

Paper Reference(s) 9BN0/01
Pearson Edexcel Level 3 GCE

Biology A (Salters Nuffield)

Advanced

PAPER 1: The Natural Environment and Species Survival

Diagram Booklet

INSTRUCTIONS

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

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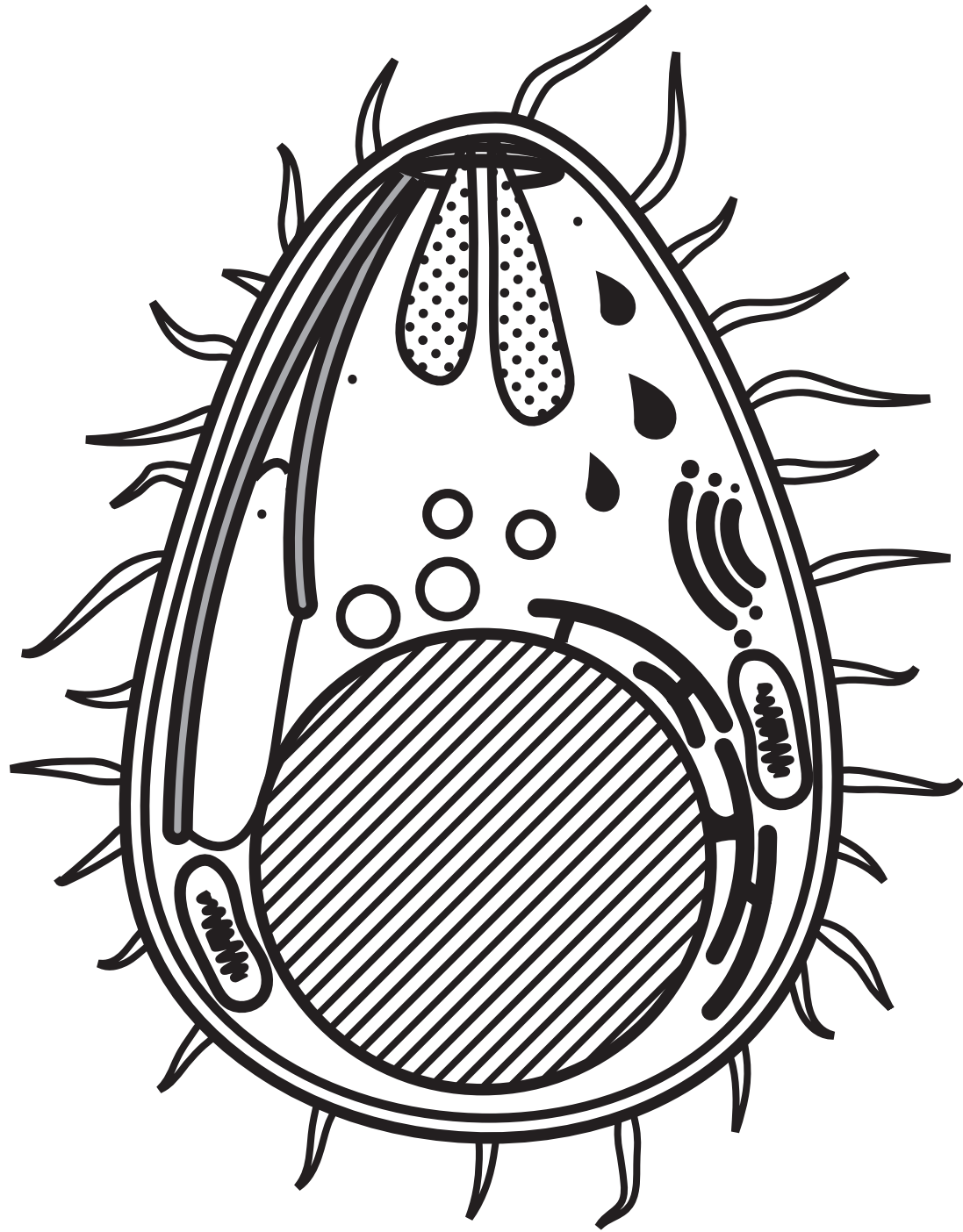
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Question 2(b)

Source of protein	Mass of greenhouse gas released in the production of one serving of the protein / kg
Beef	7·0
Lamb	5·0
Chicken	2·5
Cheese	2·0
Tofu (from soya beans)	1·0
Nuts	0·5

Question 4(a)



Question 5(b)

KEY



Affected male



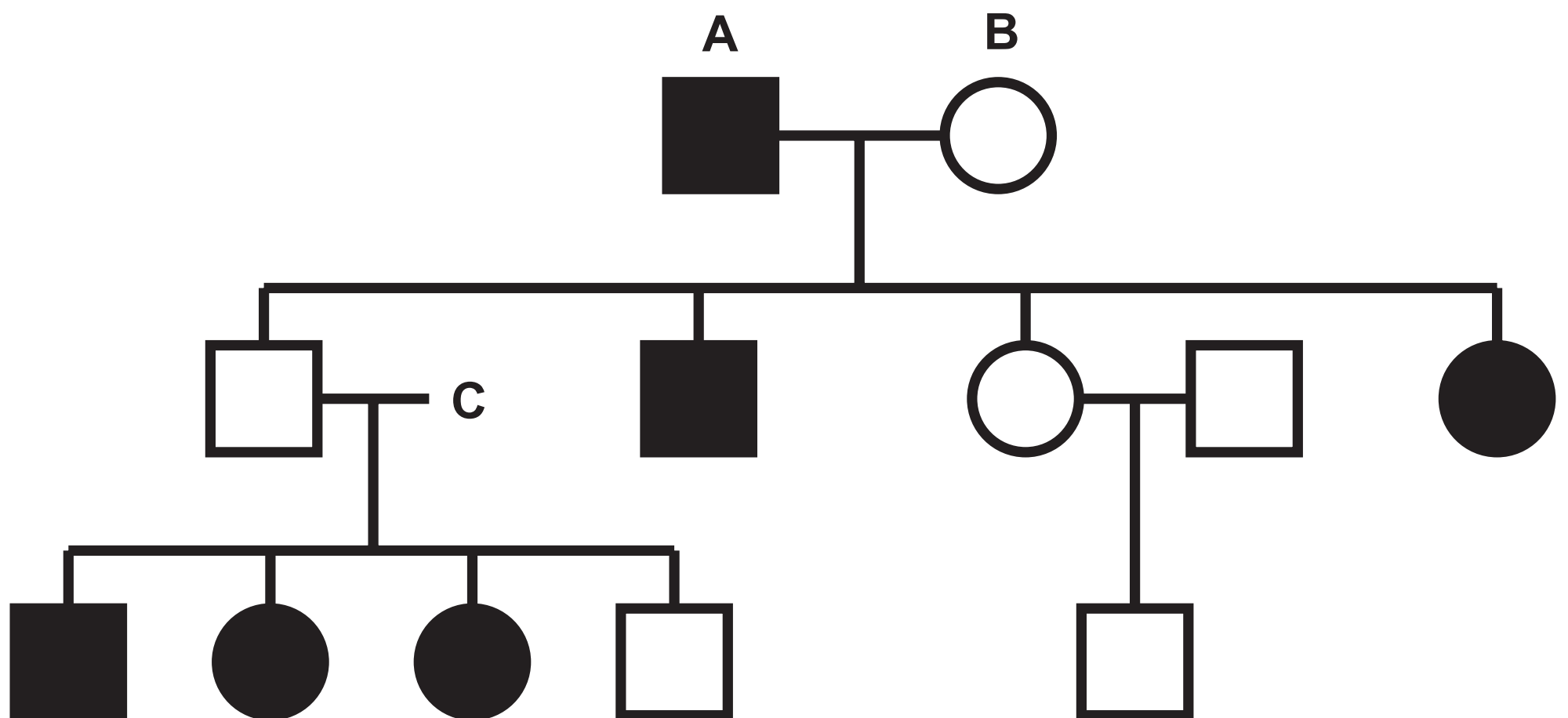
Affected female



Unaffected male



Unaffected female



Question 7(a)

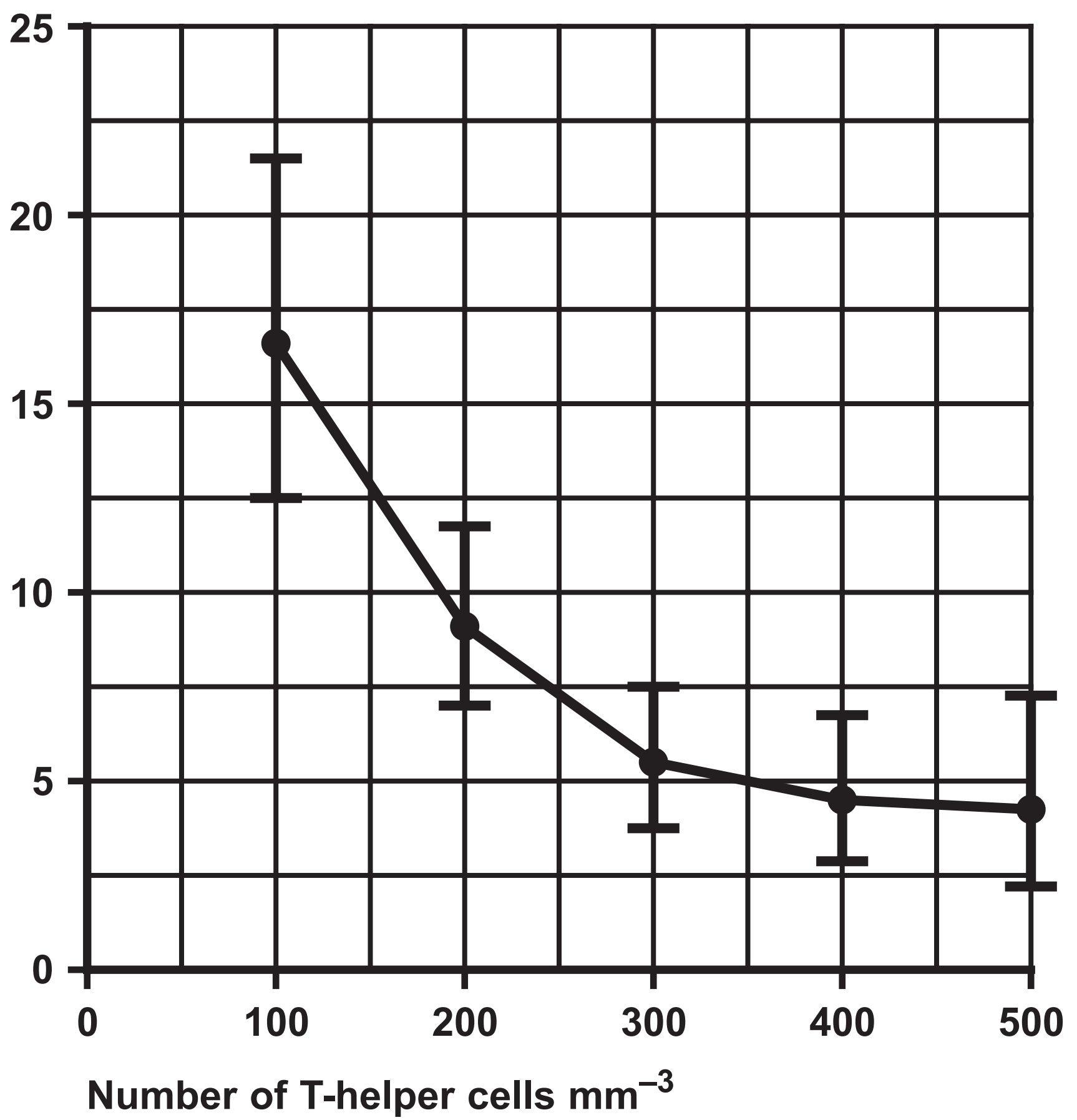
Year	Number of cases of measles	Percentage of children vaccinated (%)
2012	1564	91·2
2013	1855	92·3
2014	135	92·7
2015	71	92·3
2016	556	91·9
2017	216	91·6

Question 8(c)

HIV status	Percentage of people with TB in 2008 (%)	Estimated number of patients with TB who died in 2008	Percentage of deaths due to TB (%)
HIV positive	15	521 700	
HIV negative	85	1 278 400	16

Question 8(c)(iii)

TB incidence
/ a.u.



Question 9(c)(ii)

Gene	Allele richness (Finland population) X (observed)	Allele richness (USA population) Y (expected)	X – Y	(X – Y) ²	(X – Y) ² / Y
1	6	14	8	64	4·57
2	4	5	1	1	0·2
3	7	13	6	36	2·77
4	7	15	8	64	4·27
5	6	6	0	0	0
6	8	12	4	16	1·33
7	2	3	1	1	0·33
8	4	4	0	0	0
9	4	9			
10	3	4			

Question 9(c)(iii)

Degrees of freedom	Probability	
	p = 0·10	p = 0·05
1	2·706	3·841
2	4·605	5·991
3	6·251	7·815
4	7·779	9·488
5	9·236	11·070
6	10·645	12·592
7	12·017	14·067
8	13·362	15·507
9	14·684	16·919
10	15·987	18·307

Question 9(d)

Heterozygosity index for Finland population	Heterozygosity index for North American population
0.692	0.742

Question 10

Species	Shade tolerance	Rate of photosynthesis / a.u.	
		Seedlings grown in 25% of full sunlight	Seedlings grown in 5% of full sunlight
A	Intolerant	410	415
B	Intermediate	300	275
C	Tolerant	180	210
D	Very tolerant	150	215

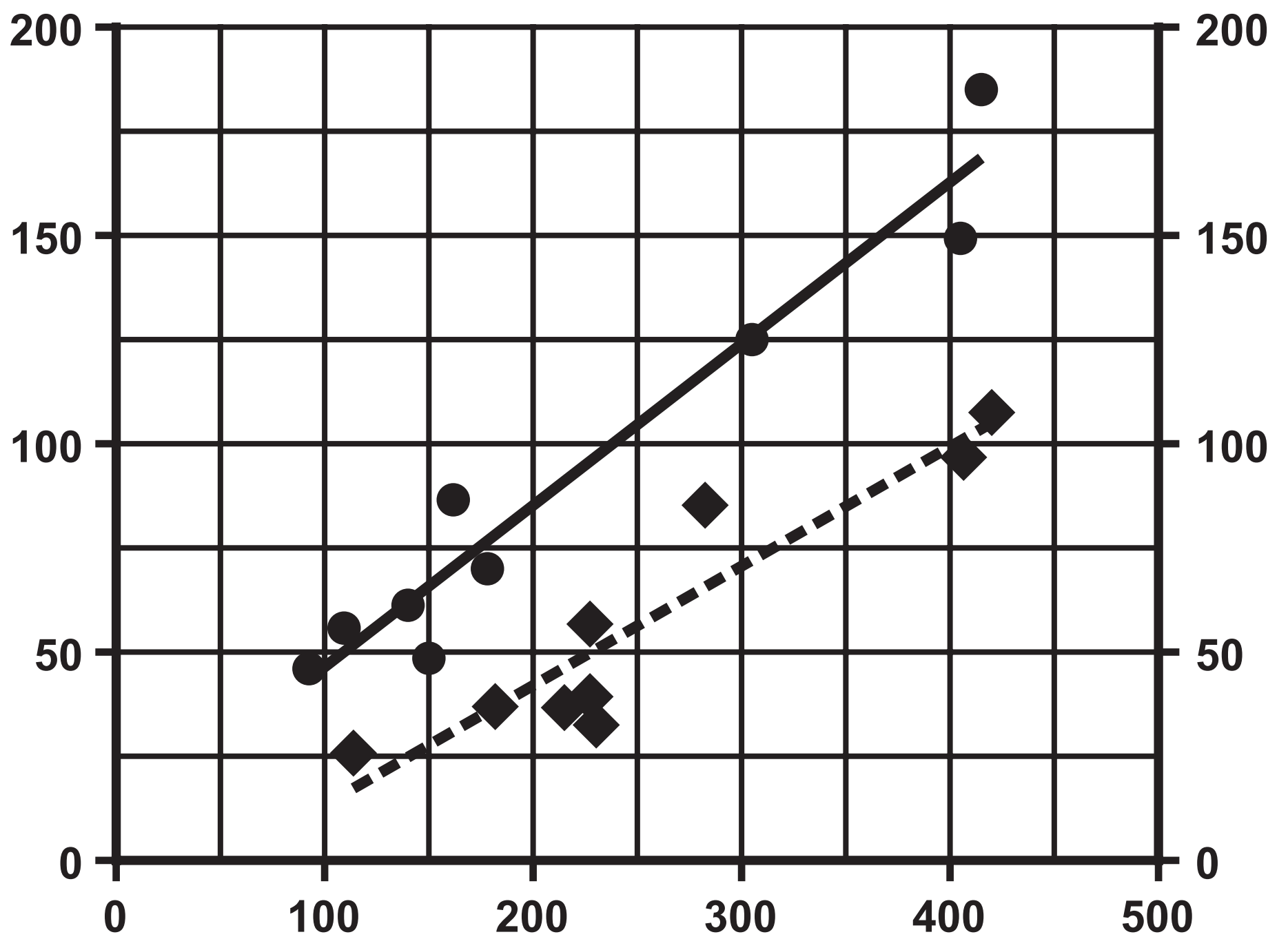
Question 10(a)(ii)

KEY

● 25% light

◆ 5% light

Rate of growth
/ a.u.



Rate of photosynthesis / a.u.