

Paper Reference(s) 9BN0/03
Pearson Edexcel Level 3 GCE

Biology A (Salters Nuffield)
Advanced
PAPER 3: General and Practical Applications in Biology

Wednesday 19 June 2024 – Morning

Time: 2 hours

Diagram Booklet

THIS DIAGRAM BOOKLET MUST BE RETURNED WITH THE QUESTION PAPER AT THE END OF THE EXAMINATION.

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

Surname					
Other names					
Centre Number					
Candidate Number					

INSTRUCTIONS

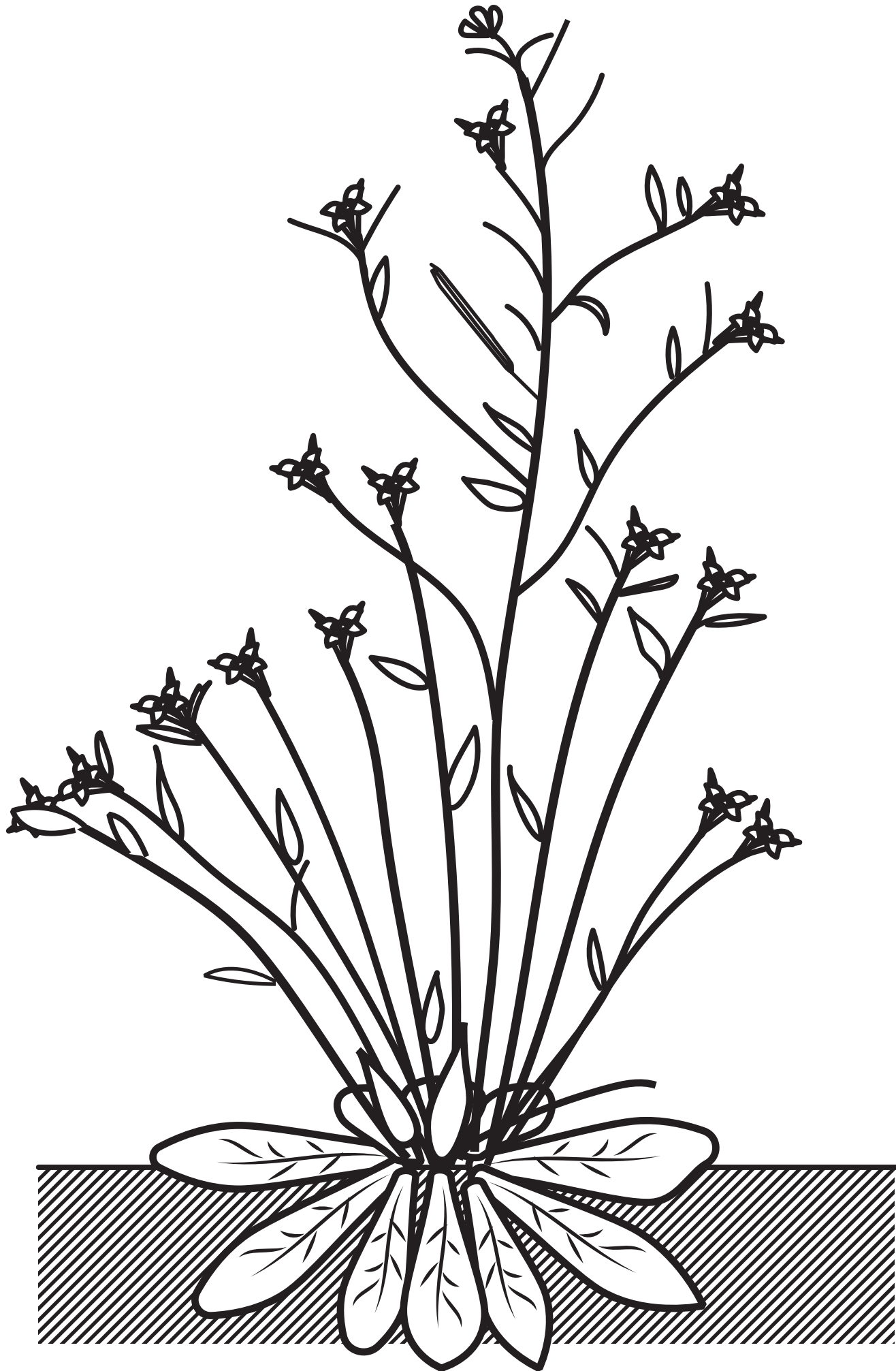
There may be spare copies of some diagrams in case you need them.

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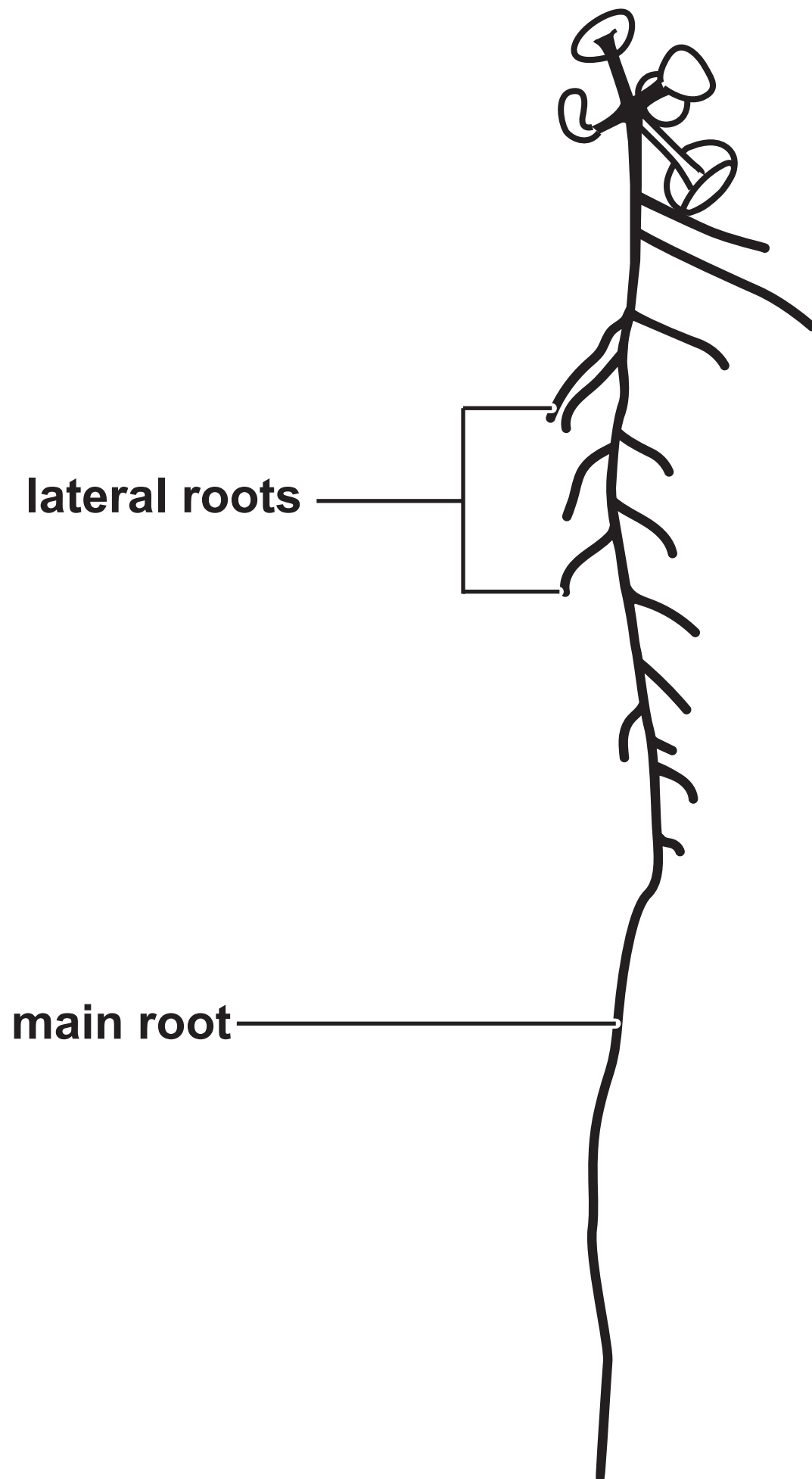
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Question 1



Question 1(c) – diagram



Question 1(c) – graph

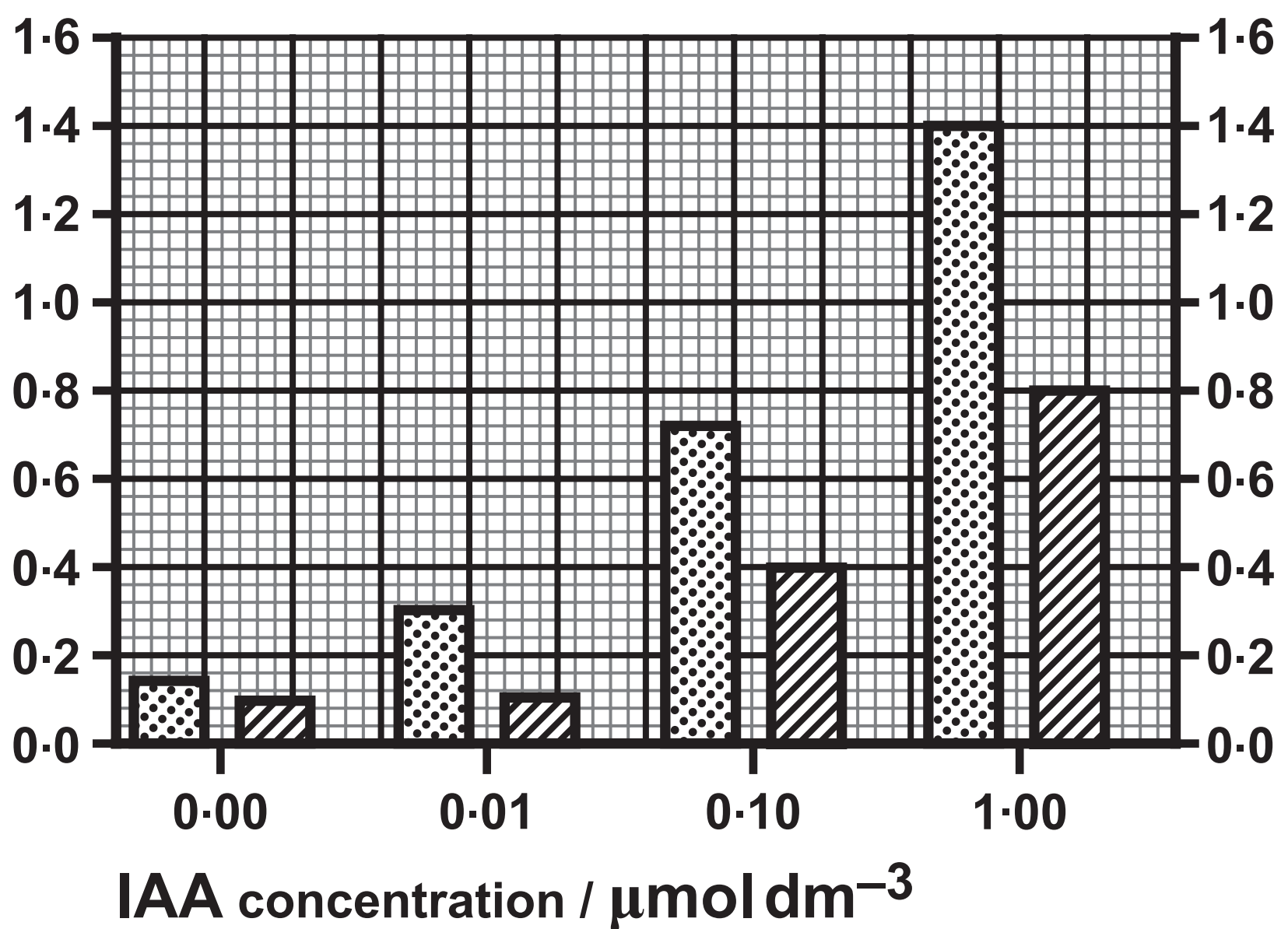
KEY

Thale cress homozygous for:

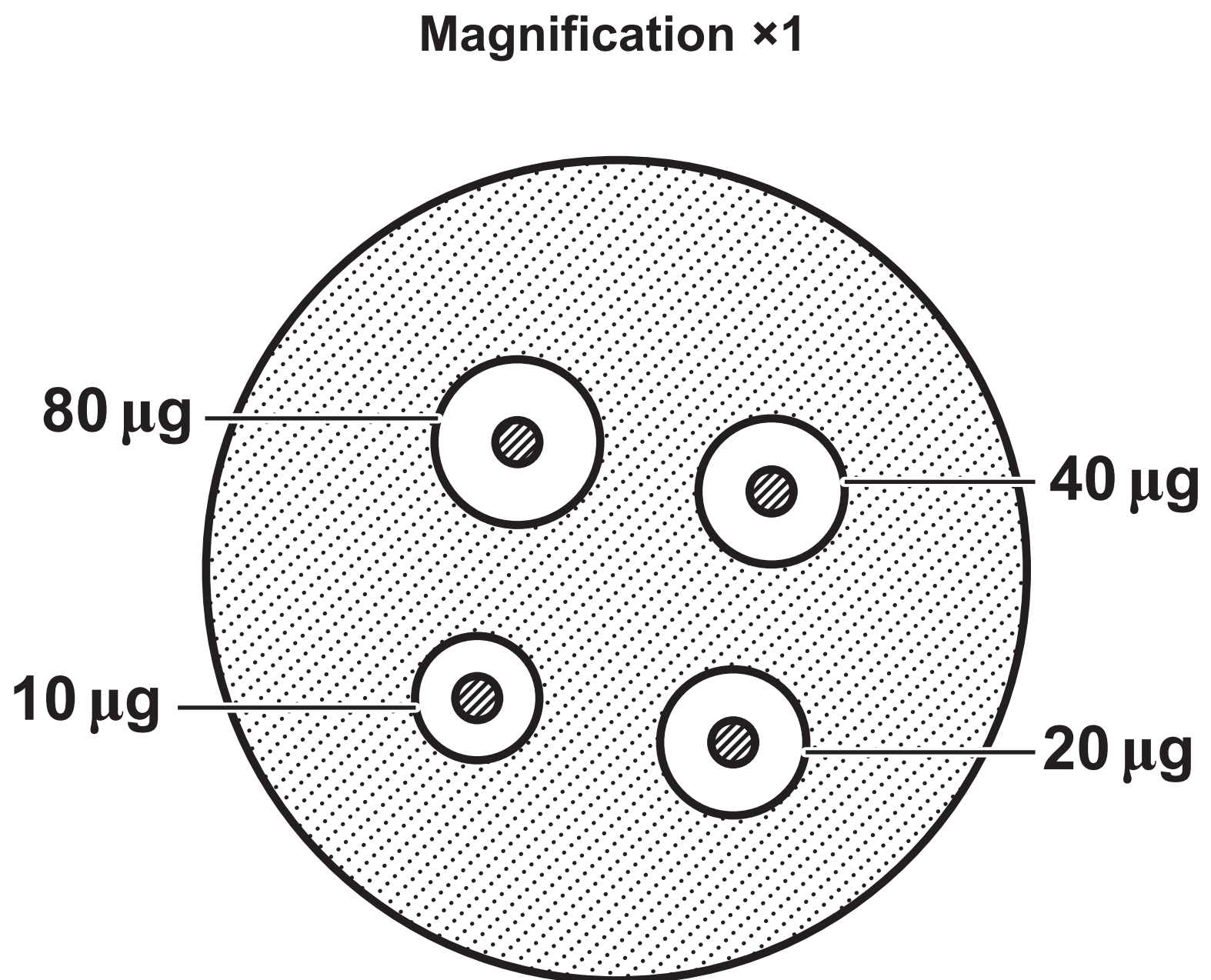
▣ normal **tir1** gene

▨ mutant **tir1** gene

Mean number of lateral
roots per mm



Question 2

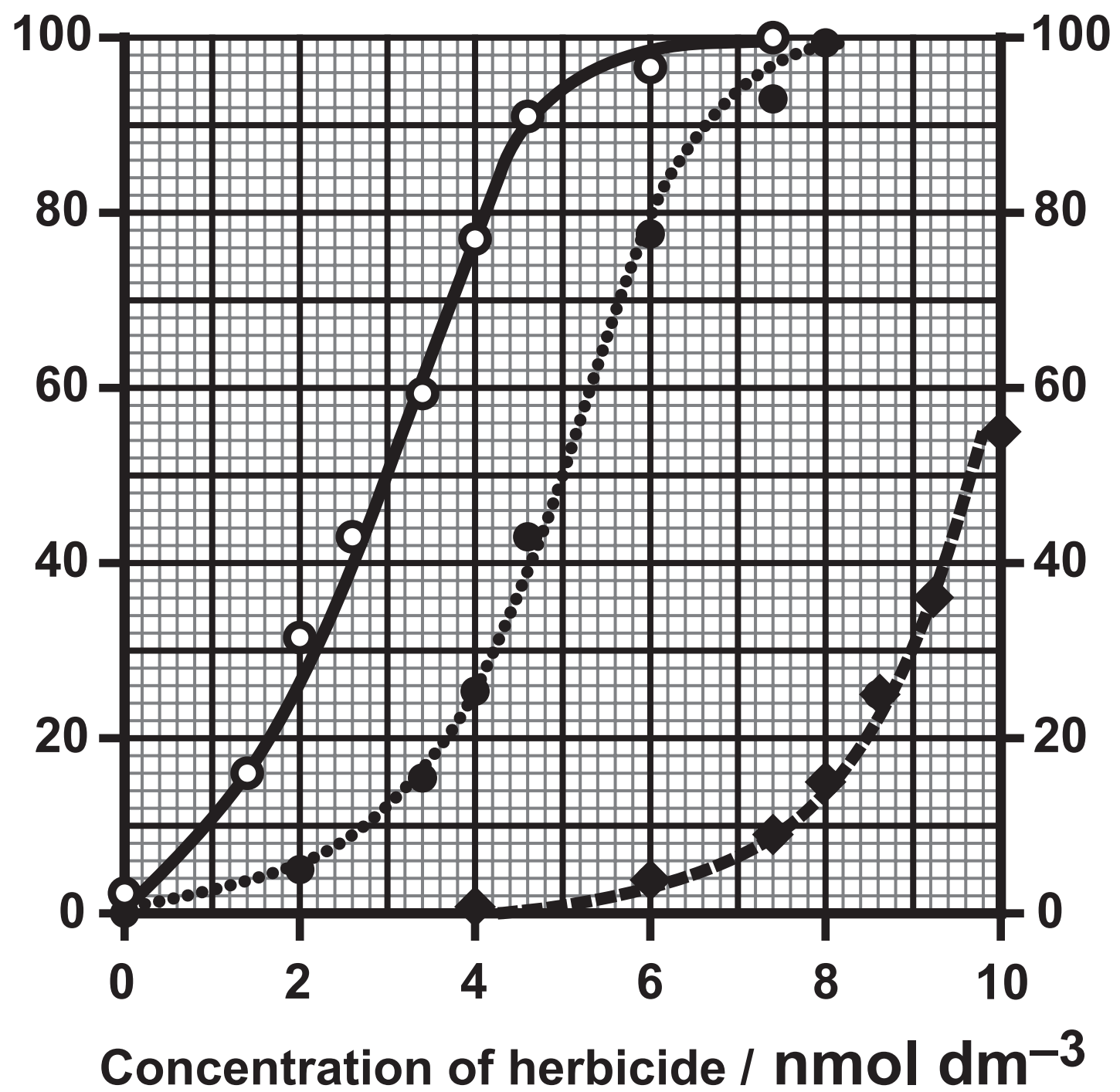


Question 3(a)

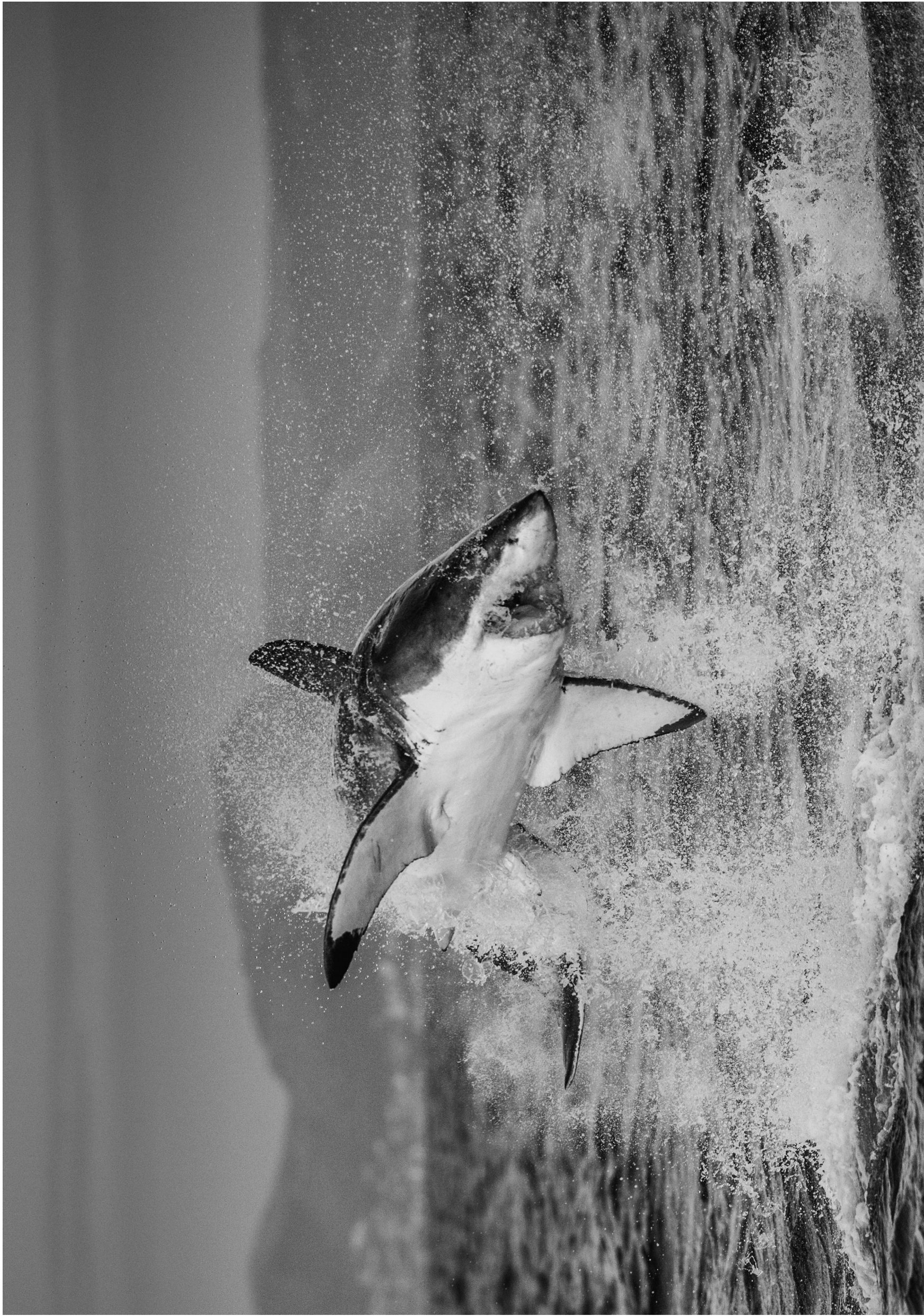
KEY

- Herbicide A
- ...●... Herbicide B
- ◆- Herbicide C

Percentage inhibition
of the Hill reaction (%)



Great white shark



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Turn over



Question 4 continued.

Tertiary consumer
e.g. great white shark



Secondary consumer
e.g. fish



Primary consumer
e.g. zooplankton



Primary producer
e.g. phytoplankton

Secondary consumer
e.g. humpback whale



Primary consumer
e.g. krill



Primary producer
e.g. phytoplankton

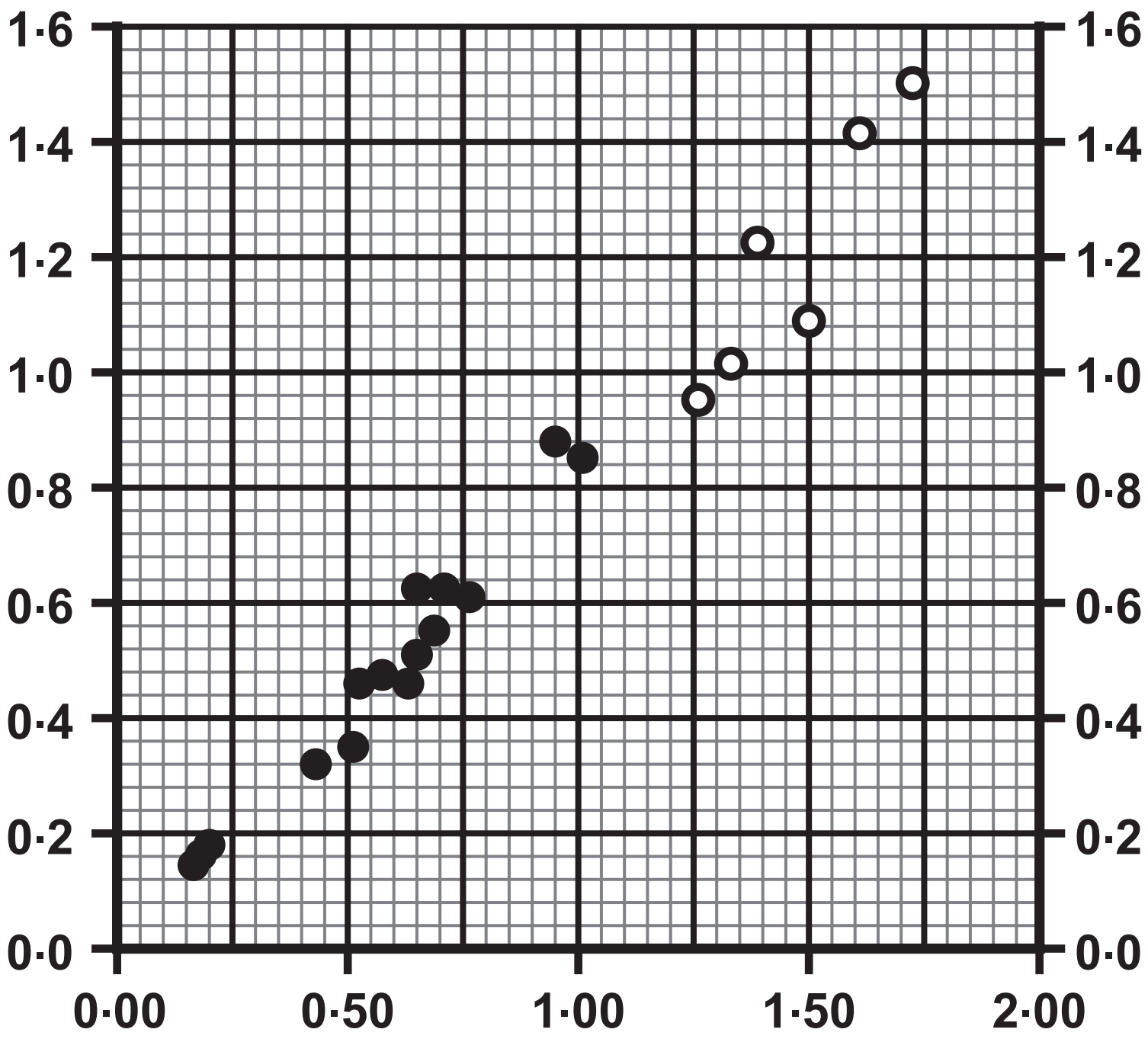
Question 4(c)

KEY

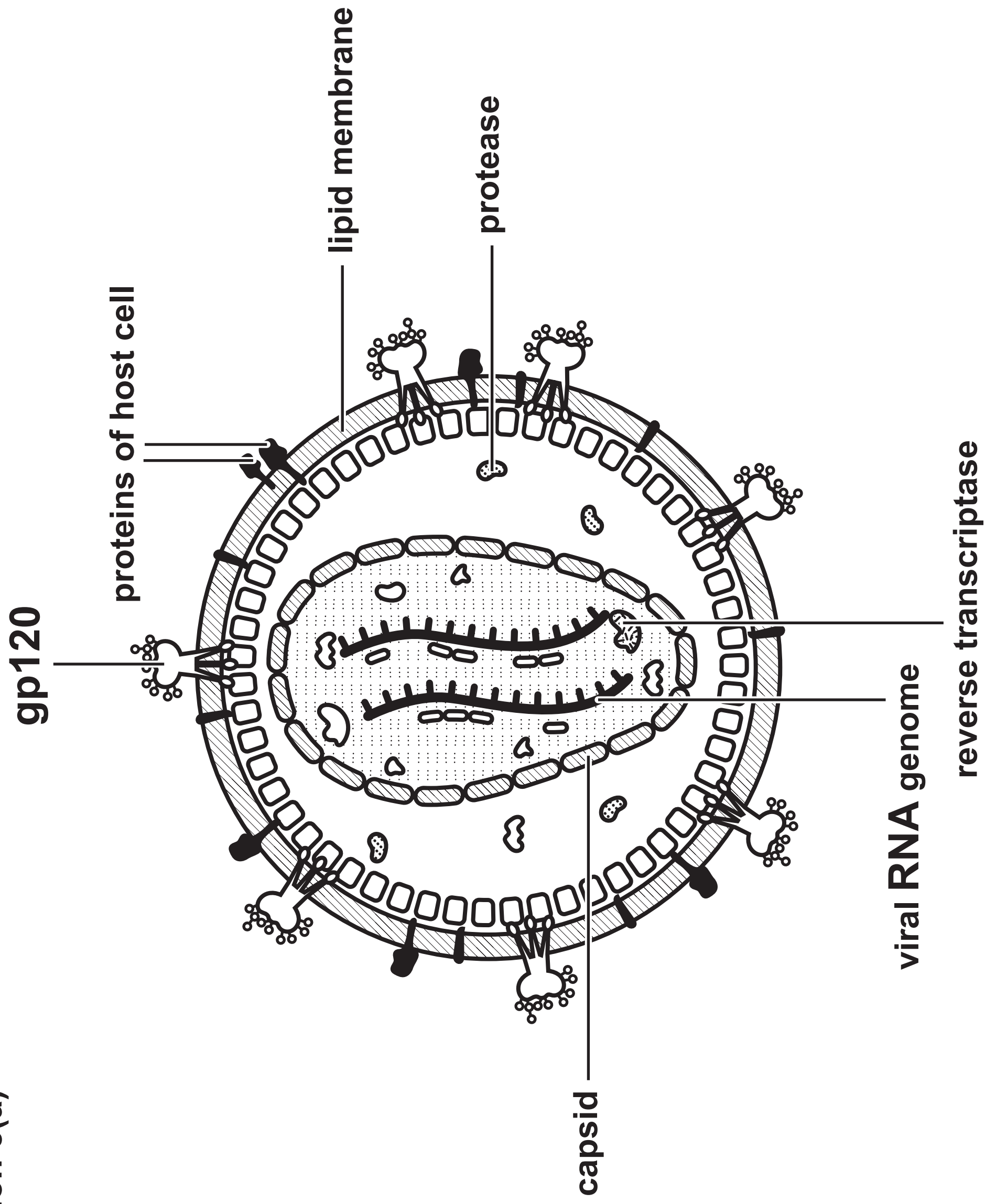
● 17°C

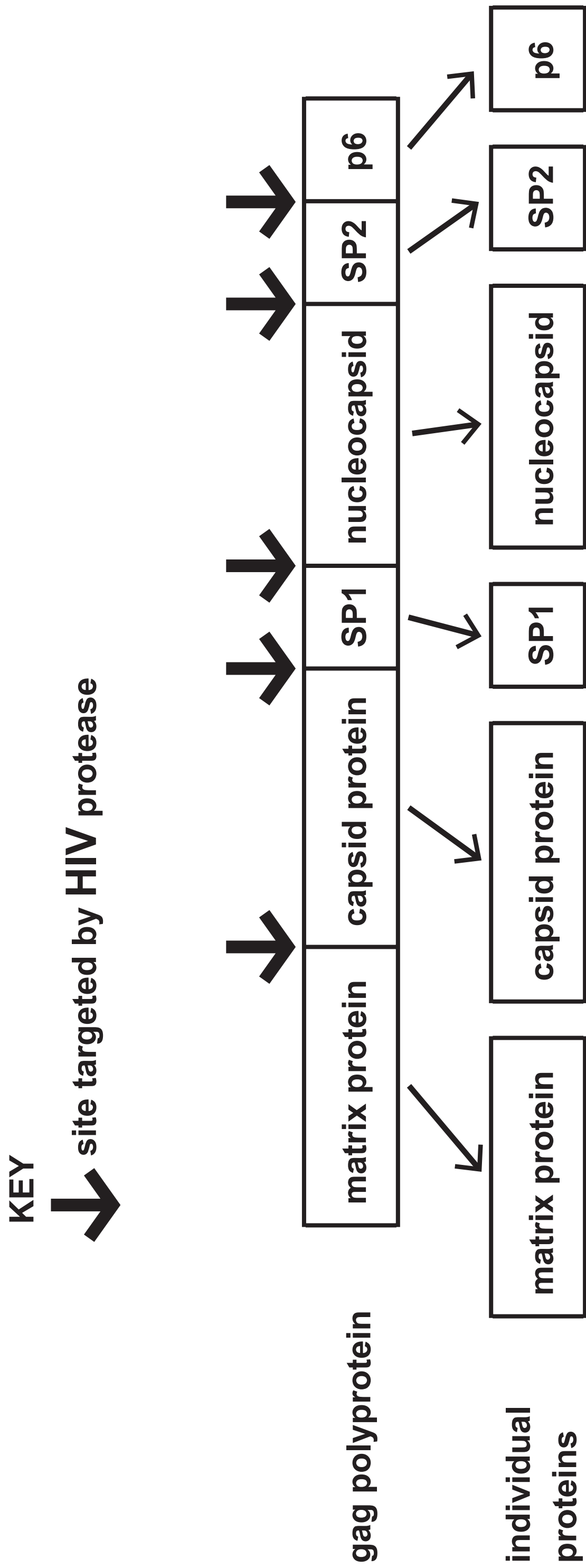
○ 14°C

CO₂ produced per individual / $\mu\text{m}^3 \text{ hour}^{-1}$



Uptake of O₂ per individual / $\mu\text{m}^3 \text{ hour}^{-1}$





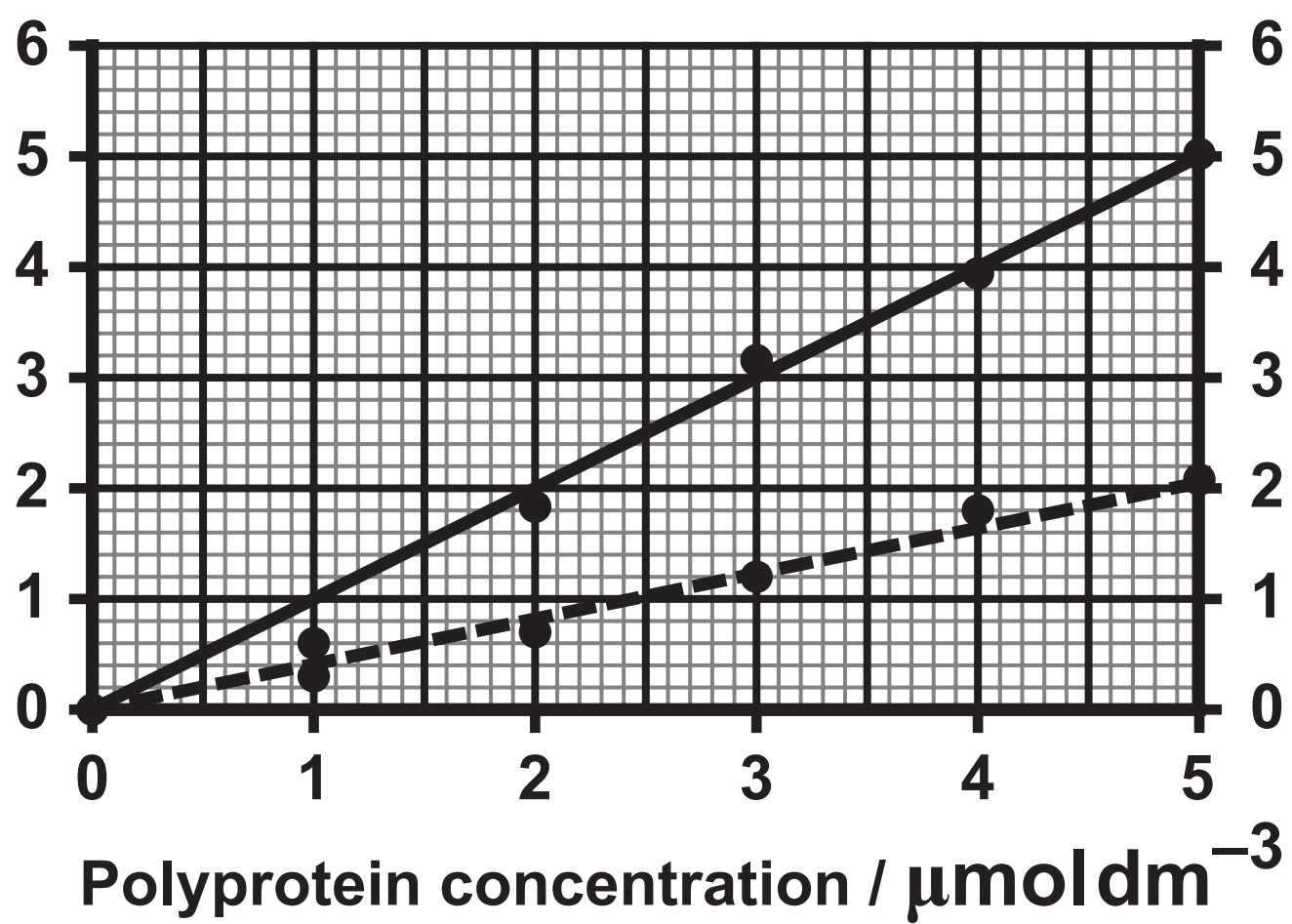
Question 5(c)

KEY

—— normal HIV protease

----- inhibitor-resistant HIV protease

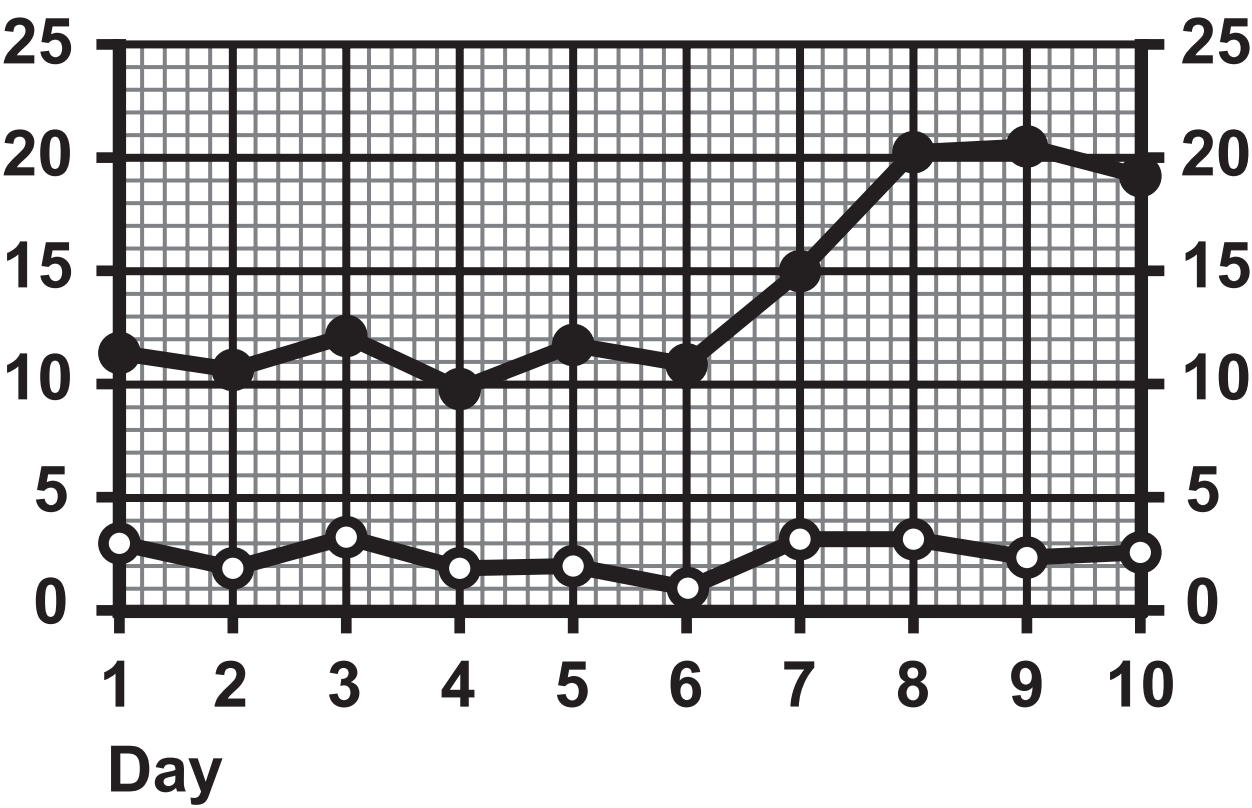
Initial rate of reaction
/ $\mu\text{mol dm}^{-3} \text{s}^{-1}$

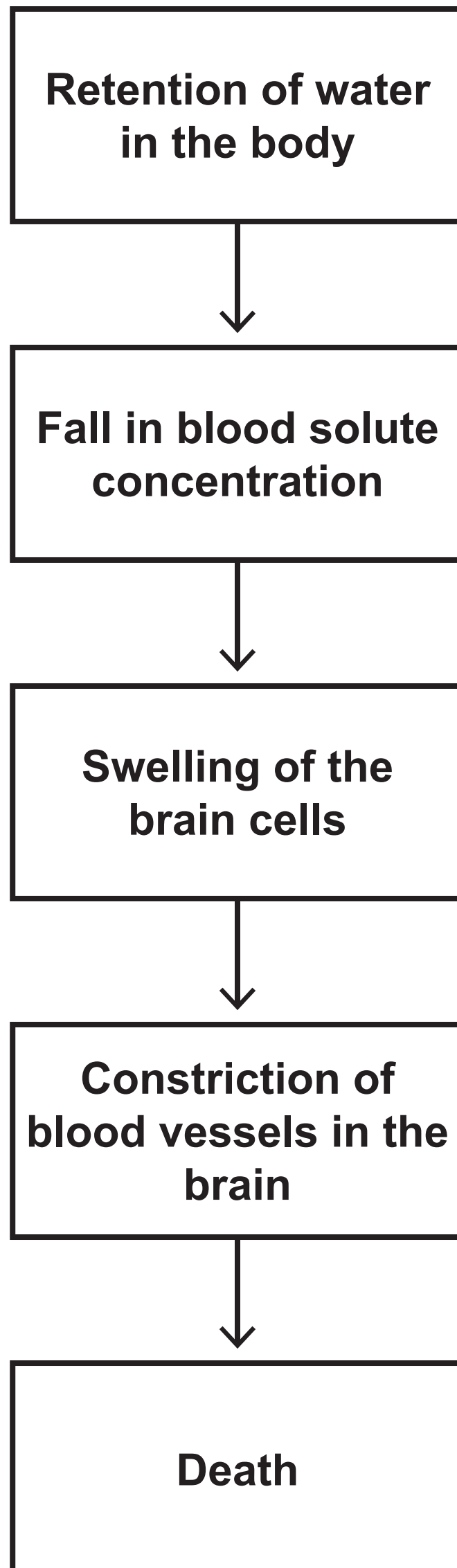


Question 6(a)(ii)

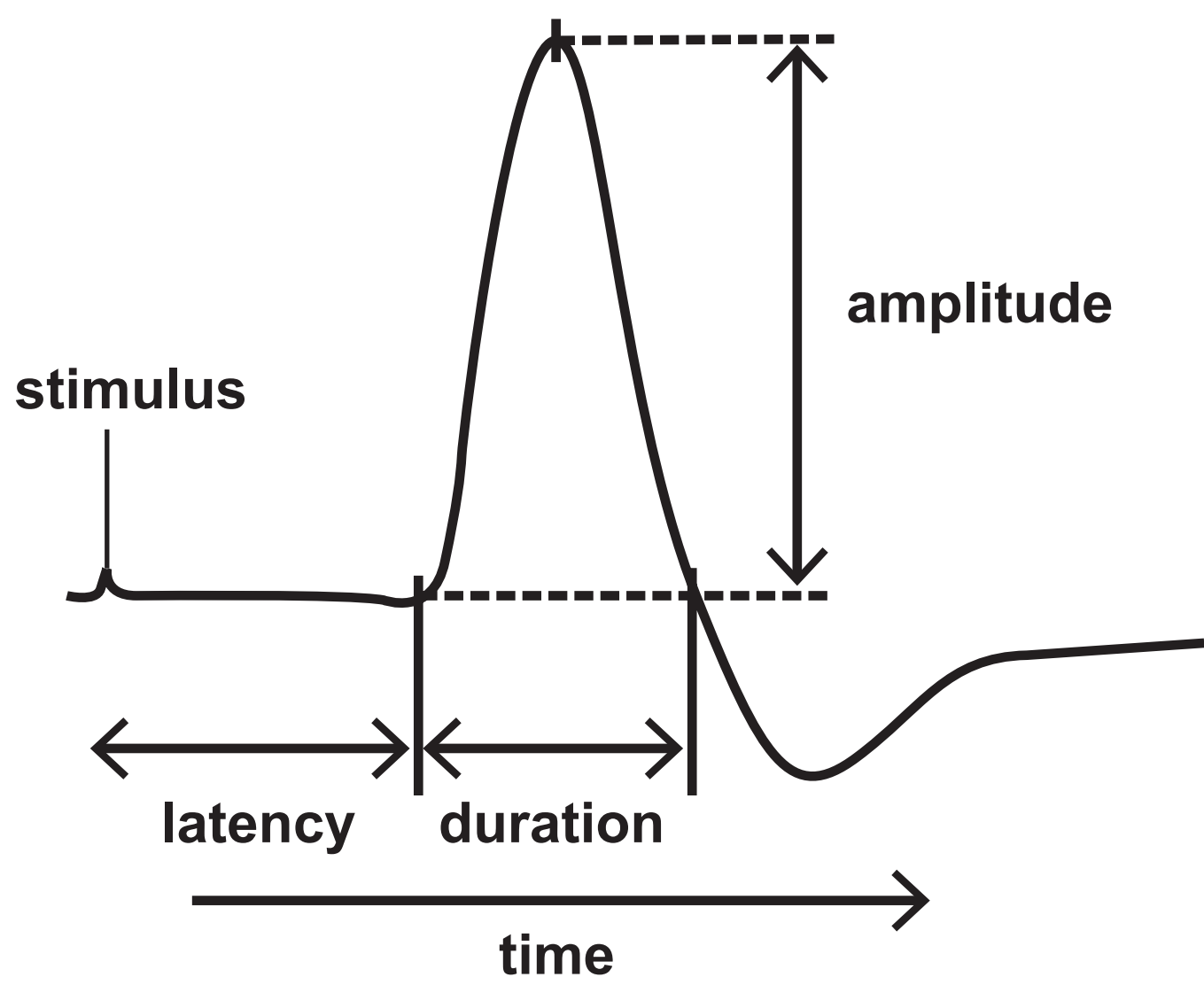
KEY:
● MDMA button
○ Control button

Number of button presses in 3 hours



Question 6(b)

Question 7 – diagram



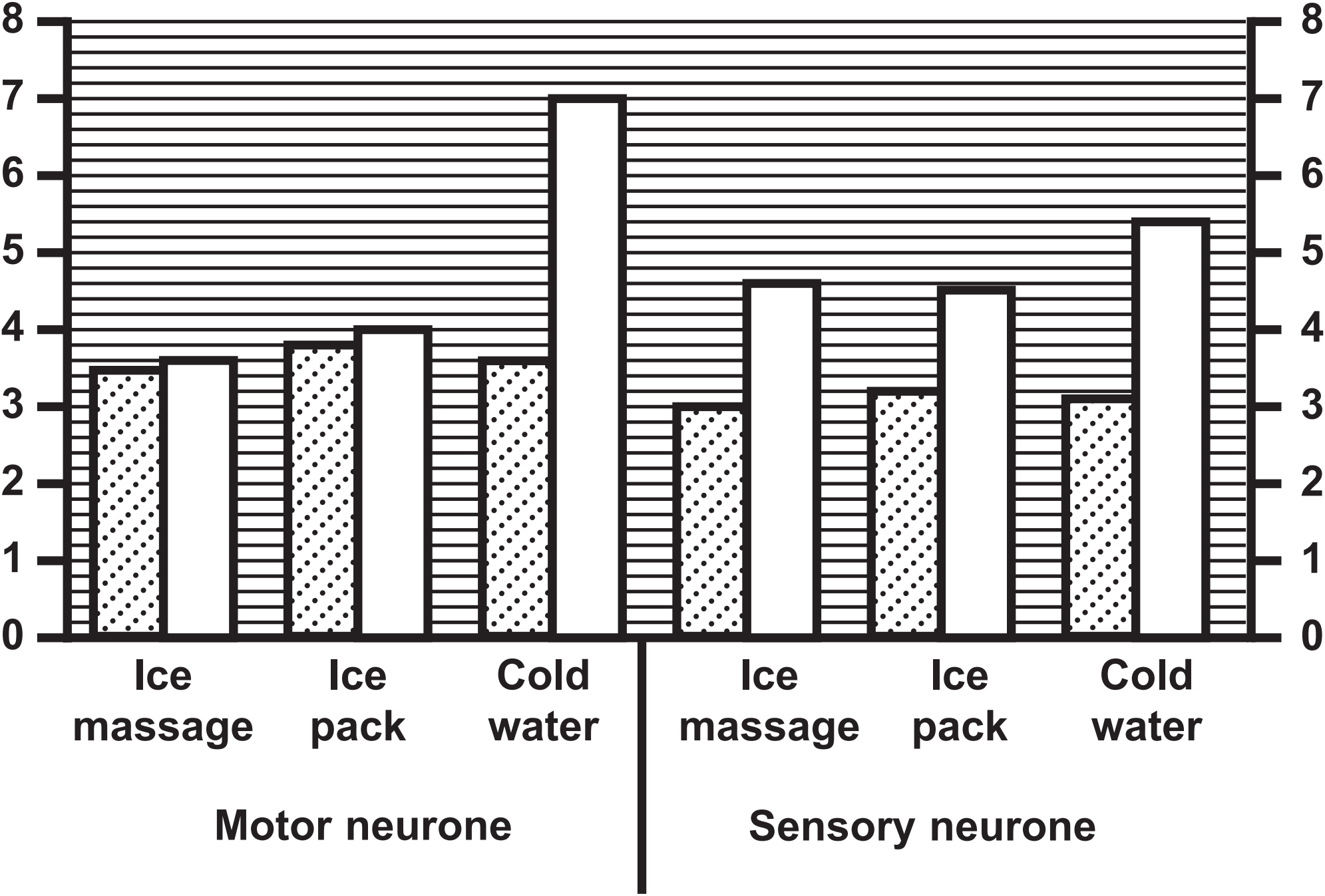
Question 7 – graphs

KEY:

 Pre-treatment

 Post-treatment

Latency / ms



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Turn over

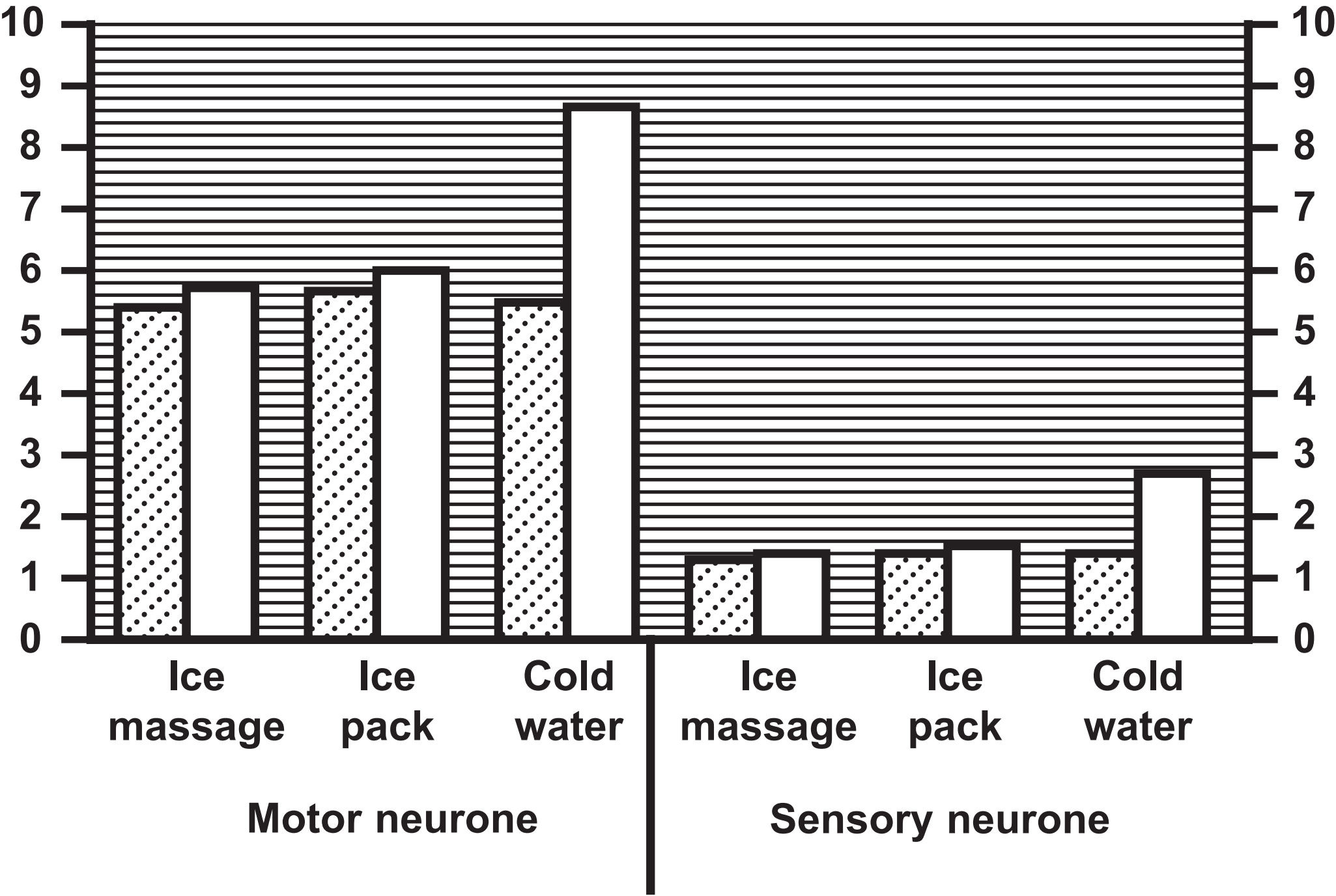
Question 7 – graphs continued.

KEY:

 Pre-treatment

 Post-treatment

Duration / ms



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Turn over

Question 7 – graphs continued.

KEY:

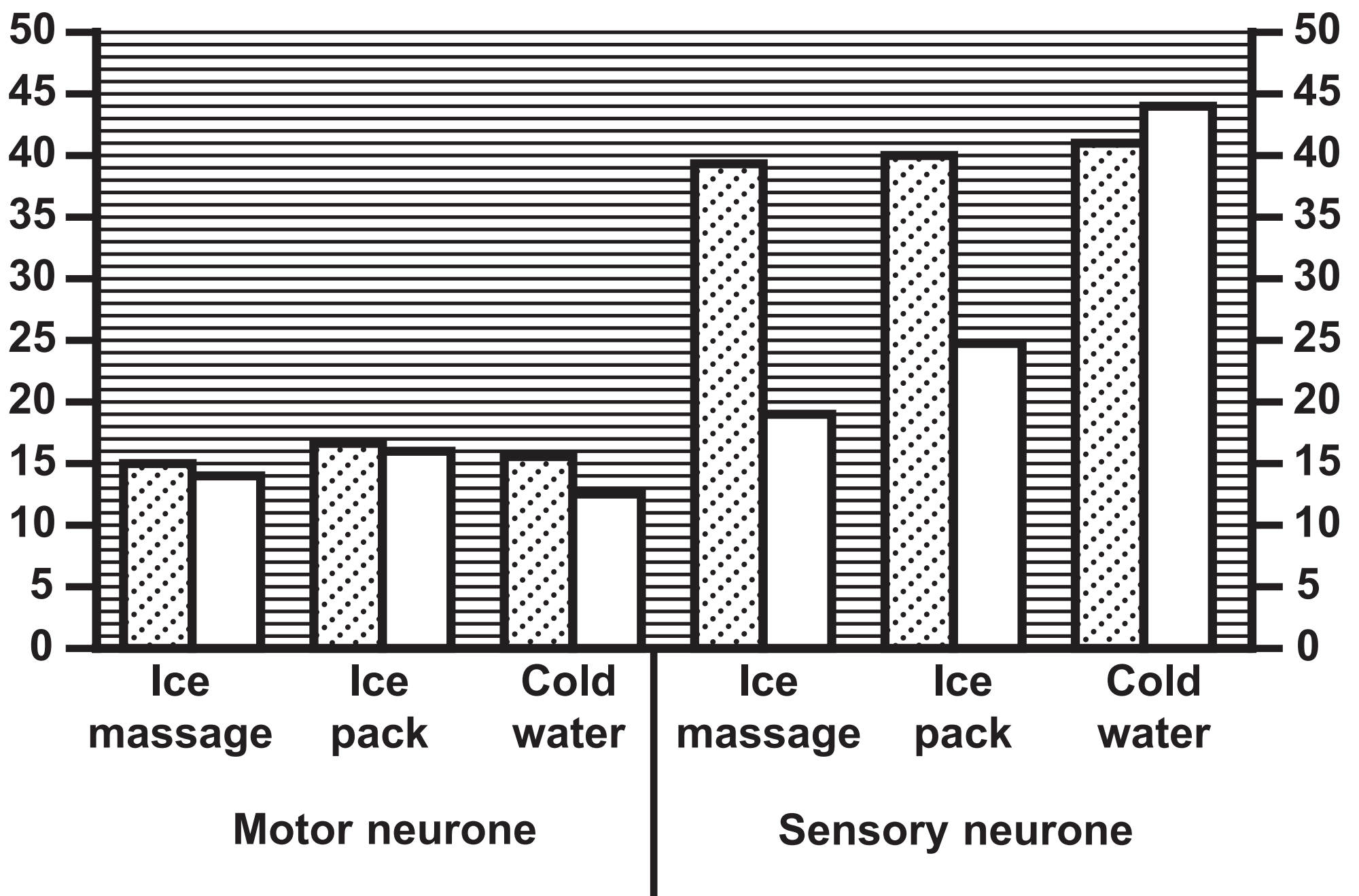


Pre-treatment



Post-treatment

Amplitude / mV



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Turn over

Question 7 – graphs continued.

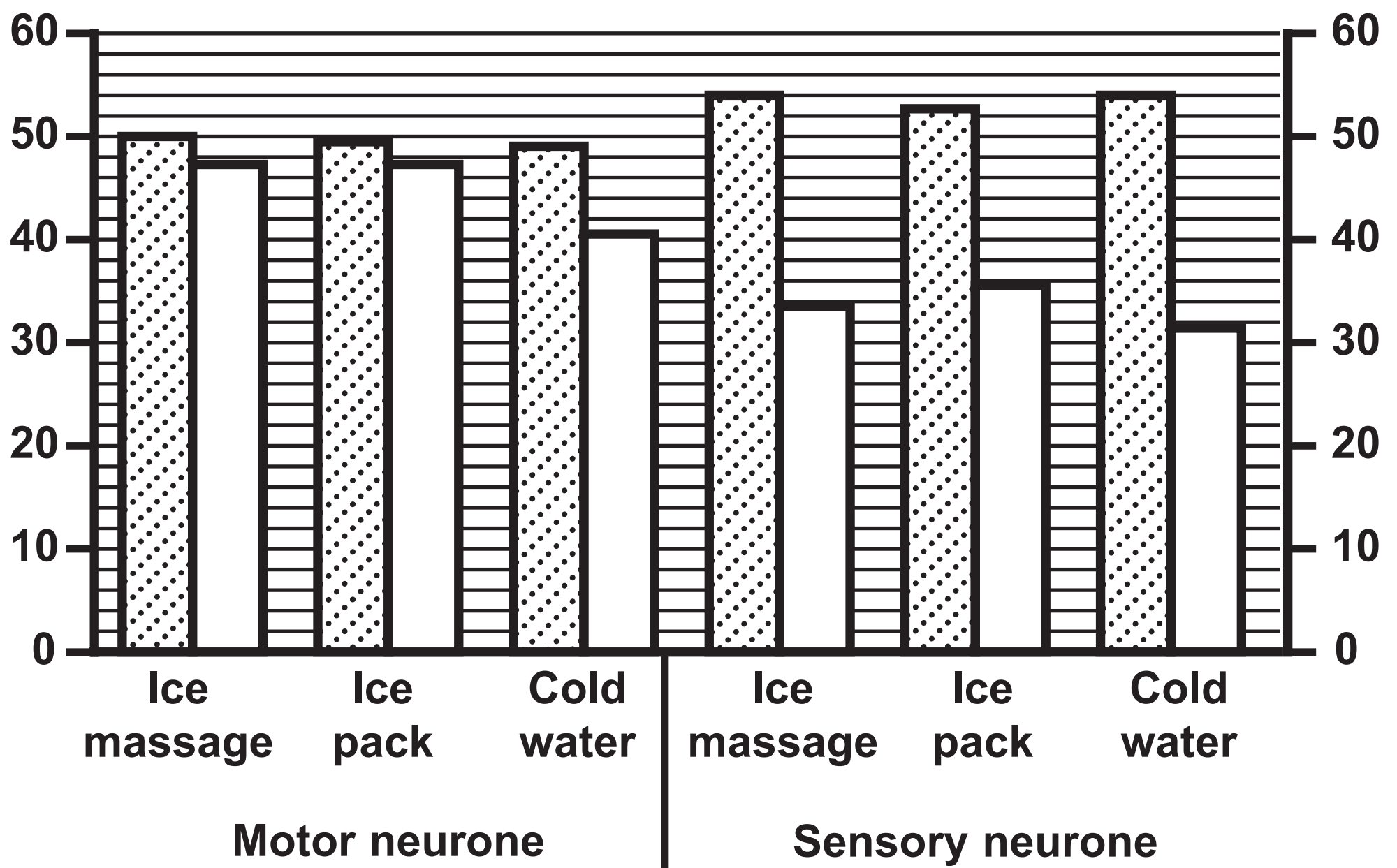
KEY:



Pre-treatment



Post-treatment

Conduction velocity / ms^{-1} 

Question 1

(Source adapted from: Nigel Cattlin/Alamy Stock Photo)

Question 4

(Source: Sergey Uryadnikov/Shutterstock)

(Source: Mircea Costina/Alamy Stock Photo)