

**Paper Reference(s) 9BI0/01  
Pearson Edexcel Level 3 GCE**

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

**Wednesday 7 June 2023 – Afternoon**

**Diagram Booklet**

**In the boxes below, write your name, centre number and candidate number.**

<b>Surname</b>					
<b>Other names</b>					
<b>Centre Number</b>					
<b>Candidate Number</b>					

## **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.**

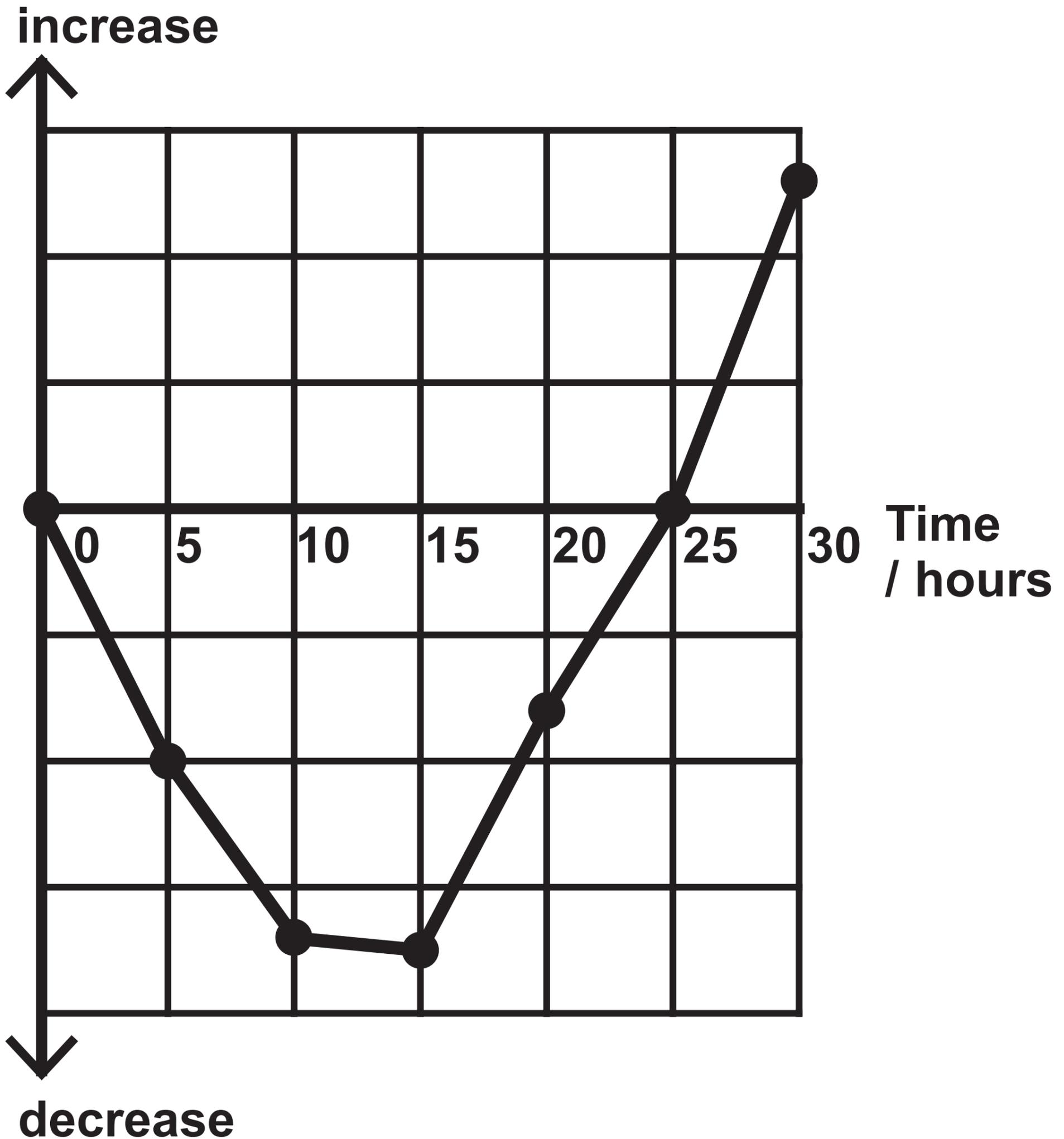
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<b>Spare copies</b>	
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**Question 1(b)**

**Change in concentration of potassium ions  
in the cells in the roots of the seedlings**



## Question 2(a)

<b>Characteristic</b>	<b>Organisms in the domain Archaea</b>
<b>membrane-enclosed nucleus</b>	<b>absent</b>
<b>peptidoglycan in cell wall</b>	<b>absent</b>
<b>ribosomes</b>	<b>70S</b>

## Question 2(b)

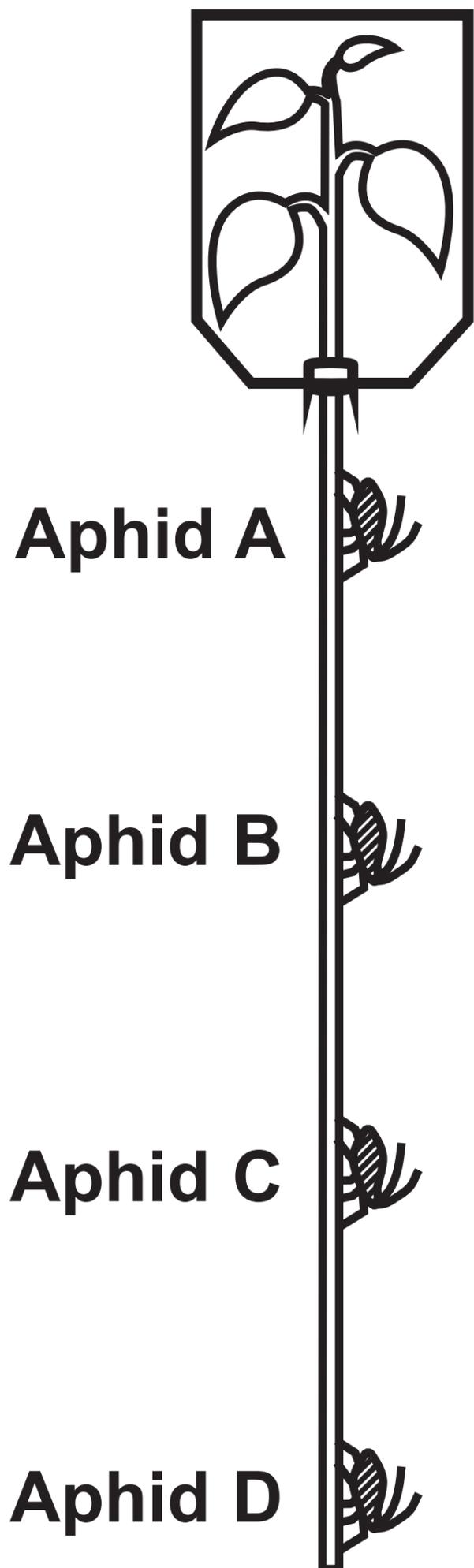
6

<b>Enzyme</b>	<b>Location in the cell</b>	<b>Substrate</b>	<b>Role of enzyme</b>
<b>AK1</b>	<b>cytoplasm</b>	<b>adenosine triphosphate (ATP)</b>	<b>transfers phosphate</b>
<b>AK3</b>	<b>mitochondria</b>	<b>guanosine triphosphate (GTP)</b>	<b>transfers phosphate</b>

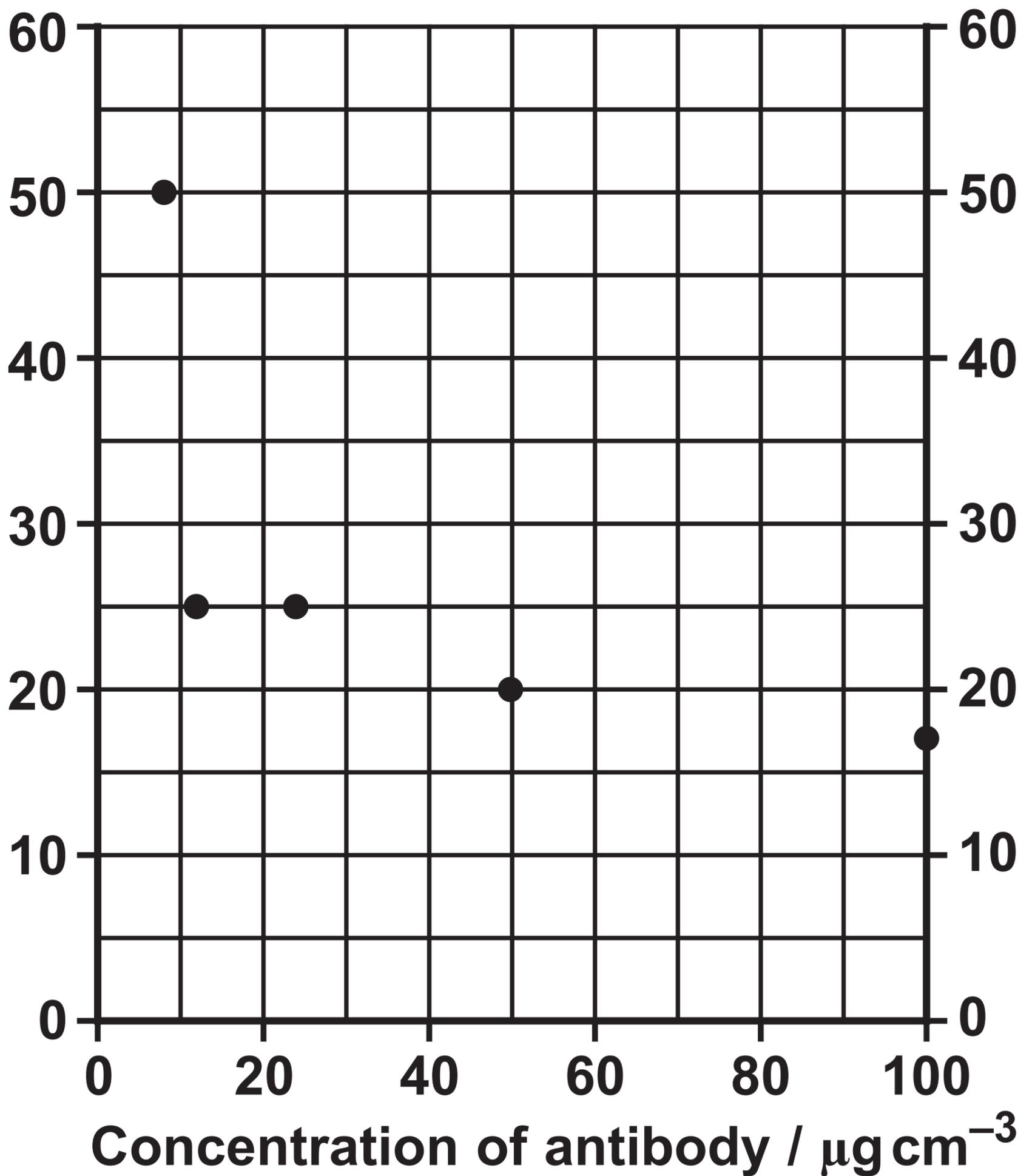
### Question 3(b)

Statement	Type of tissue			
	both xylem and phloem	xylem only	phloem only	neither xylem nor phloem
Contain sieve plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have cellulose in the cell walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have mitochondria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Question 3(c)(i)

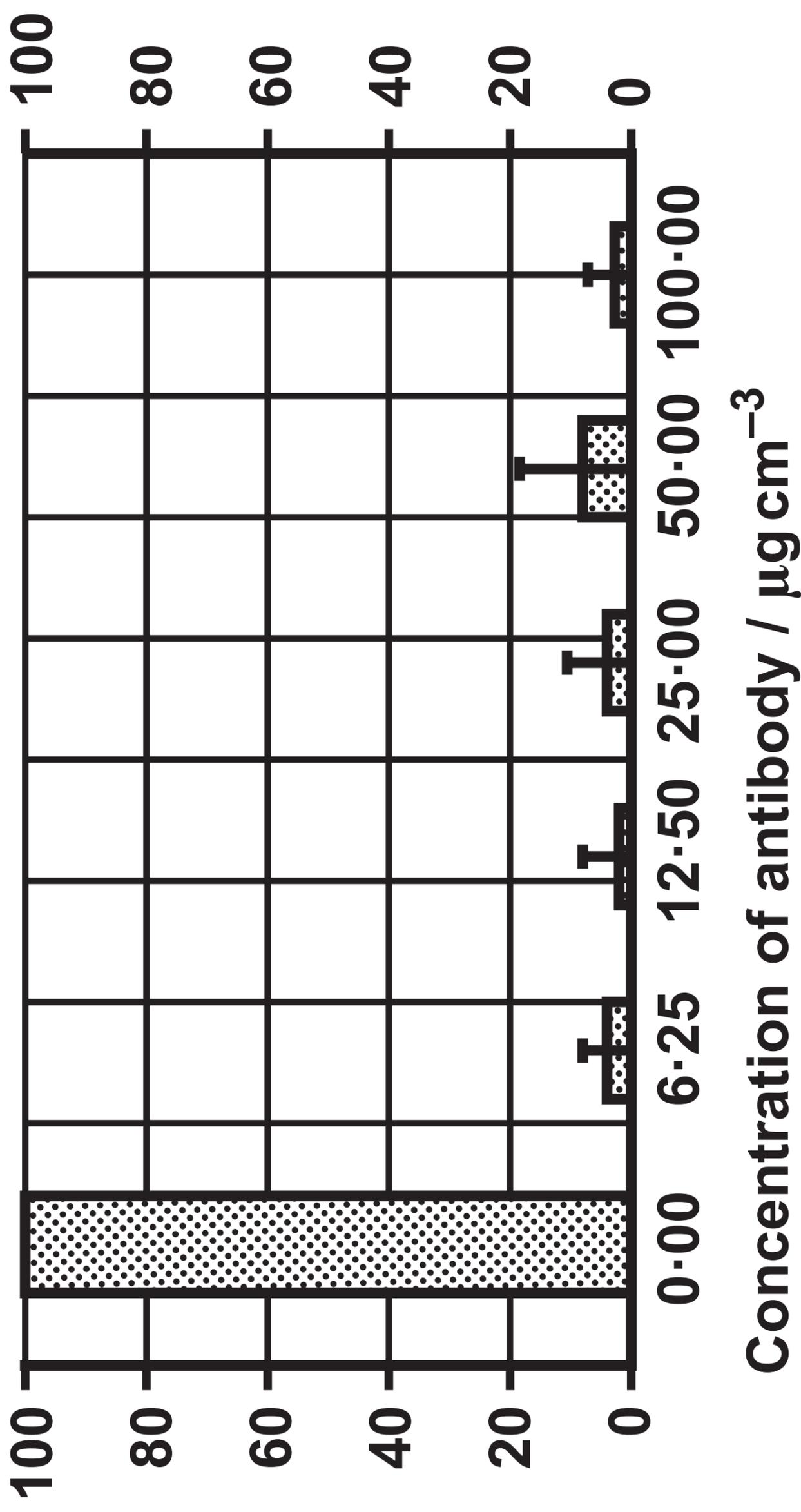


- 1. The leaves of a plant are covered with a glass chamber containing radioactive carbon dioxide.**
- 2. The plant produces radioactive sugars by photosynthesis.**
- 3. Aphids, A, B, C and D are attached to the stem and allowed to feed on the contents of the phloem.**
- 4. The aphids are analysed to determine the time at which radioactivity first appeared in their bodies.**

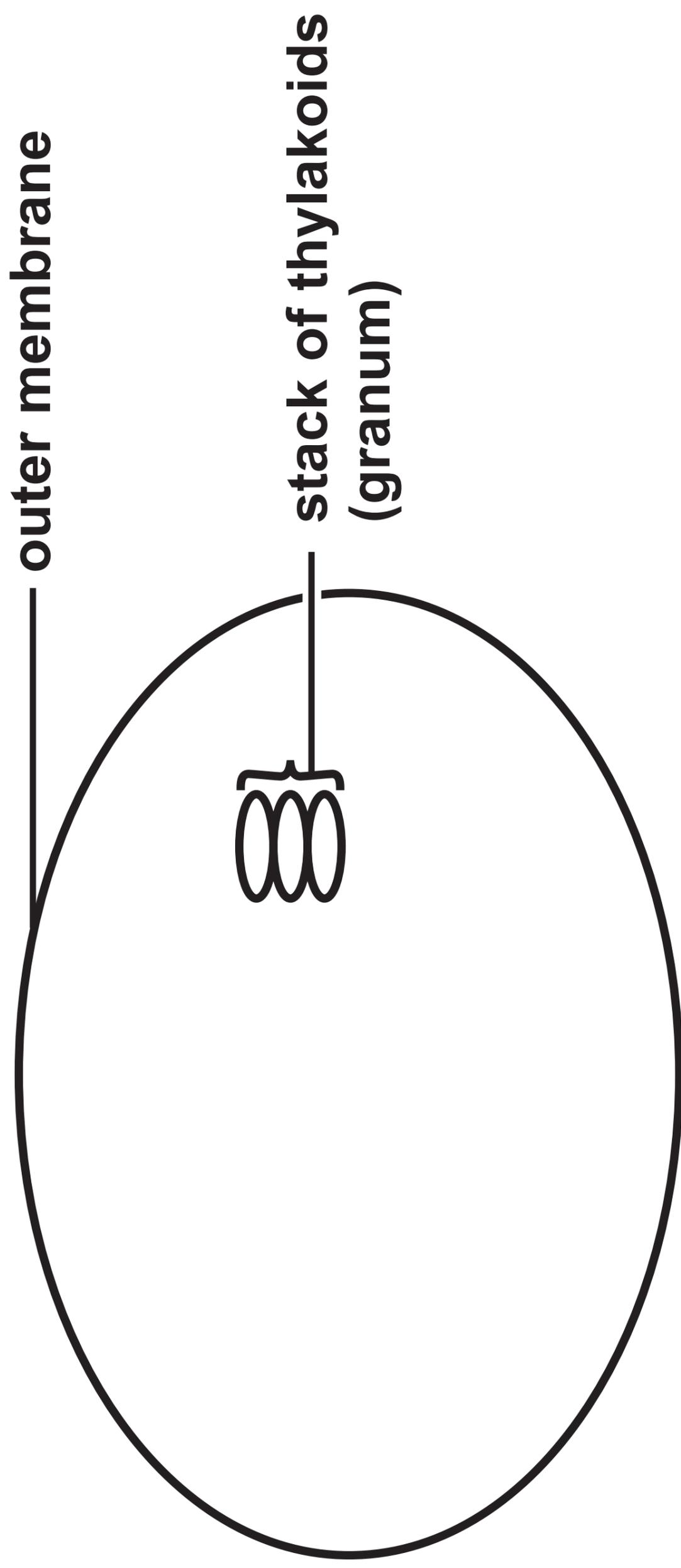
**Question 5(b)(ii)****Time taken for 100%  
agglutination / secs****(continued on the next page)****Turn over**

**Question 5(b)(ii) continued.**

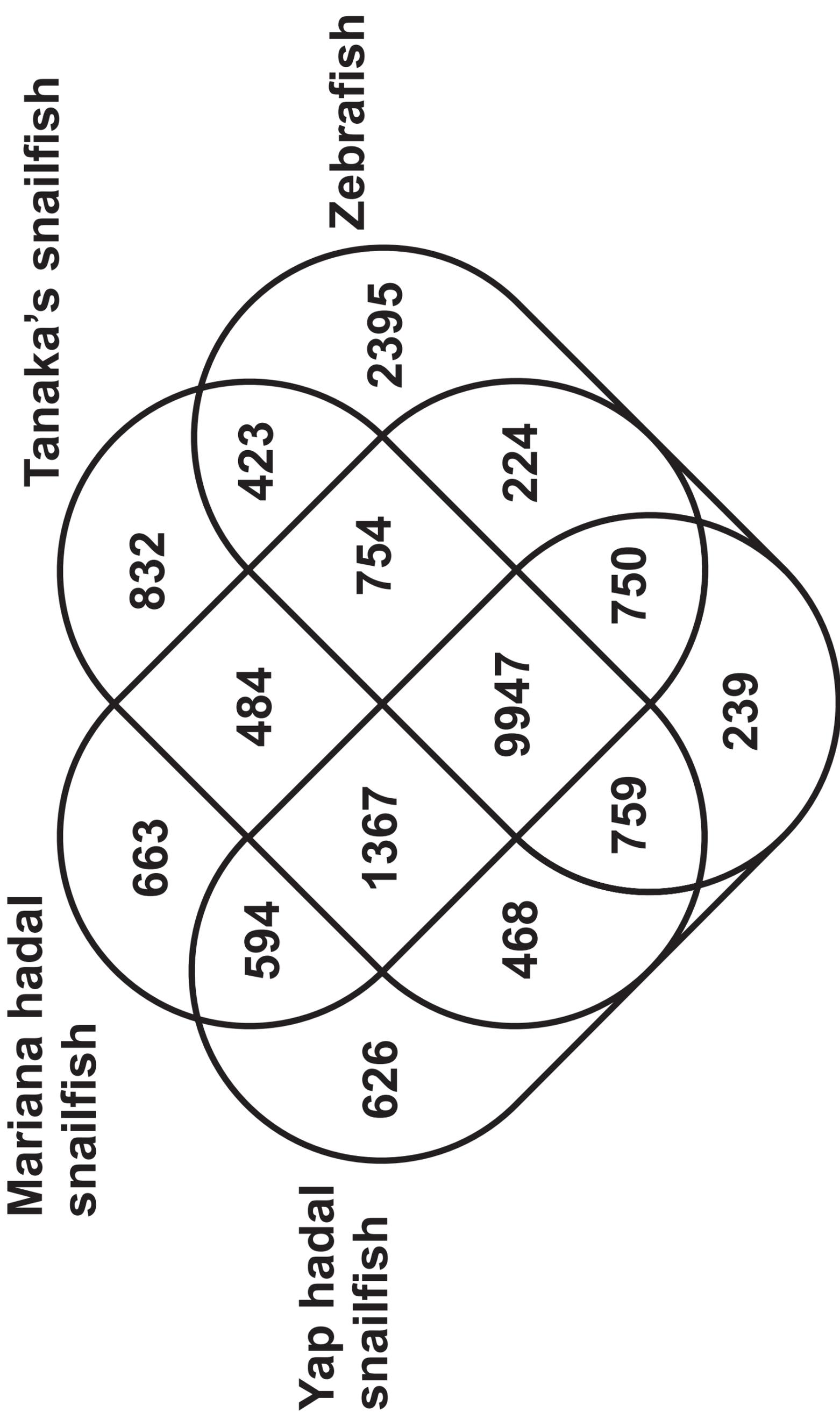
**Percentage of sperm cells that escaped compared with the control with no antibody (%)**

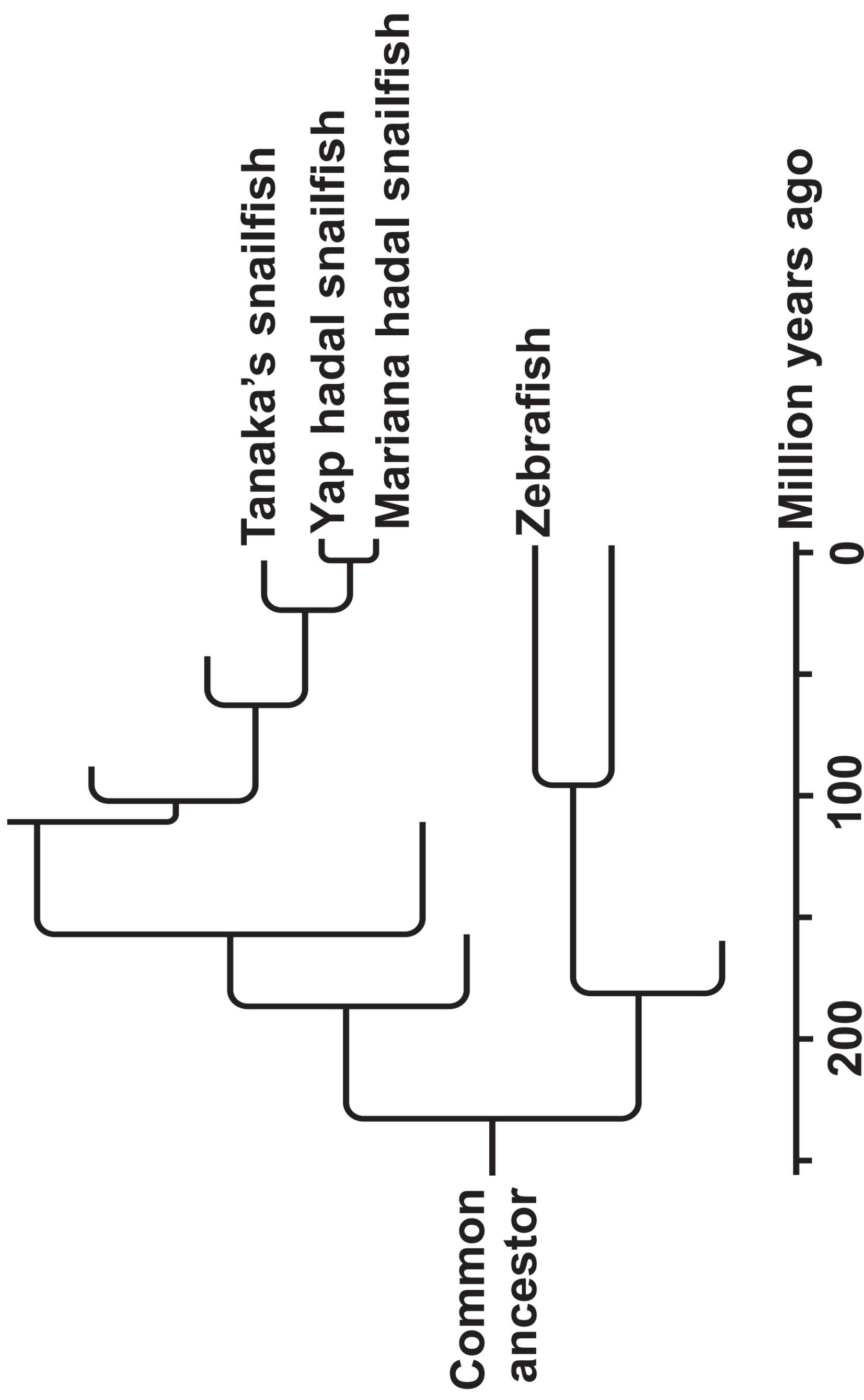


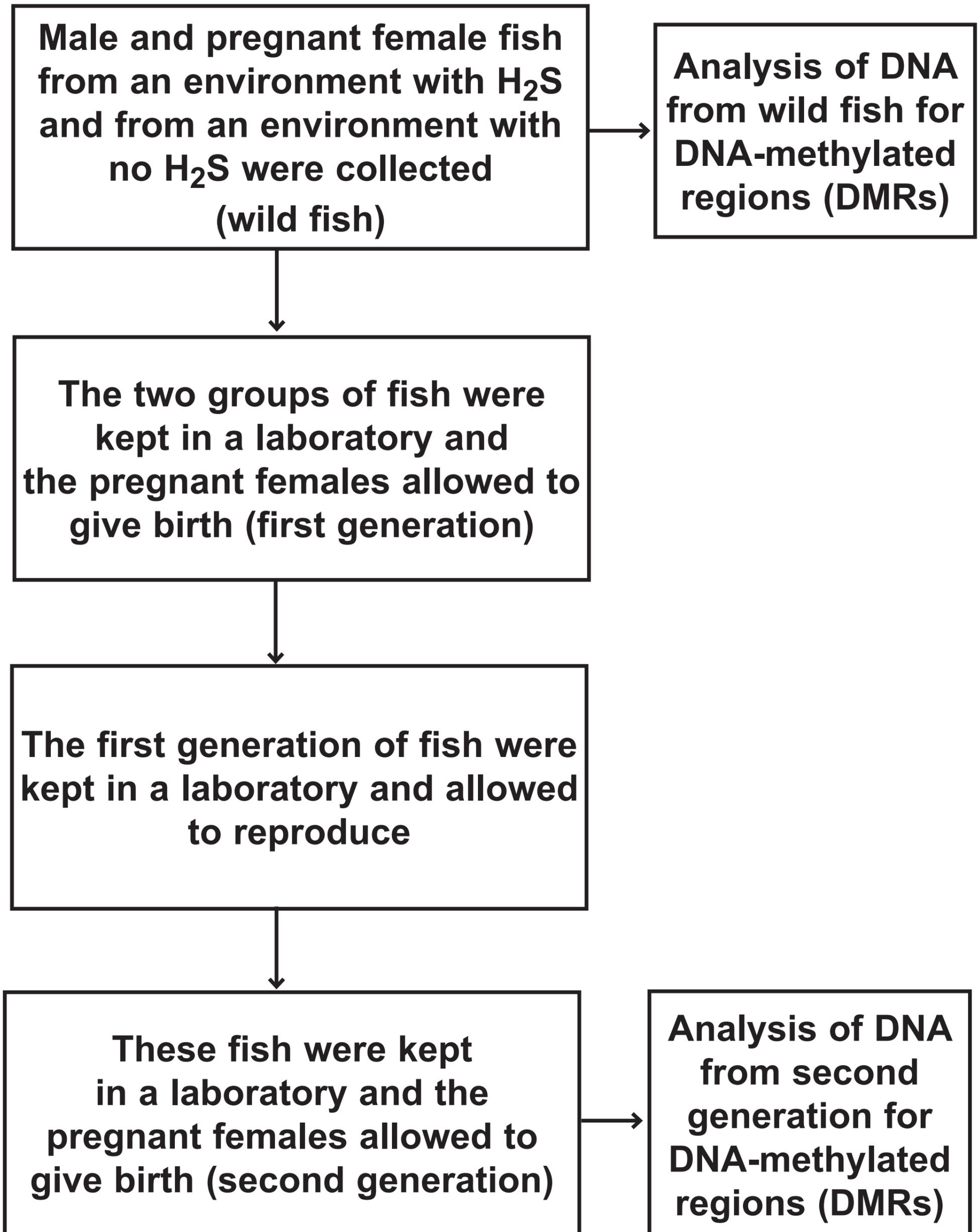
**Question 6(a)**



# Question 7(b)(ii)



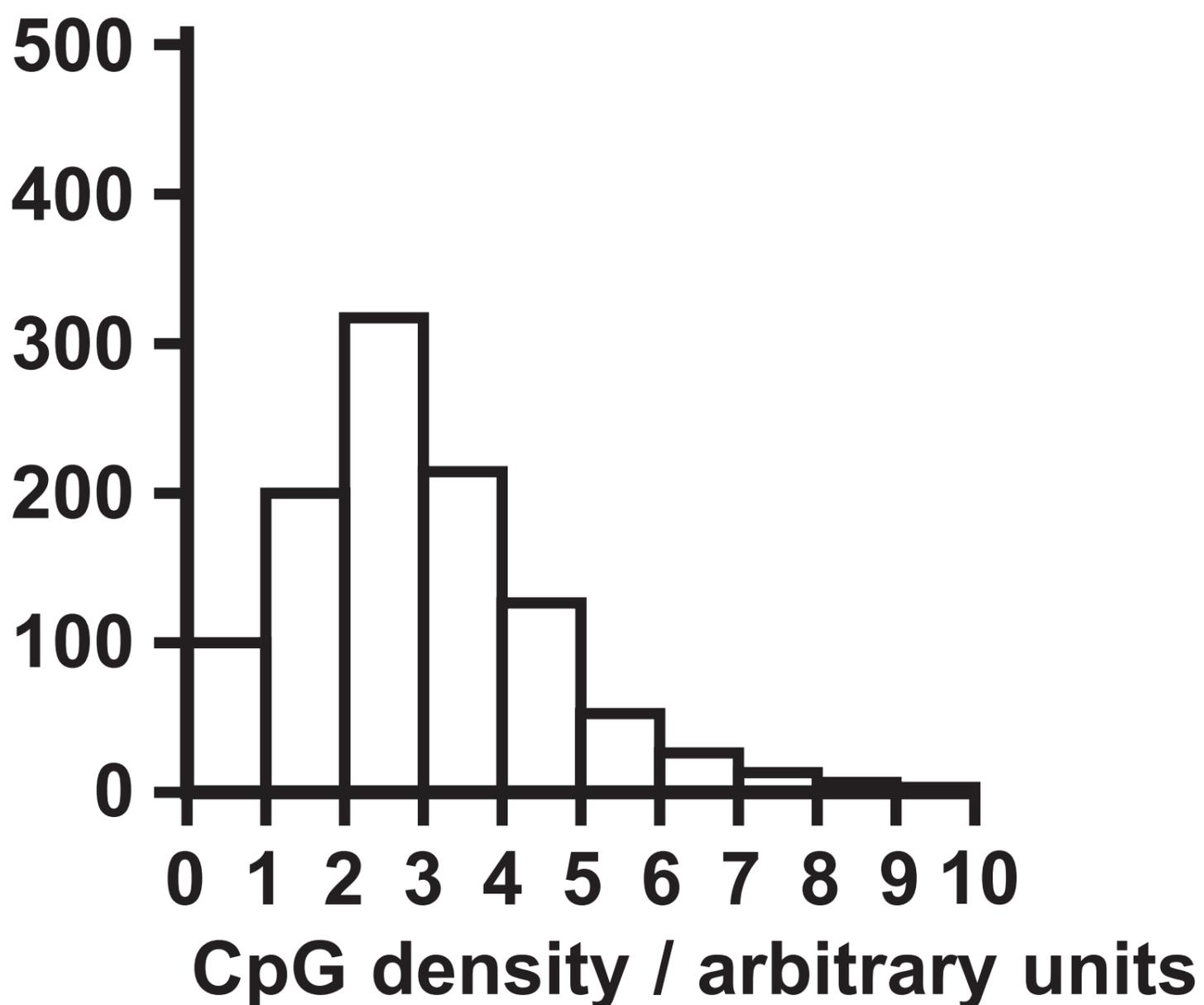


**Question 9(c)****(continued on the next page)****Turn over**

**Question 9(c)**

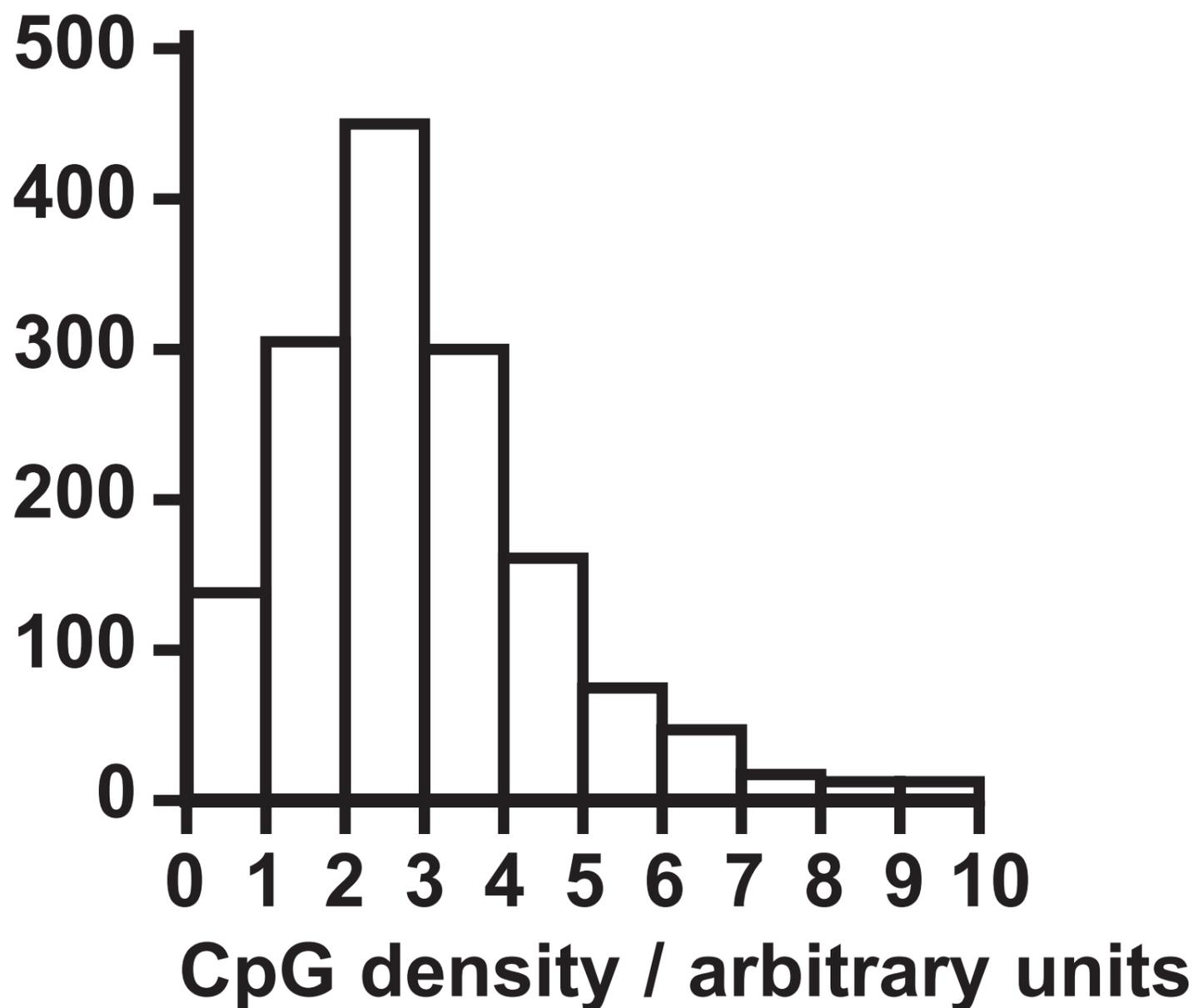
**Graph 1: Wild male fish  
fish from environment with H<sub>2</sub>S compared  
with fish from environment with no H<sub>2</sub>S**

**Increase in  
number of DMRs**



**(continued on the next page)**

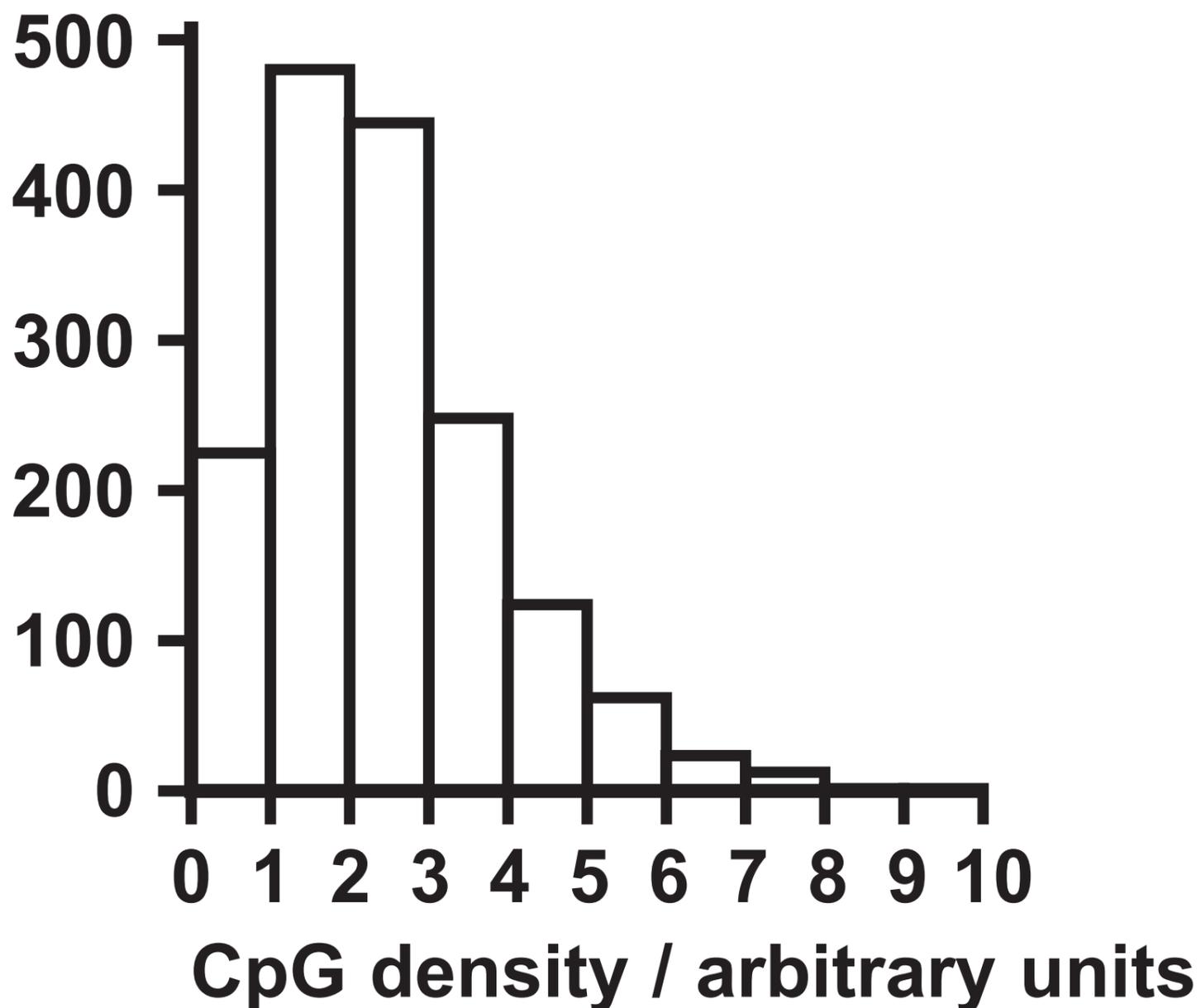
**Turn over**

**Question 9(c)****Graph 2: Wild female fish  
fish from environment with H<sub>2</sub>S compared  
with fish from environment with no H<sub>2</sub>S****Increase in  
number of DMRs****(continued on the next page)****Turn over**

**Question 9(c)**

**Graph 3: Second generation male fish from environment with H<sub>2</sub>S compared with fish from environment with no H<sub>2</sub>S**

**Increase in  
number of DMRs**



**(continued on the next page)**

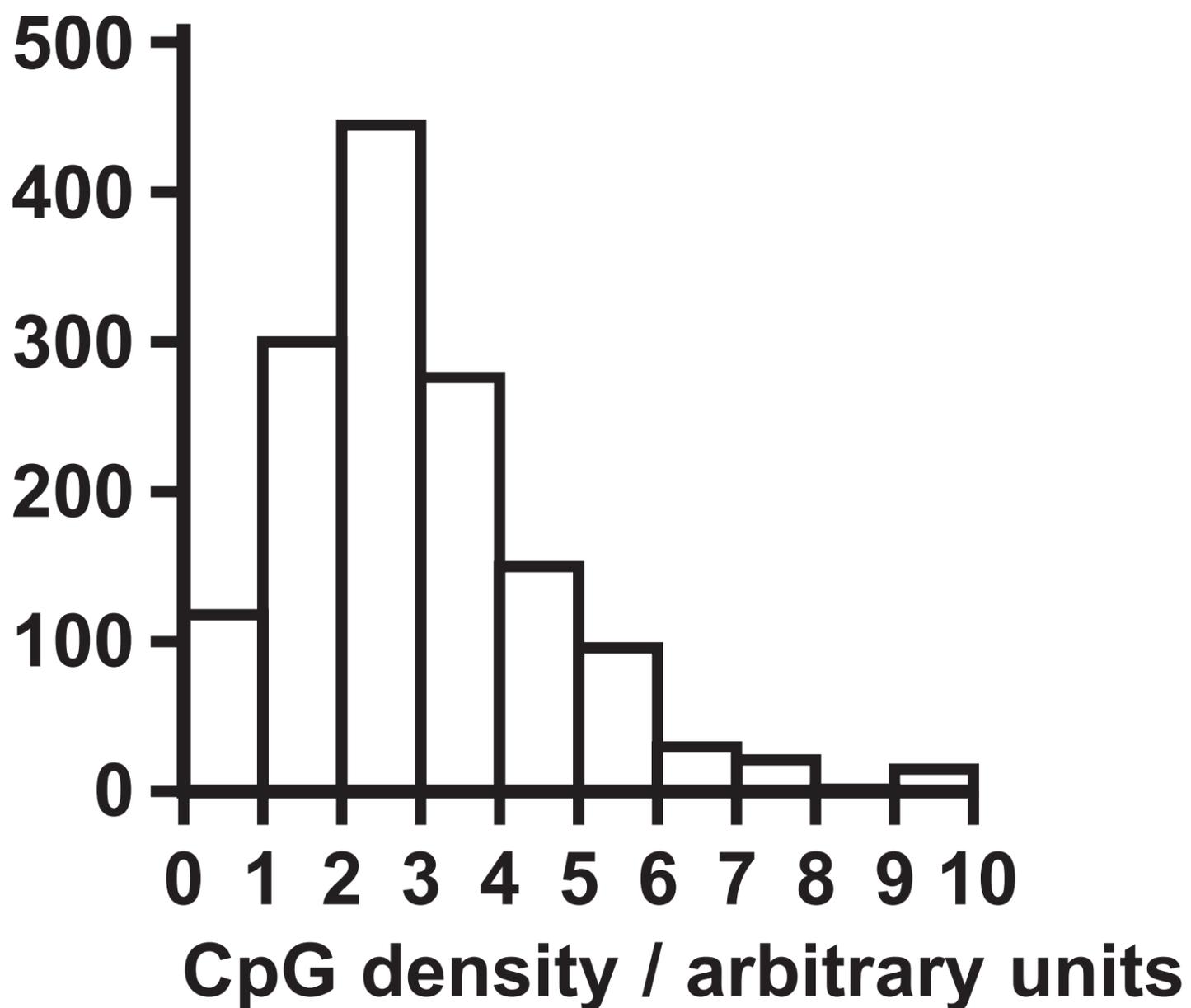
**Turn over**

## Question 9(c)

### Graph 4: Second generation female fish

fish from environment with H<sub>2</sub>S compared with fish from environment with no H<sub>2</sub>S

Increase in number of DMRs



**Question 6(a)**

