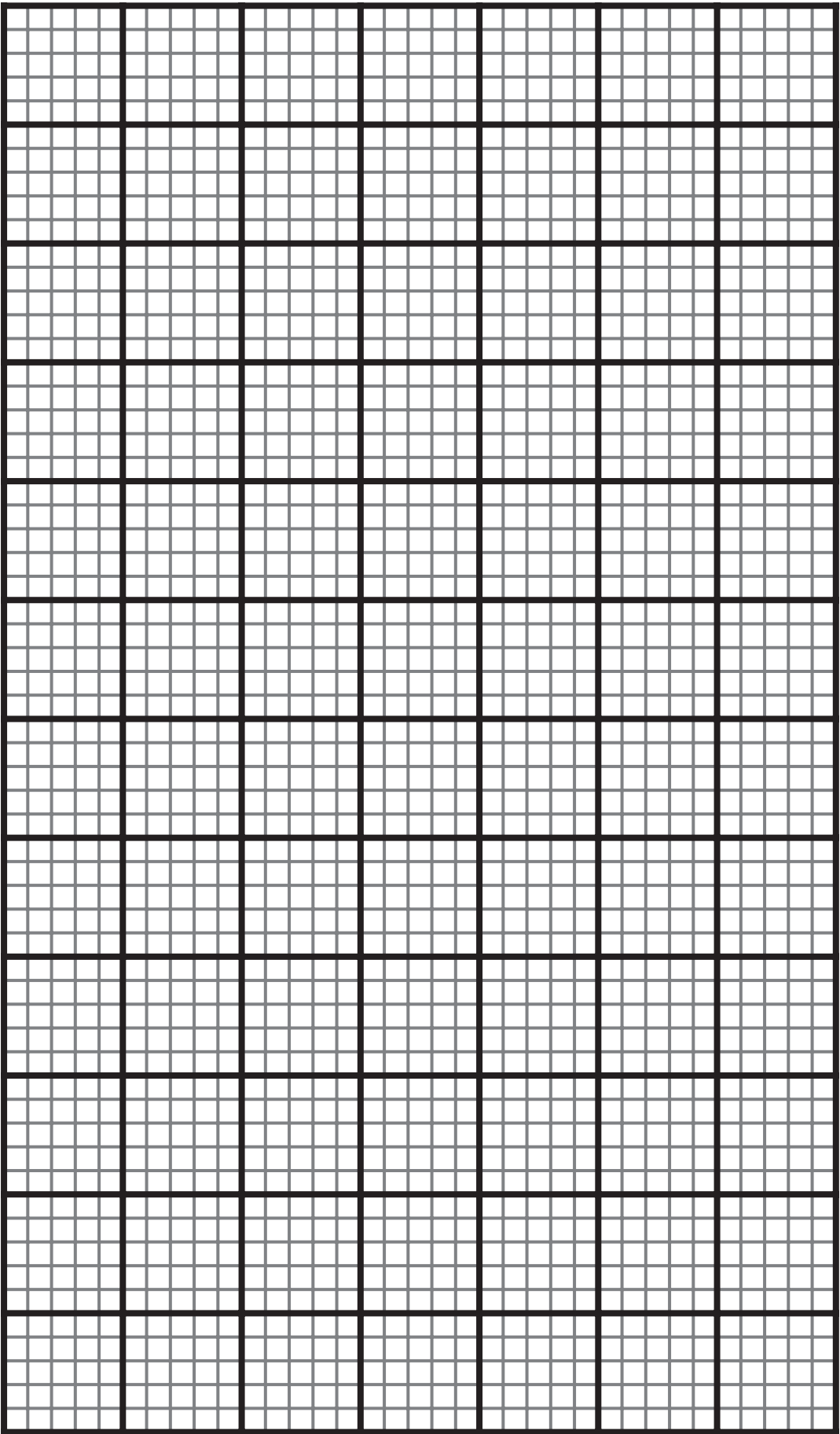
Question 1(a)



Question 2(a)(i)

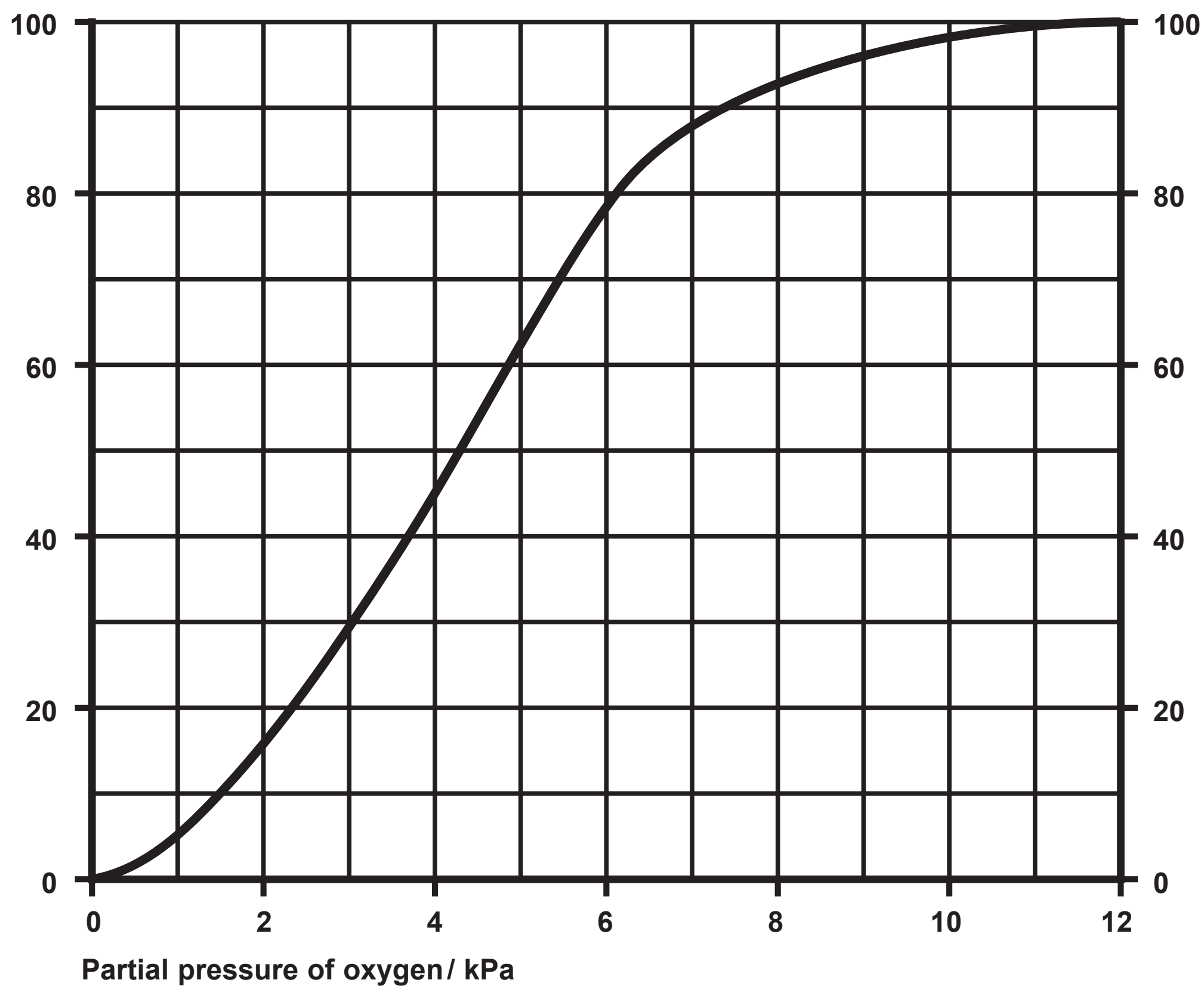


Question 6(b)(i)



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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