

Biology B

Advanced

PAPER 3: General and Practical Principles in Biology

Wednesday 18 June 2025 – Morning

Time: 2 hours 30 minutes

Diagram Booklet

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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.

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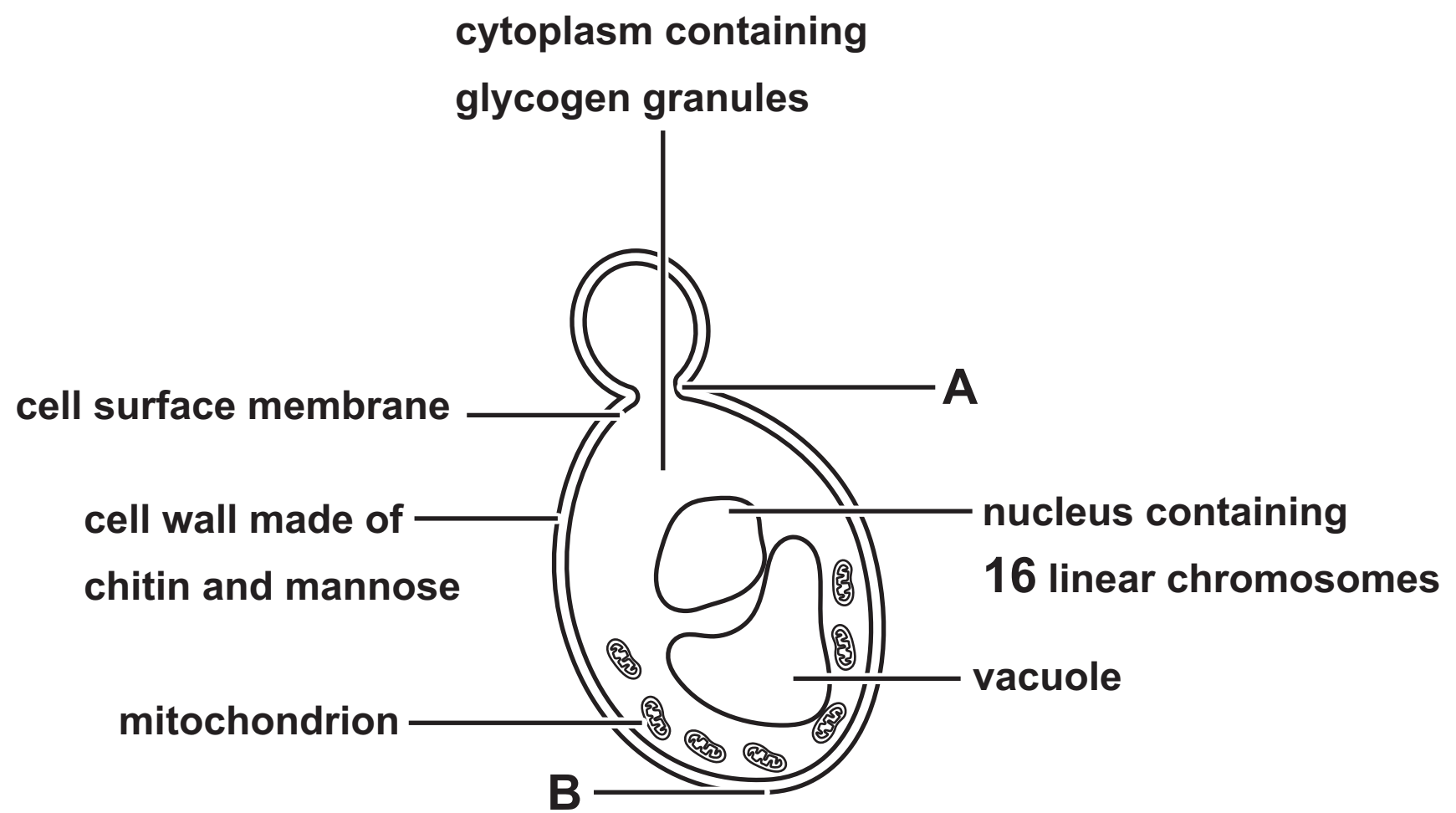
Spare Copies

31 Question 2(a) – spare copy

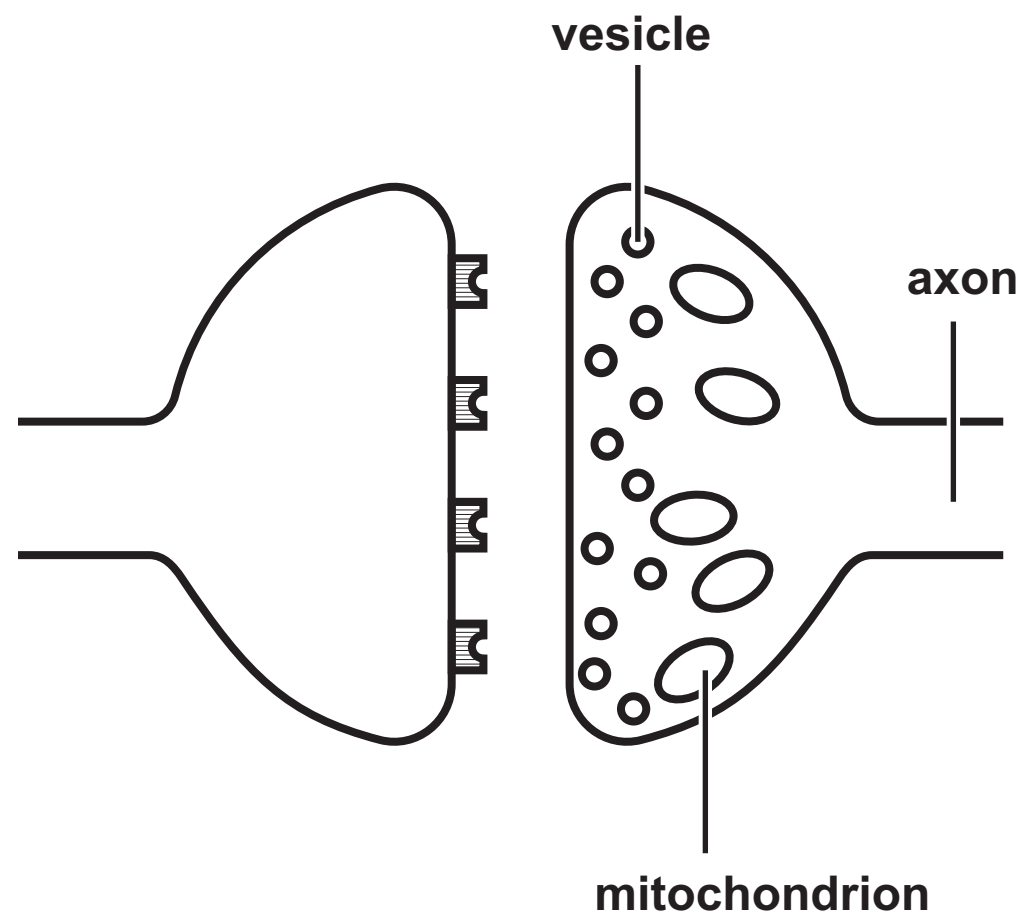
32 Question 3(a) – Diagram – spare copy

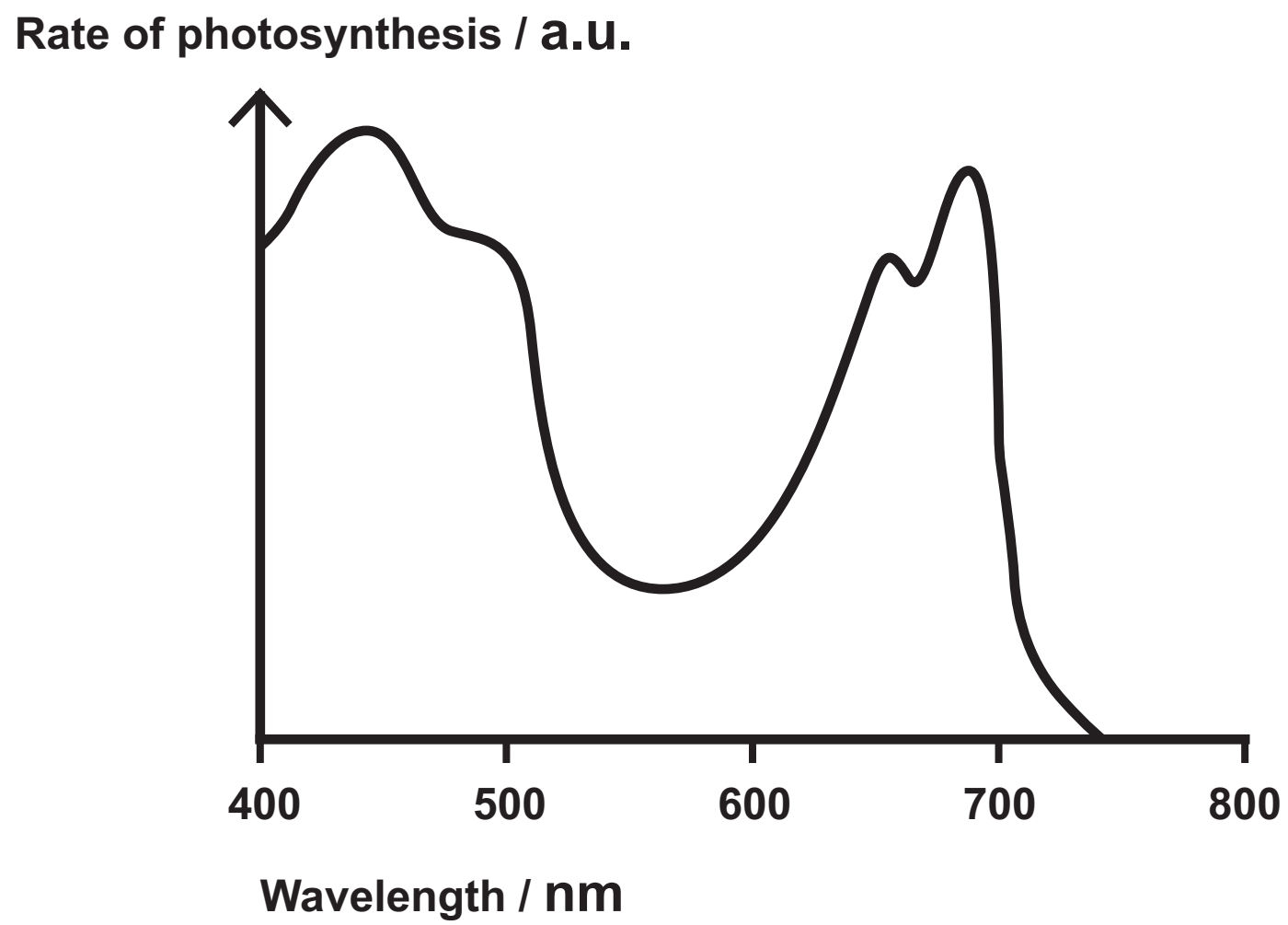
33 Question 9(d) – Diagram 2 – spare copy

Question 1



Question 2(a)

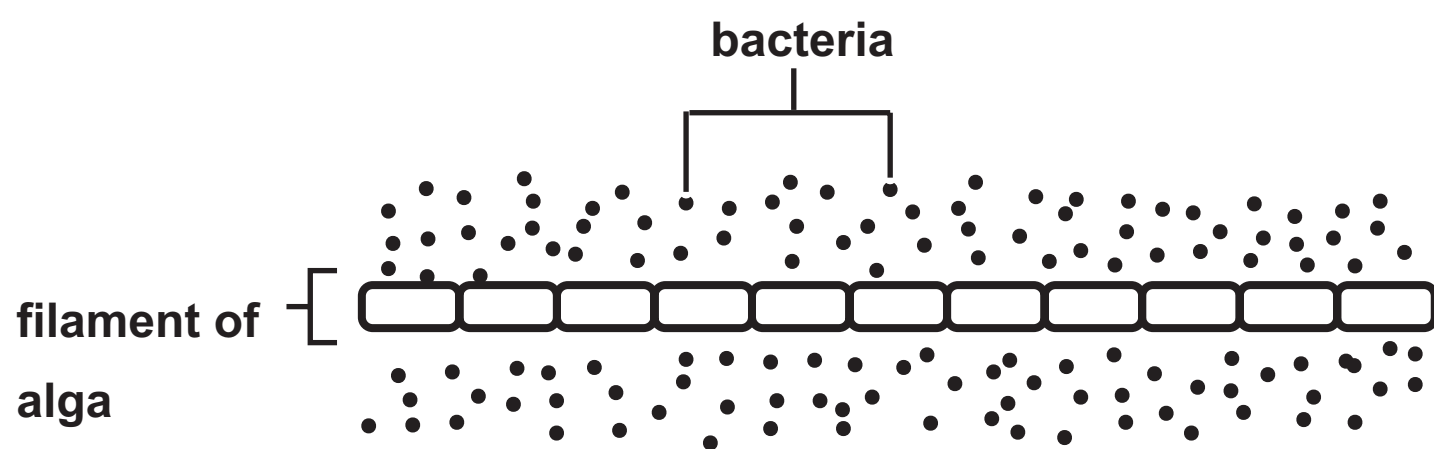


Question 3(a) – Graph

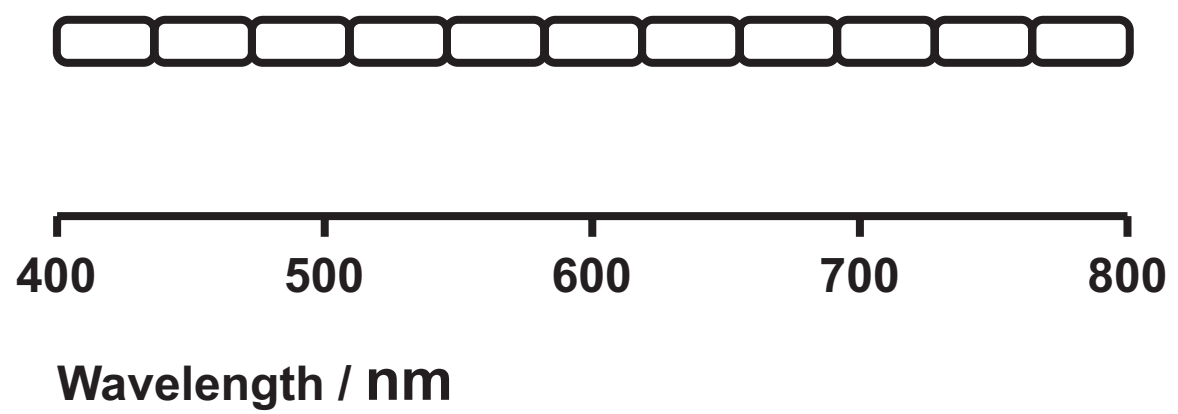
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Question 3(a) continued. – Diagram

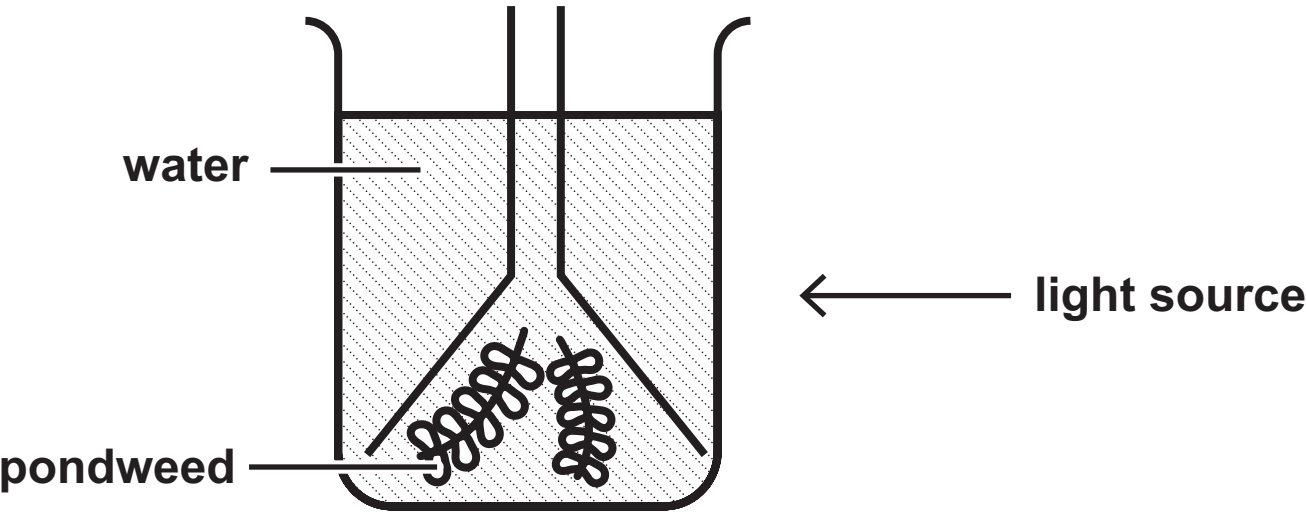
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Question 3(b)



Question 4(a)(iii)

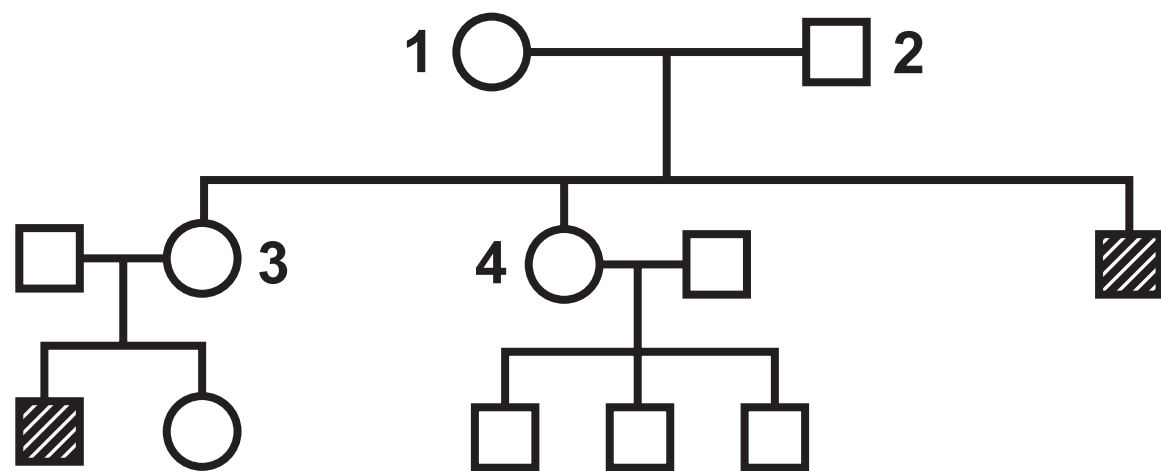
KEY

○ Female with red-green vision

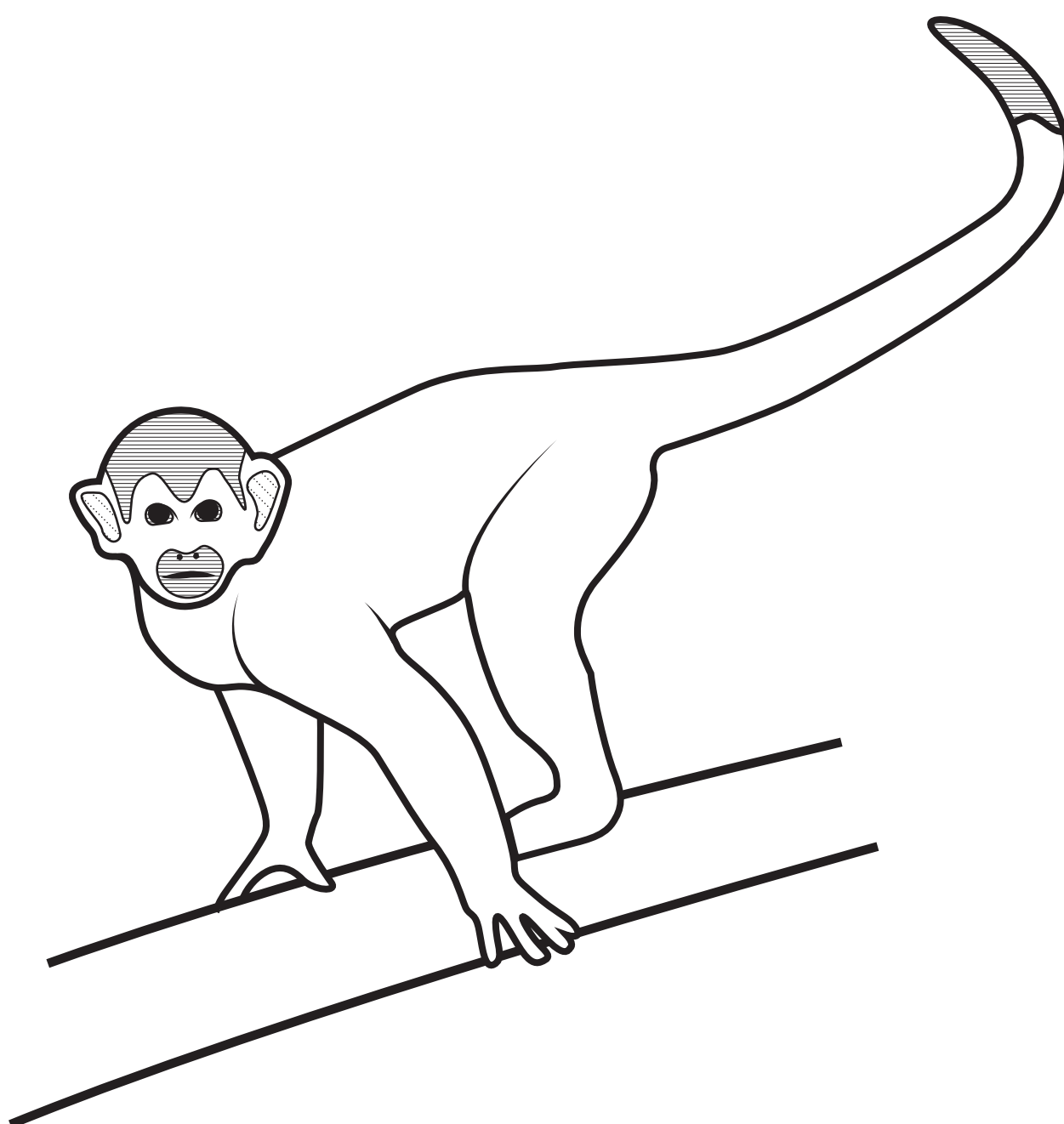
● Female with colour blindness

□ Male with red-green vision

■ Male with colour blindness



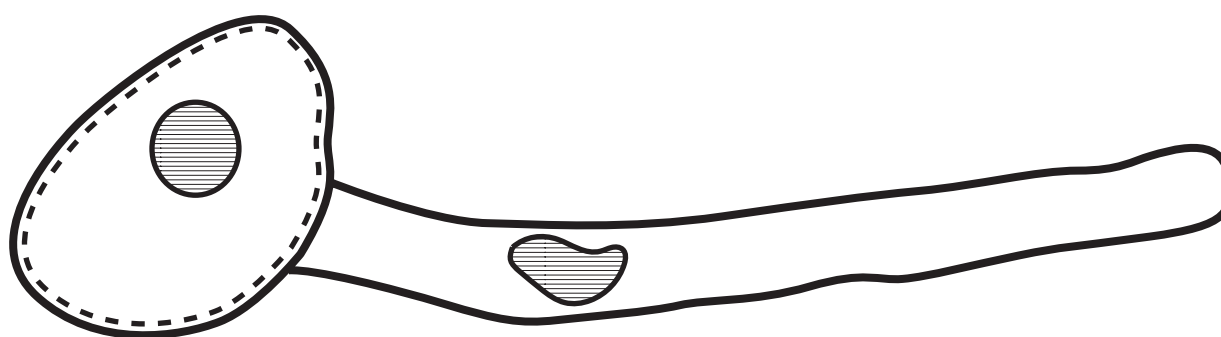
Question 4(b)



Question 4(b)(i) – Blank page

Question 4(b)(ii) – Blank page

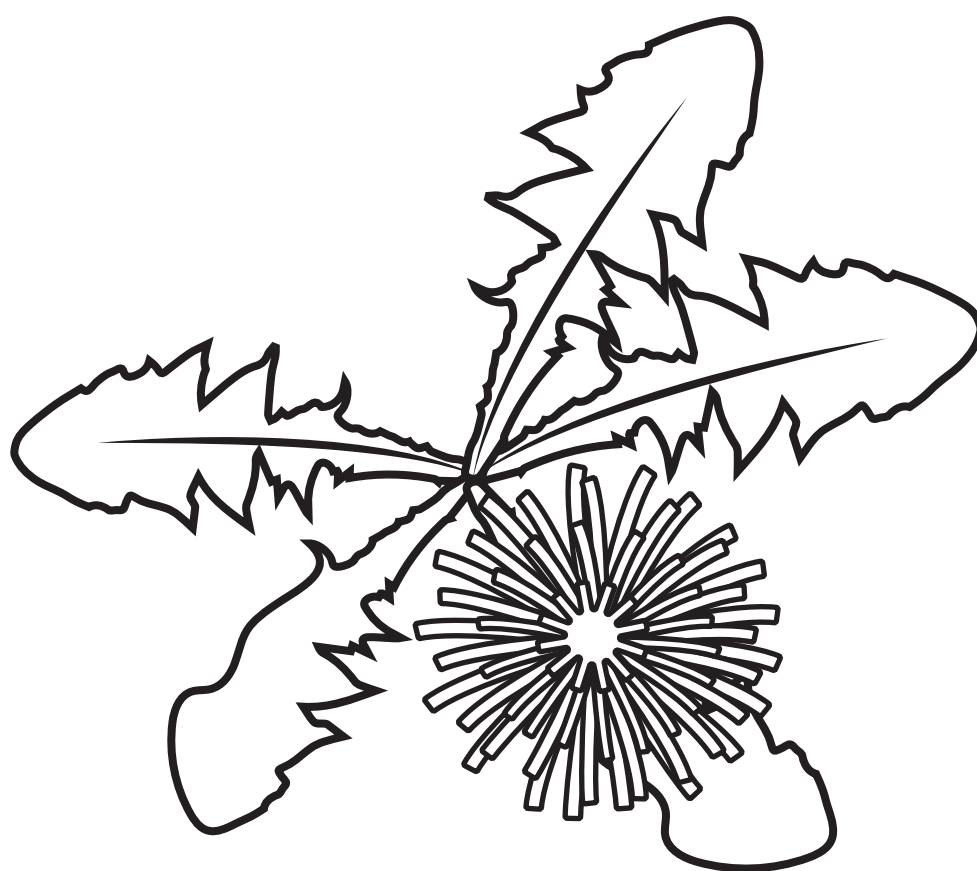
Question 5(a)



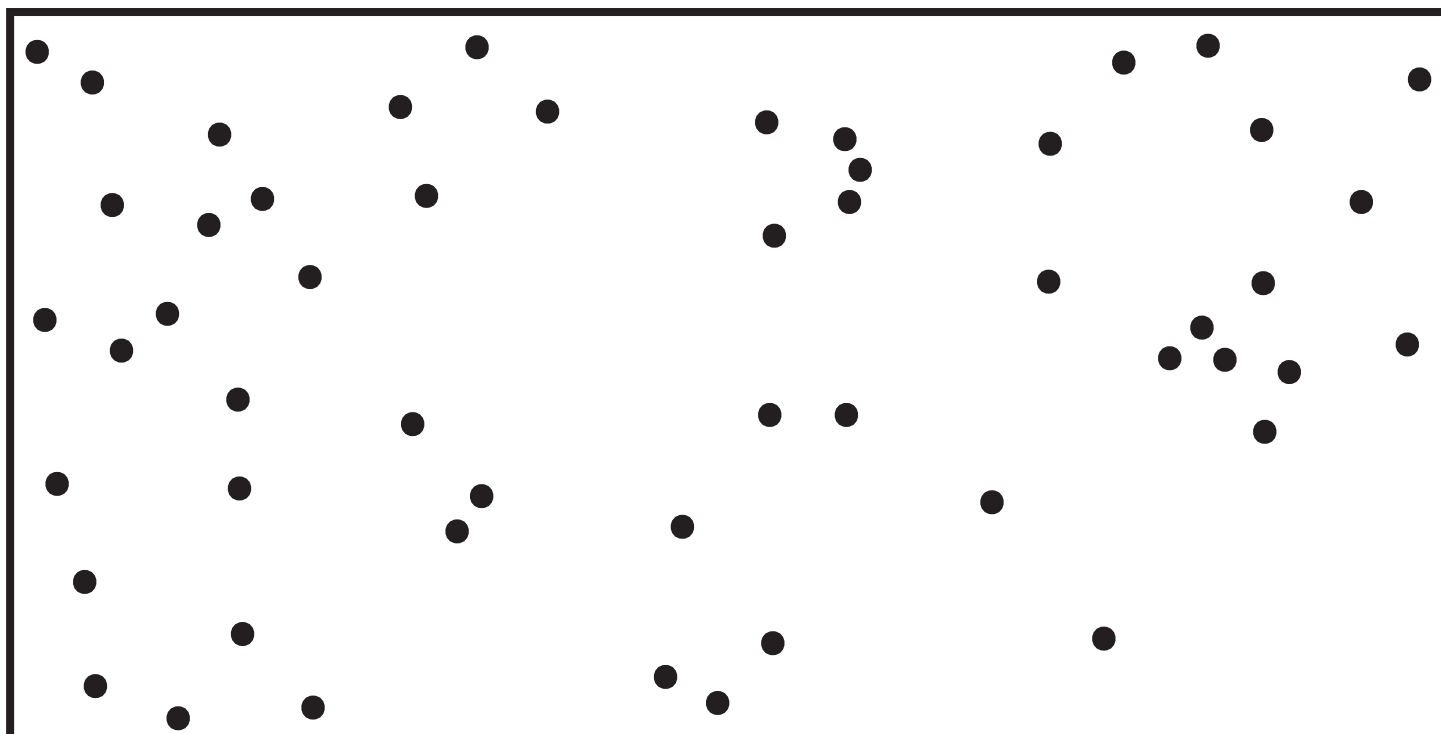
Question 5(b)

Concentration of calcium nitrate / mg dm^{-3}	Percentage germination of pollen grains after each hour (%)			
	1	2	3	4
0	0	0	0	0
300	50	55	65	65
400	50	58	60	69
500	50	65	70	79

Concentration of calcium nitrate / mg dm^{-3}	Mean pollen tube length after each hour / μm			
	1	2	3	4
0	0	0	0	0
300	120	261	284	355
400	256	284	355	426
500	341	412	455	547

Question 6(a) – Image

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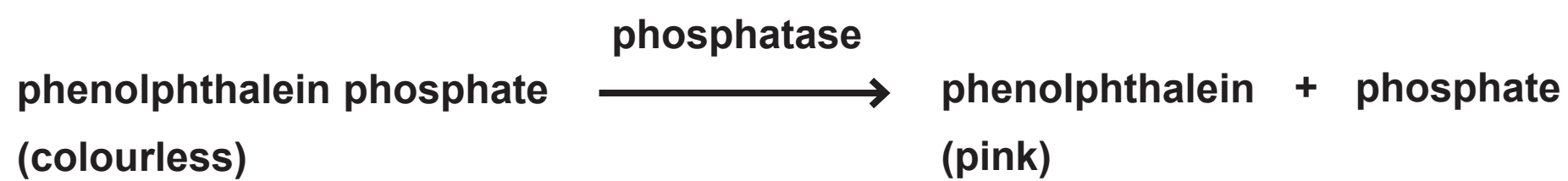
Question 6(a) continued. – Diagram

(continued on the next page)

Question 6(a) continued. – Table

Size of quadrat/m ²	1	0.25	0.01
Number of quadrats used	5	20	500
Total number of dandelion plants recorded	1	3	6

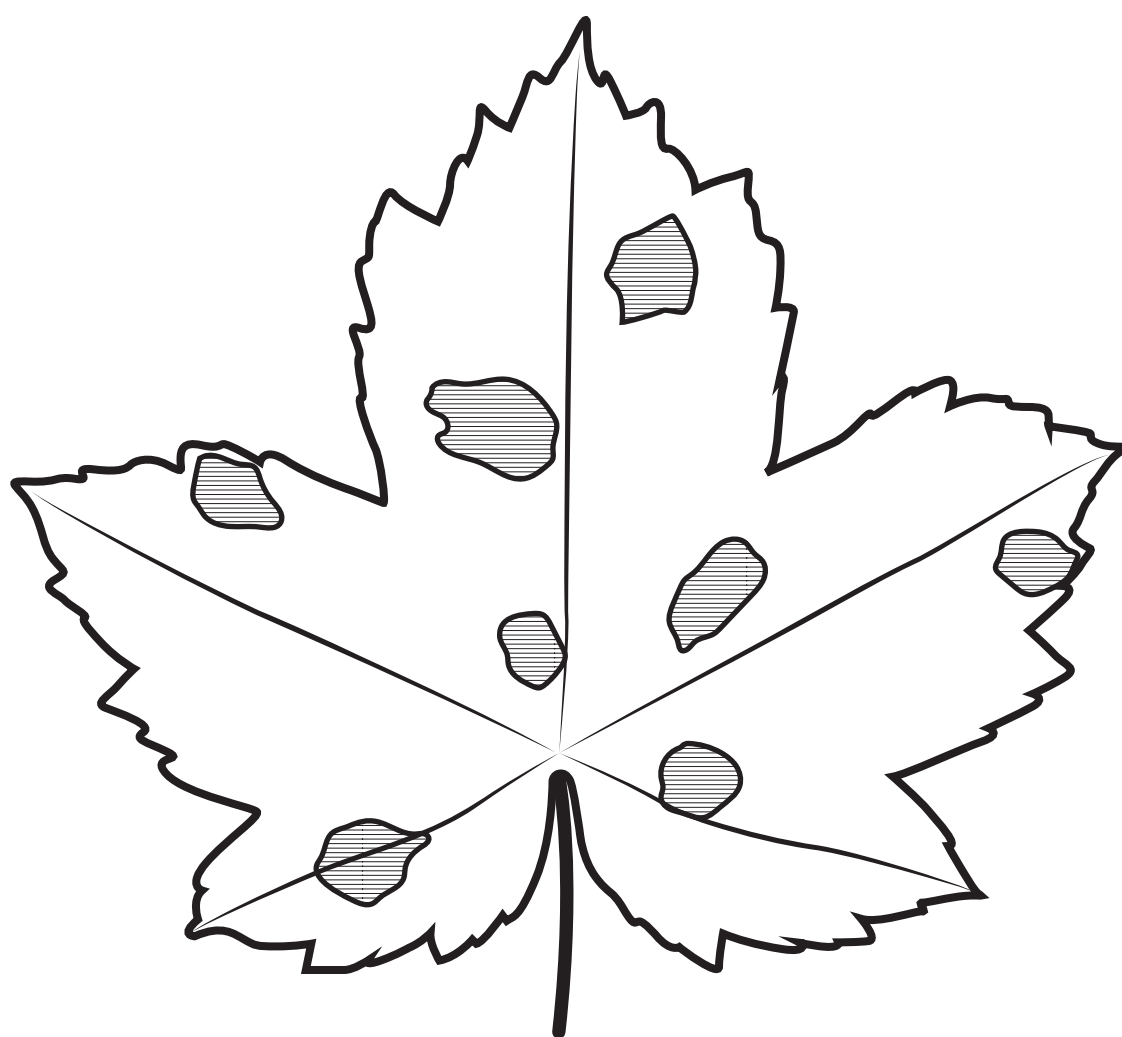
Question 7(a)



Question 7(b)

Temperature / °C	10	20	30	40	50	60	70	80
Absorbance of light	0.25	0.33	0.39	0.46	0.53	0.55	0.50	0.33

Question 8



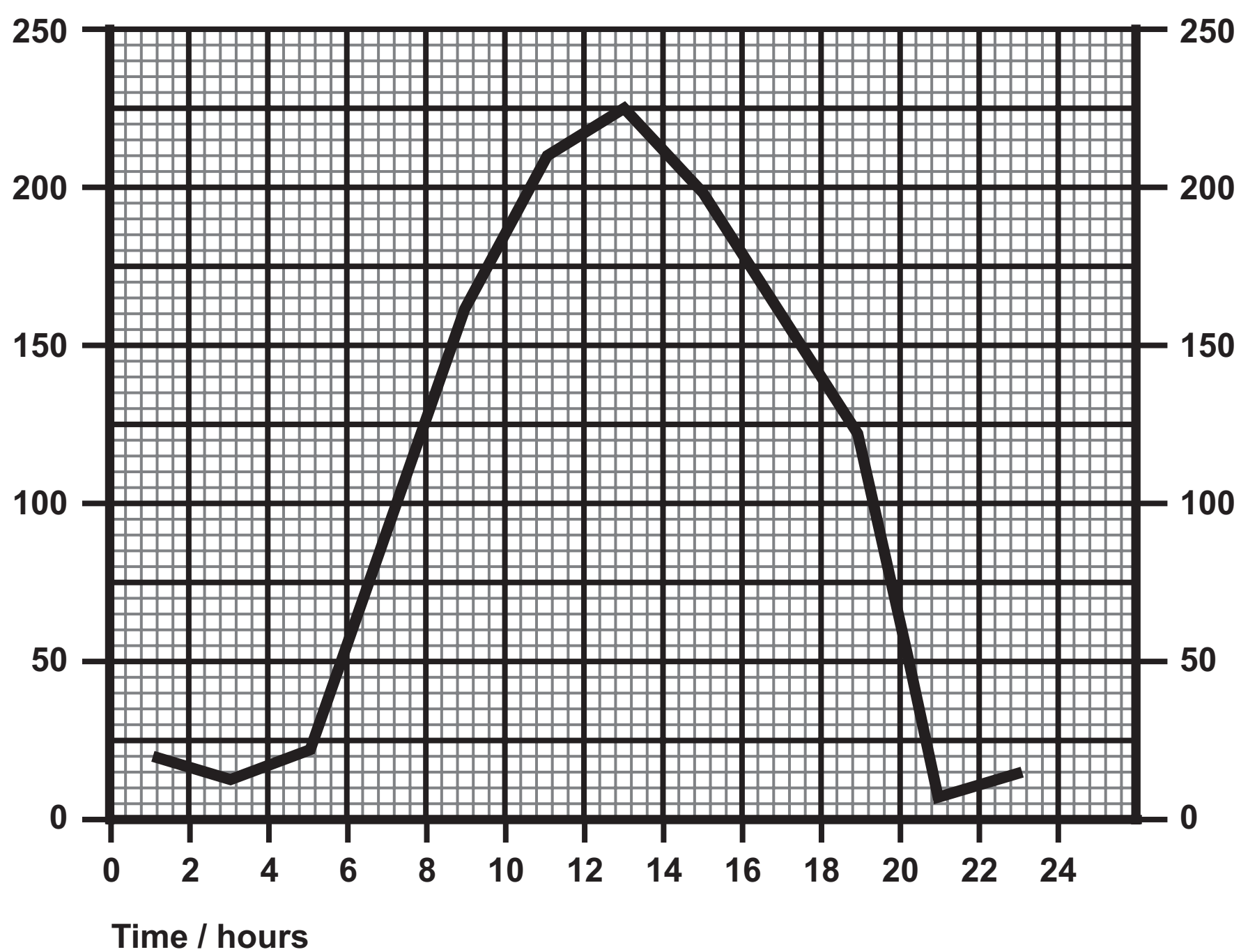
Question 8(a)(ii)

Location	Number of tar spots per leaf					Mean	SD
Near road	8	17	21	4	15	12.93	6.78
	12	5	3	7	13		
	18	22	24	16	9		
Parkland	20	17	13	14	24	17.07	4.06
	10	21	16	13	18		
	14	23	21	15	17		

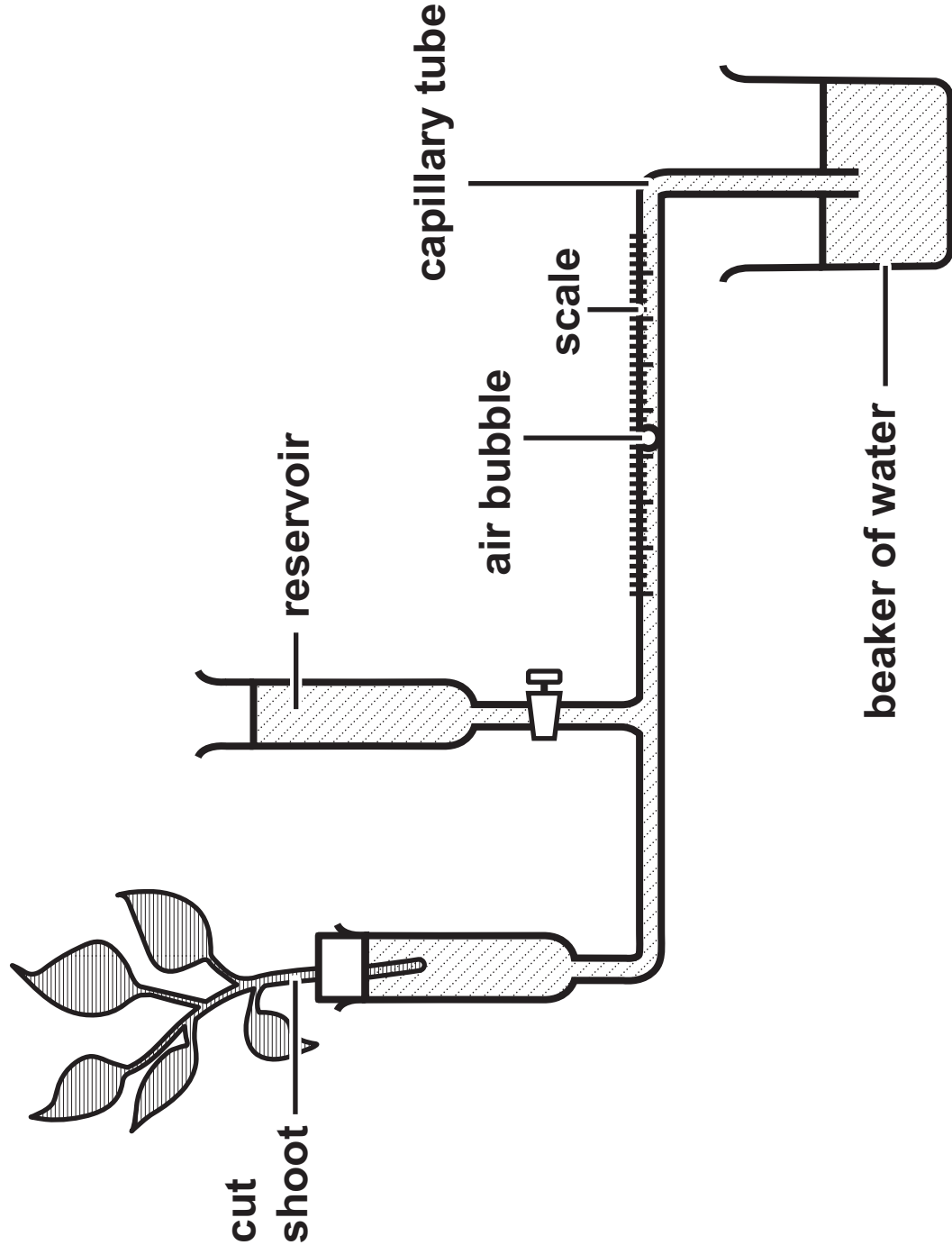
Question 8(a)(iii)

Degrees of freedom	p = 0·10	p = 0·05	p = 0·01
14	1·76	2·14	2·98
15	1·75	2·13	2·95
16	1·75	2·12	2·92
17	1·74	2·11	2·90
18	1·73	2·10	2·88
19	1·73	2·09	2·86
20	1·72	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

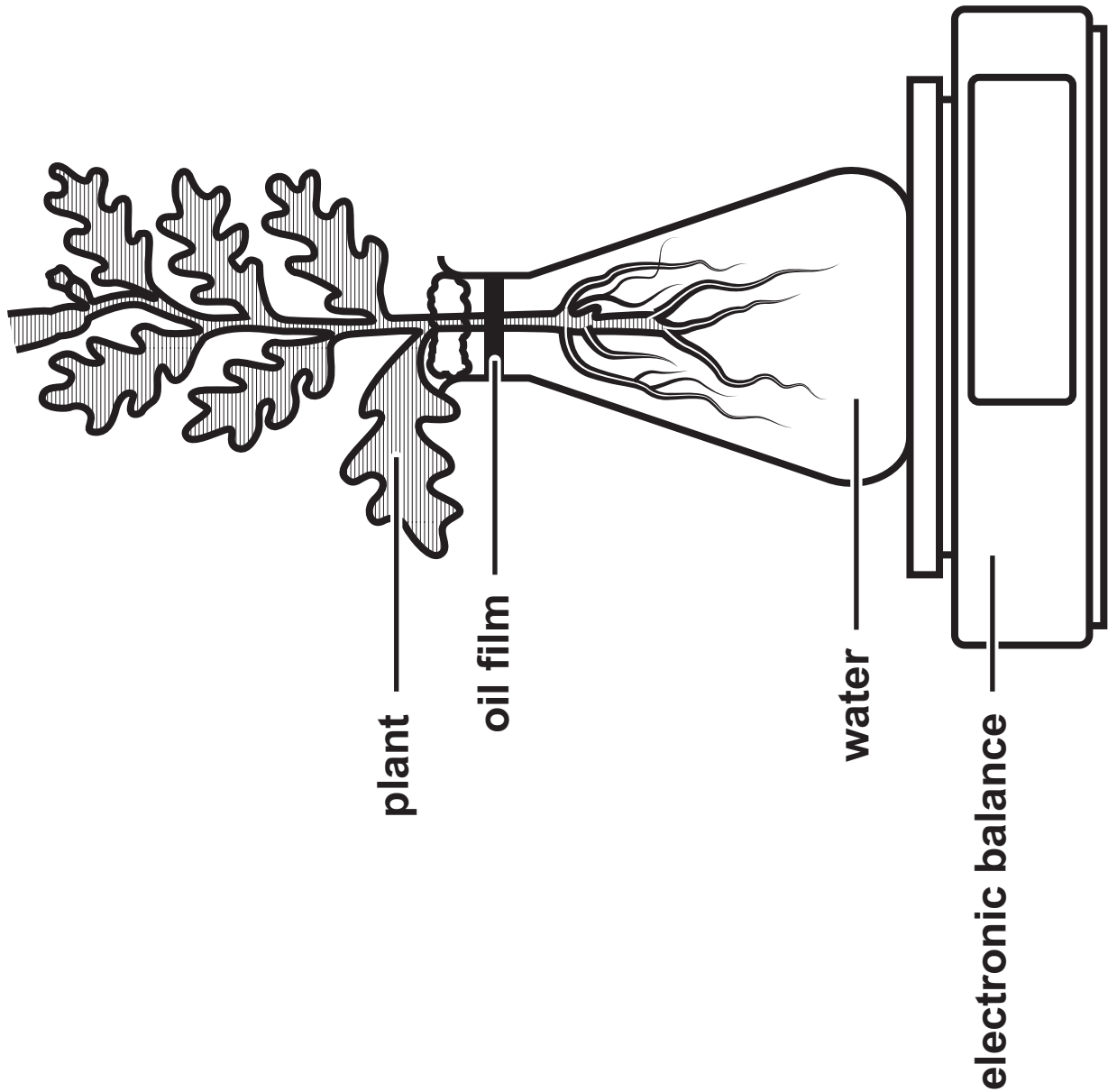
Question 9(b)

Transpiration rate / $\text{g m}^{-2} \text{ hour}^{-1}$ 

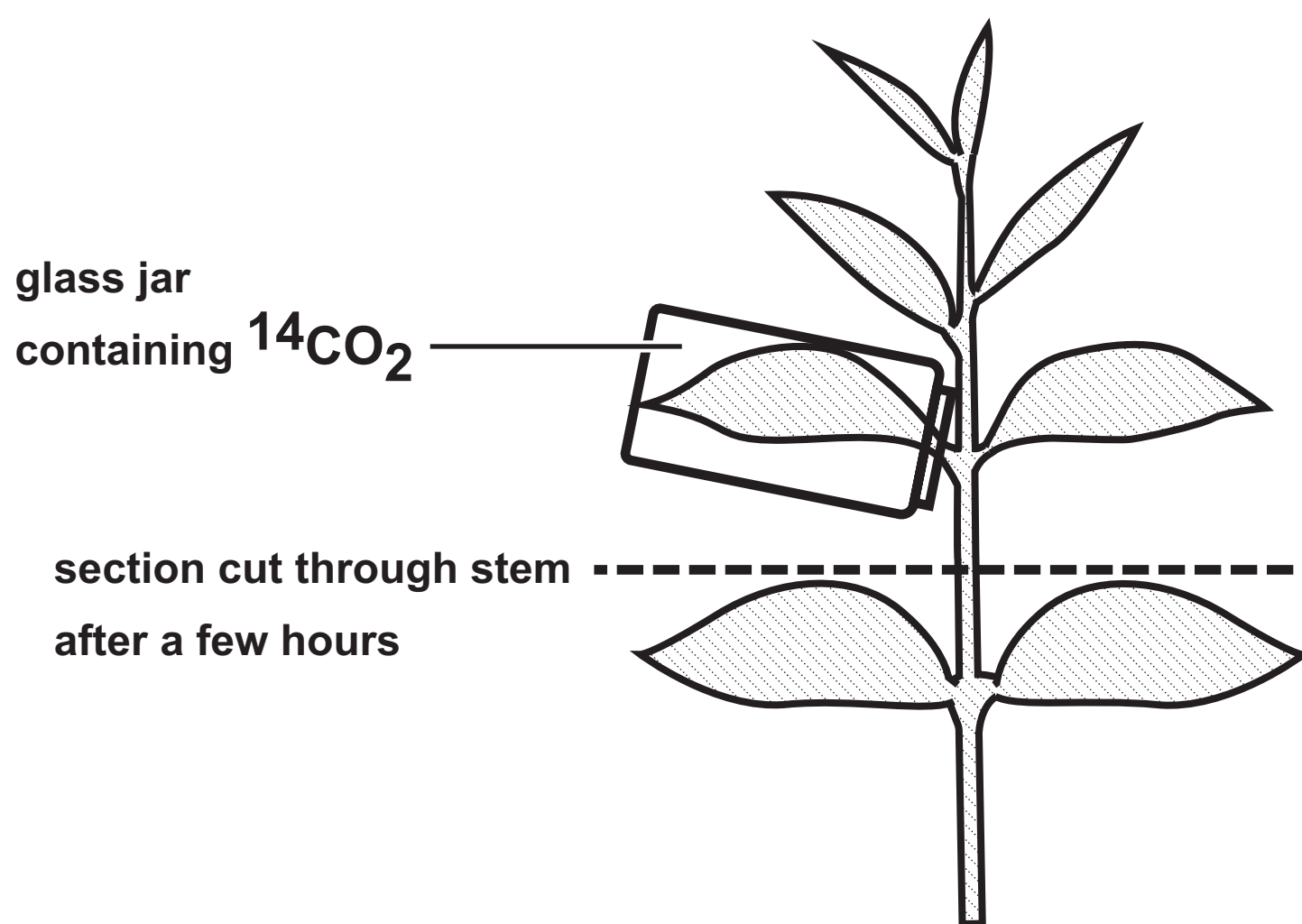
potometer A



potometer B

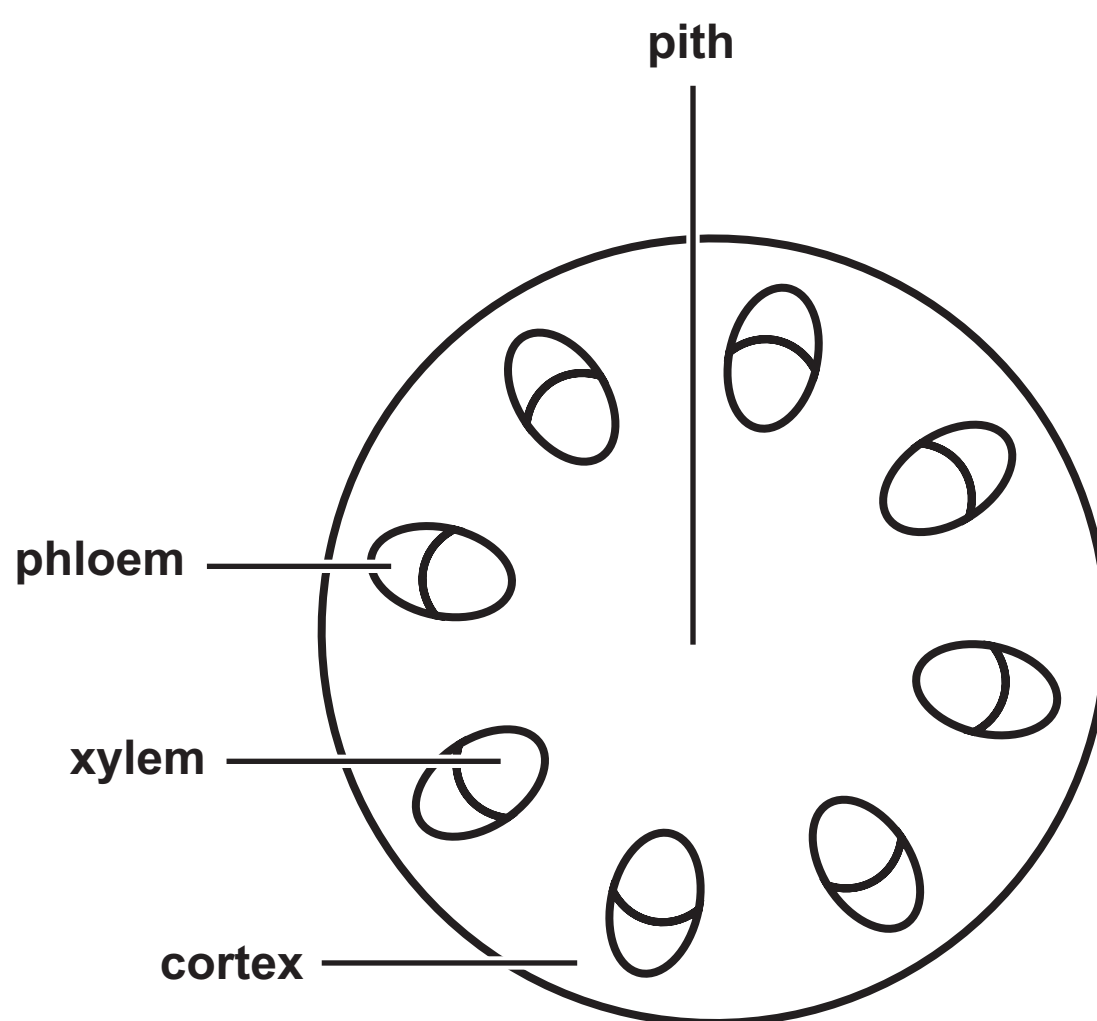


Question 9(d) – Diagram 1

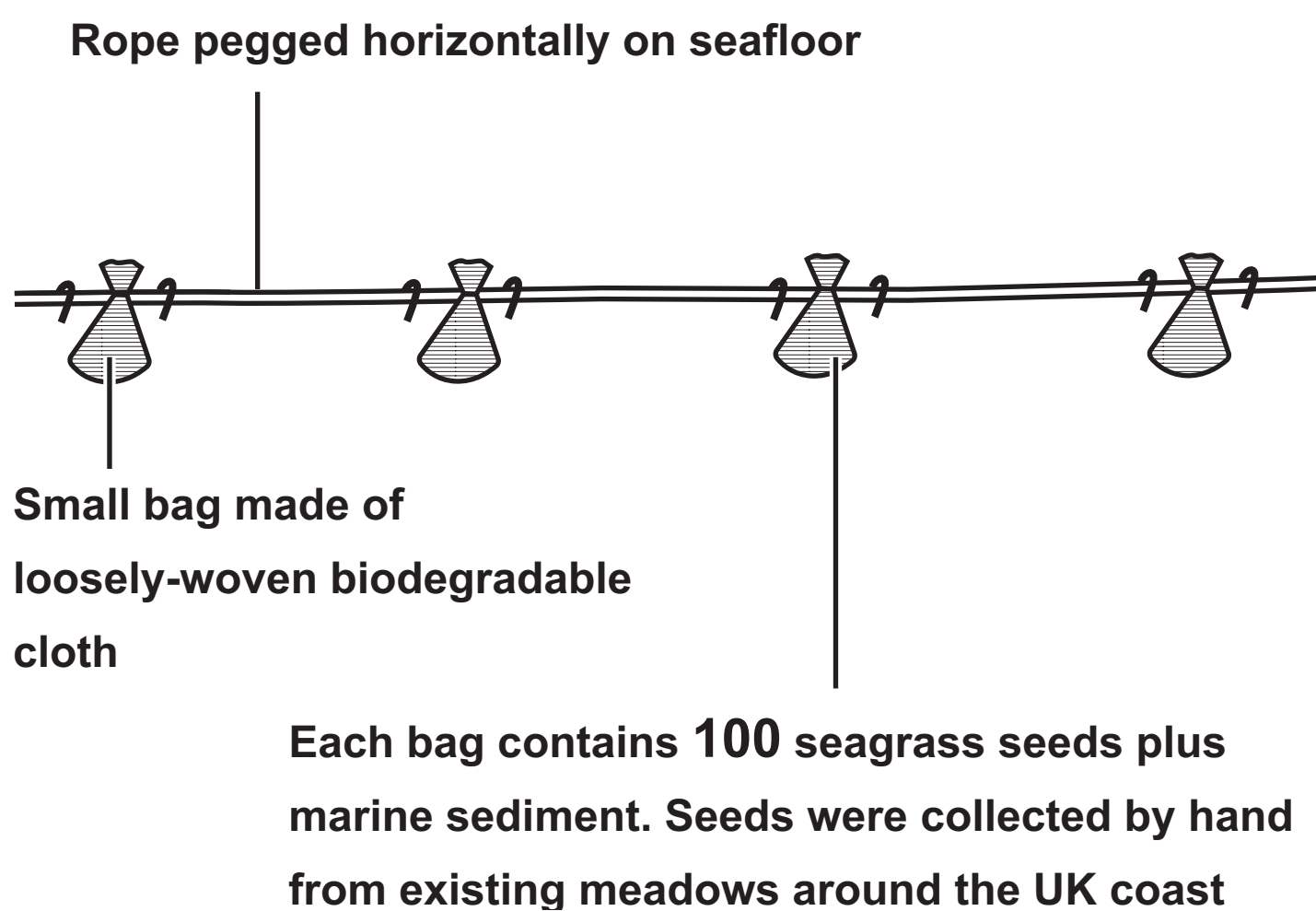


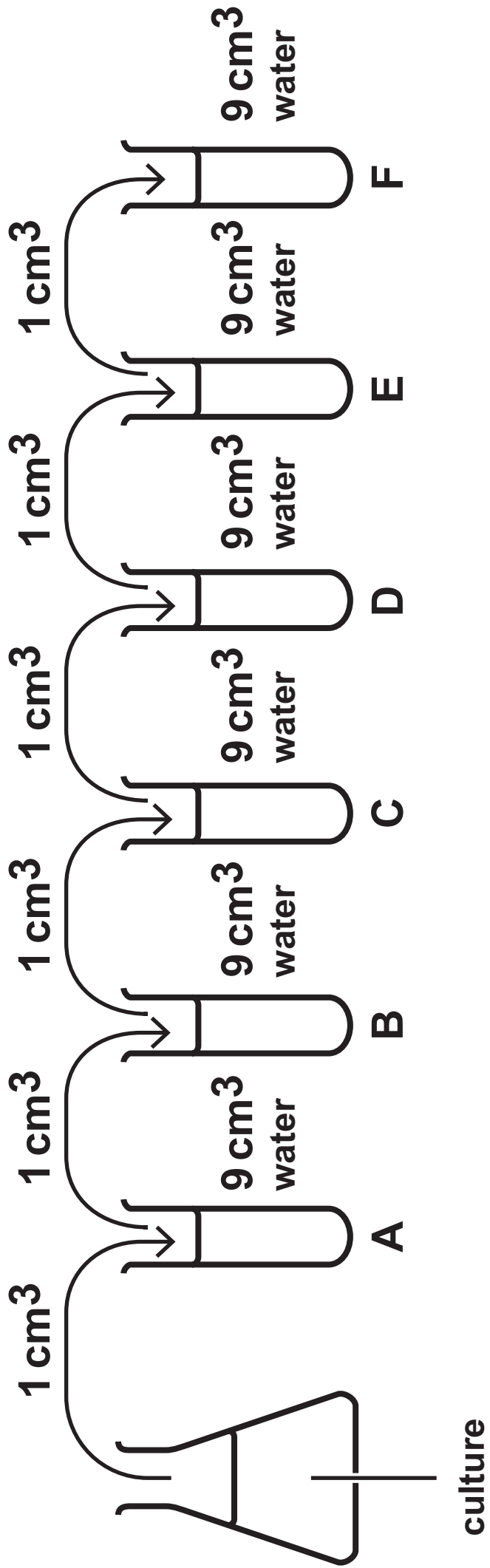
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Question 9(d) continued. – Diagram 2



Question 10(b)





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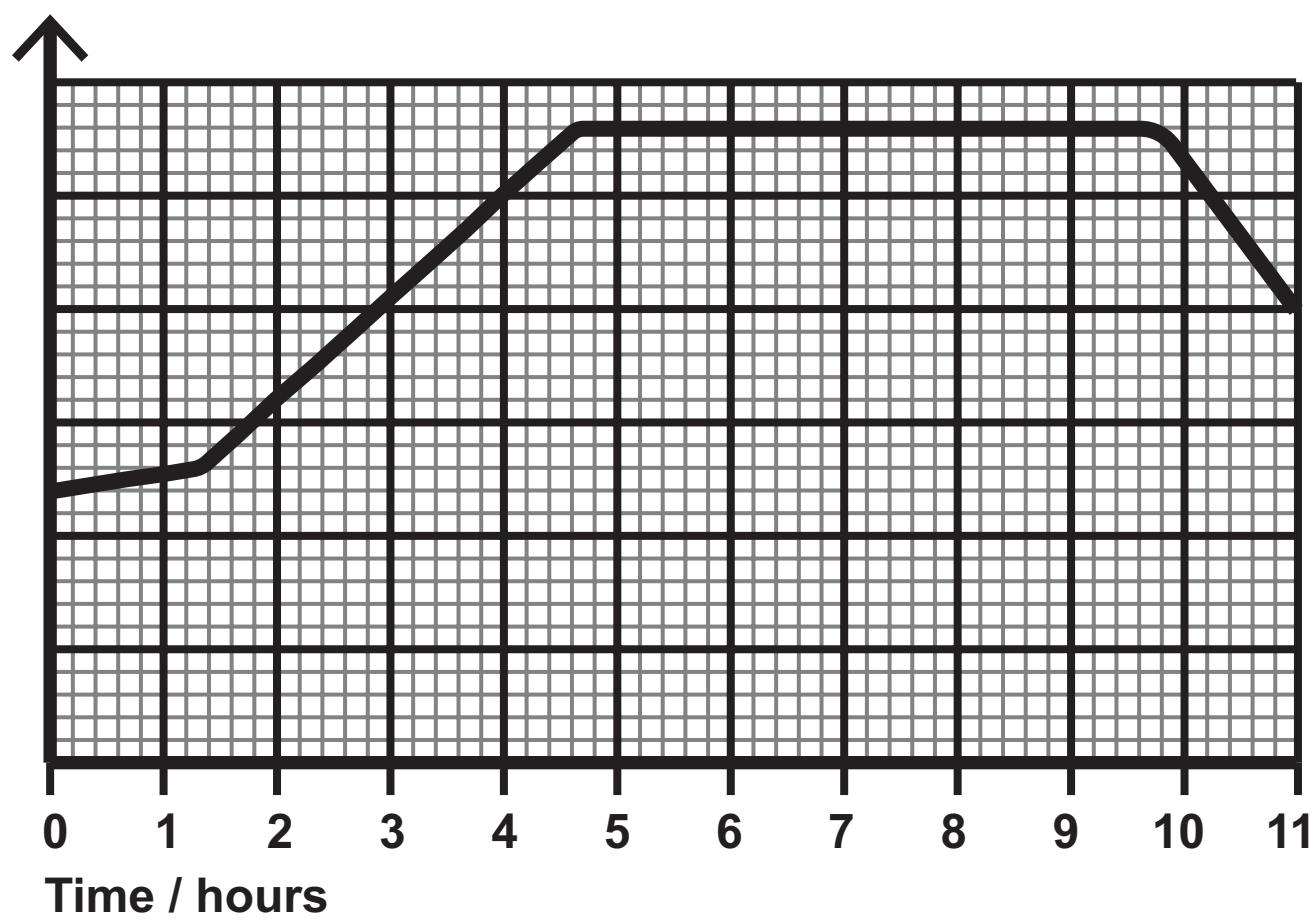
Question 11(a) continued. – Table

* = too many colonies to count

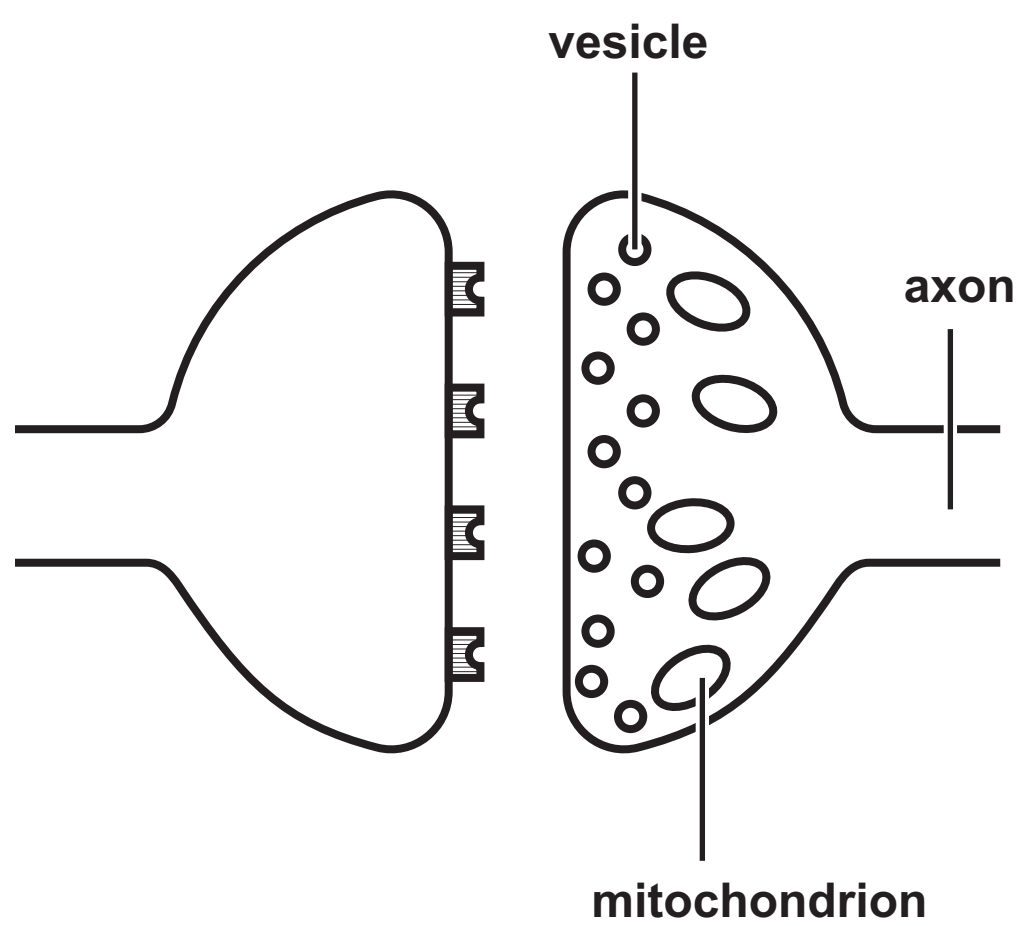
TUBE	A	B	C	D	E	F
Number of colonies on agar plate	*	*	126	13	1	0
Serial dilution factor	1 in 10					

Question 11(a)(ii)

Log_{10} number of bacteria

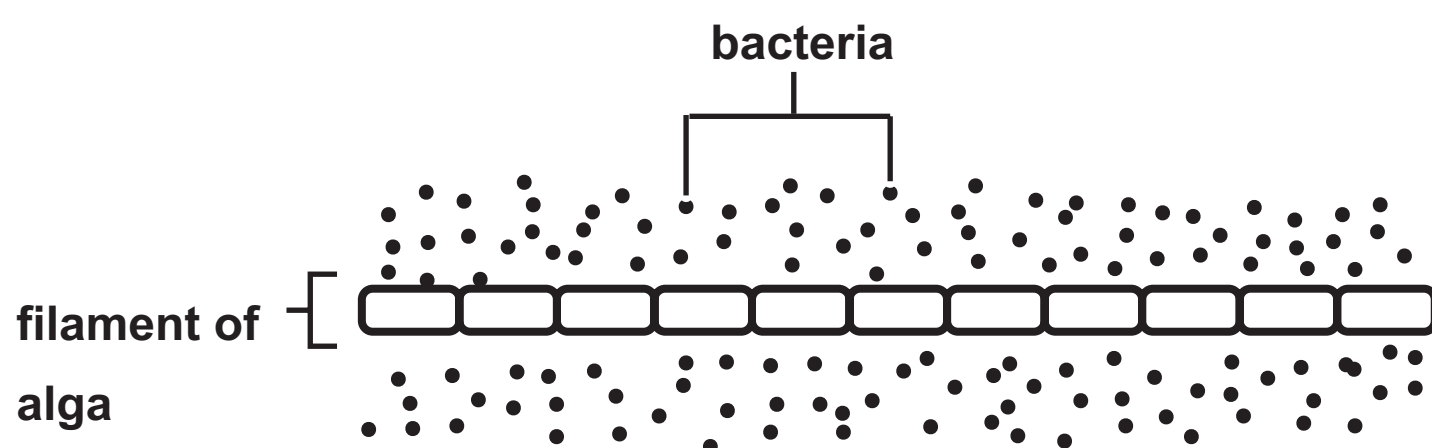


Question 2(a) – spare copy

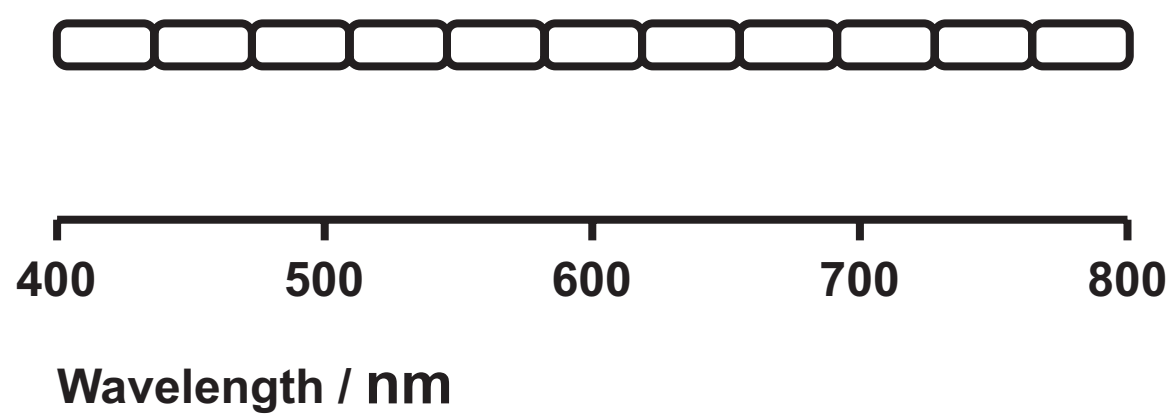


Question 3(a) – Diagram – spare copy

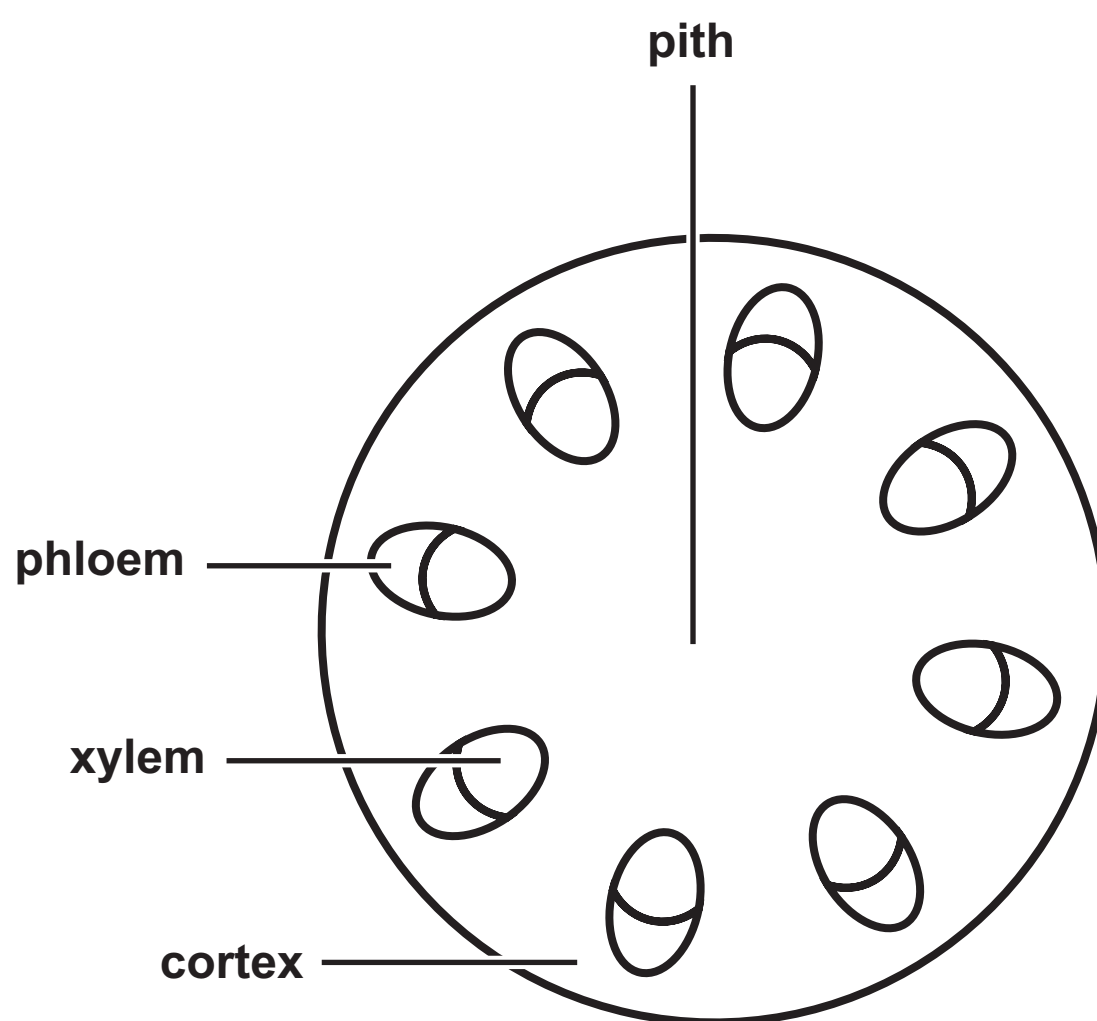
START OF INVESTIGATION



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Question 9(d) – Diagram 2 – spare copy



SOURCE INFORMATION

Question 4(b)

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Question 5(a)

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Question 6(a)

Source adapted from: C Hurford

Question 8

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