

Biology B
Advanced
PAPER 2: Advanced Physiology, Evolution and Ecology

Friday 14 June 2024 – Morning

Time: 1 hour 45 minutes

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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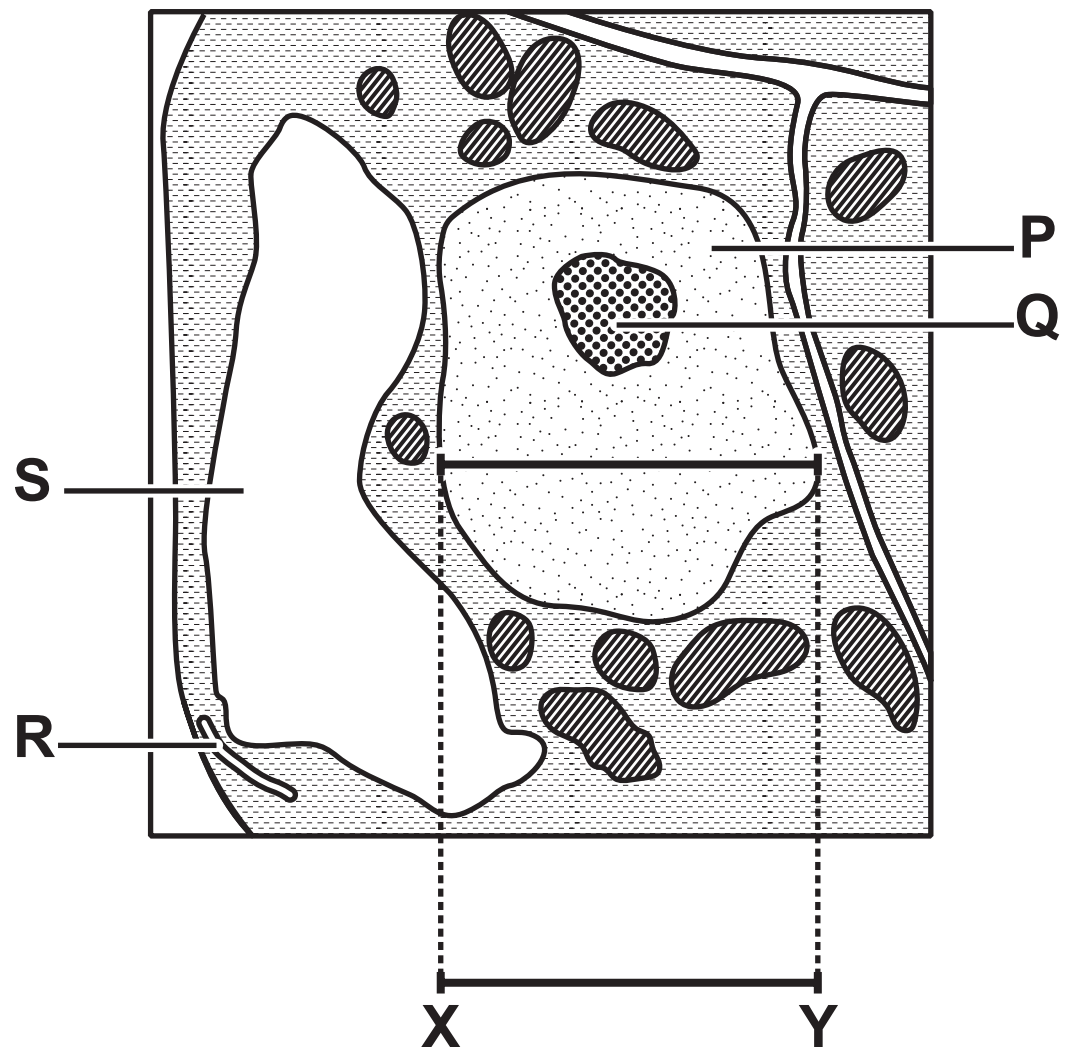
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Question 1



Question 2

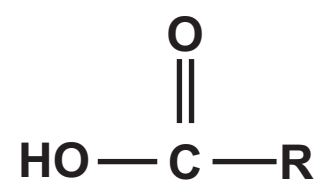
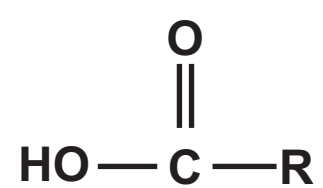
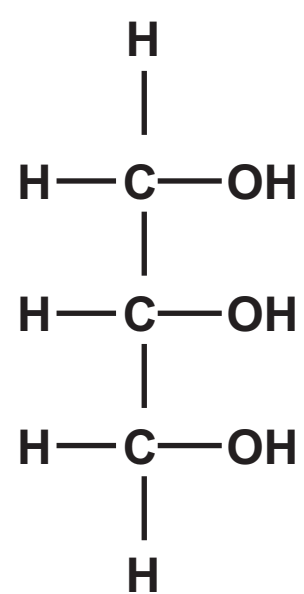
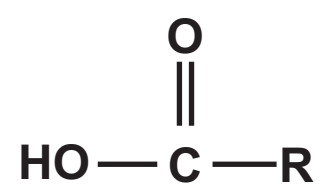


Question 2(a)(ii)

endosperm cell	generative nucleus of pollen grain	embryo cell
n	n	2n
2n	2n	2n
3n	n	2n
3n	2n	n

Question 2(c)(ii) – Blank

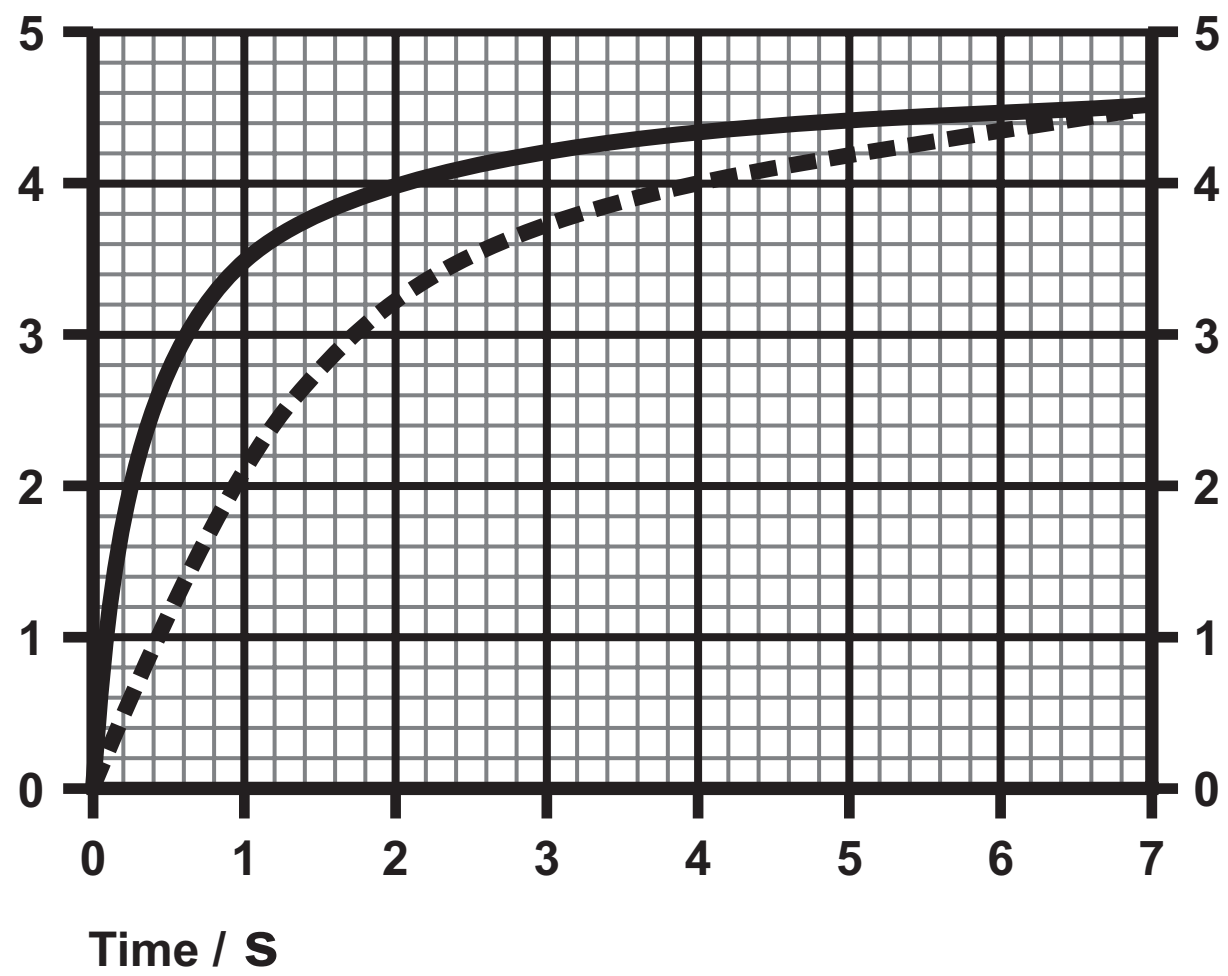
Question 3(a)



Lipid	Percentage of each fatty acid present (%)				
	Palmitic acid C ₁₆ H ₃₂ O ₂	Stearic acid C ₁₈ H ₃₆ O ₂	Oleic acid C ₁₈ H ₃₄ O ₂	Linoleic acid C ₁₈ H ₃₂ O ₂	Linolenic acid C ₁₈ H ₃₀ O ₂
Almond oil	8	1	77	14	0
Cocoa butter	30	36	30	4	0
Flaxseed oil	2	2	18	20	58

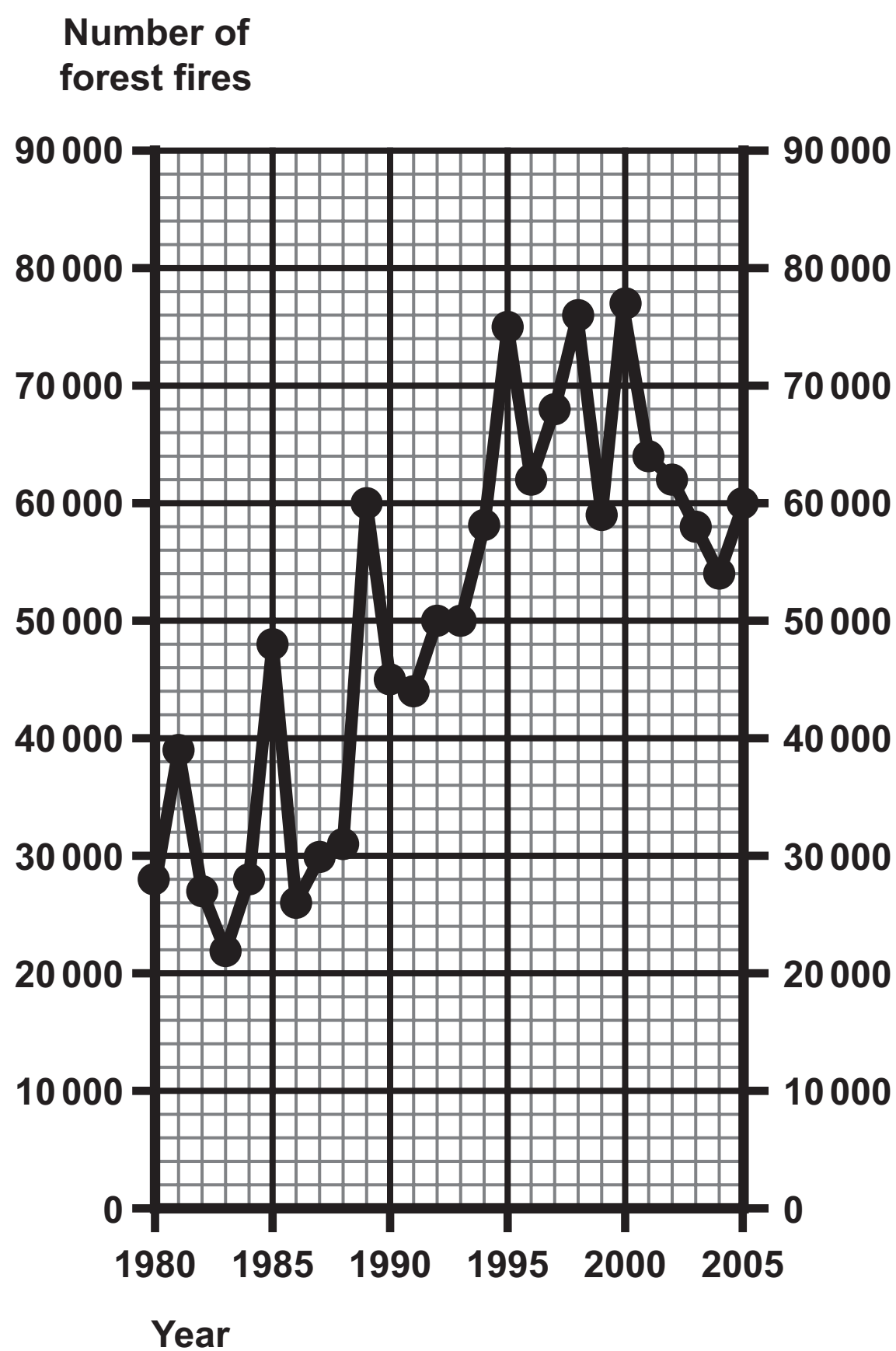
Question 4(c)

KEY:

———— after taking salbutamol**- - - - -** before taking salbutamolVolume of air exhaled / dm^3 

Question 5

GRAPH 1



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Turn over

GRAPH 2

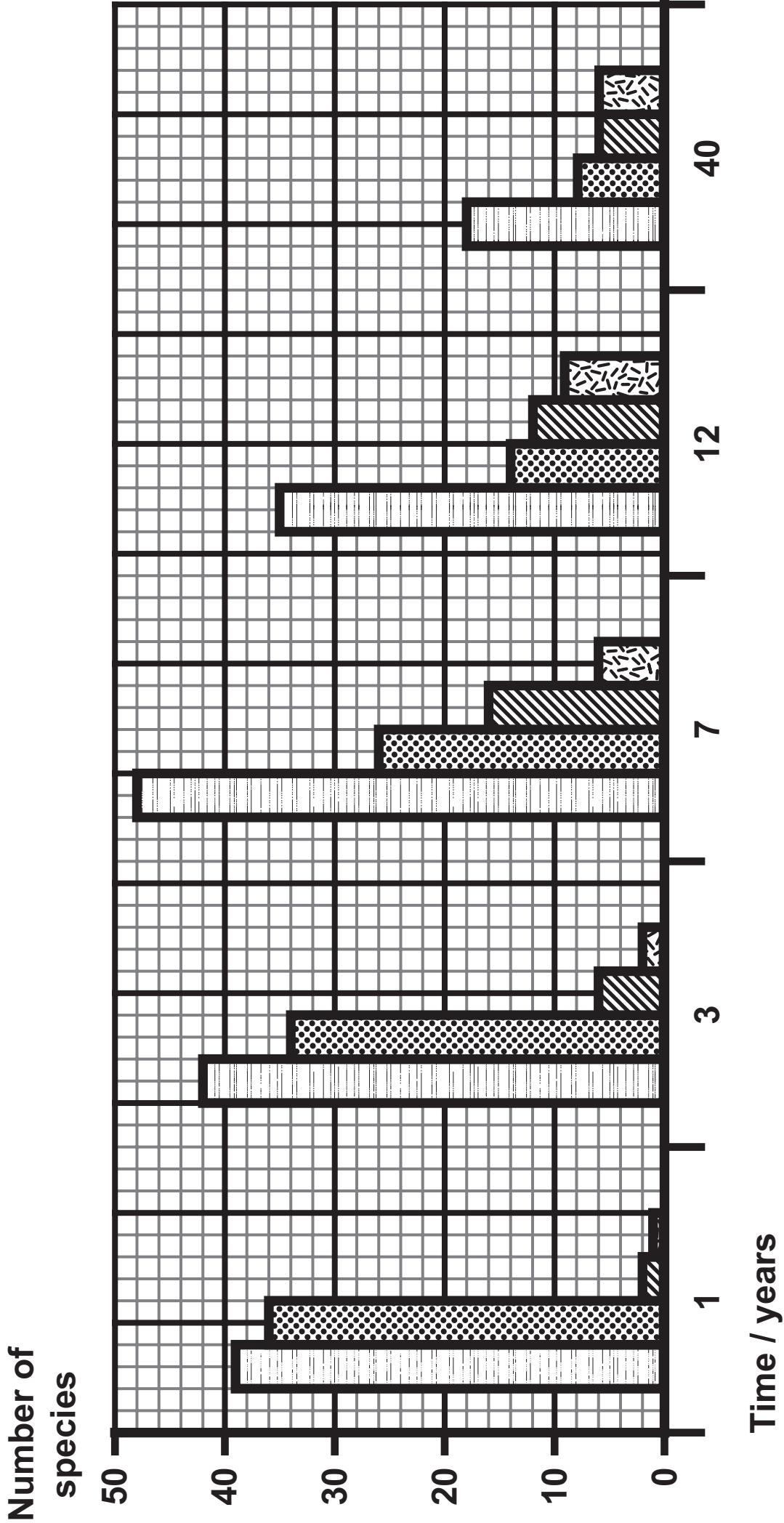
KEY:

 all species

 herbaceous annual species (non-woody species)

 shrubs (woody species that are bushes)

 trees



Question 5(b)

Tree species	Number of trees
Aleppo pine	45
Silver fir	30
Beech	14
Oak	12
Chestnut	18
Plane	11

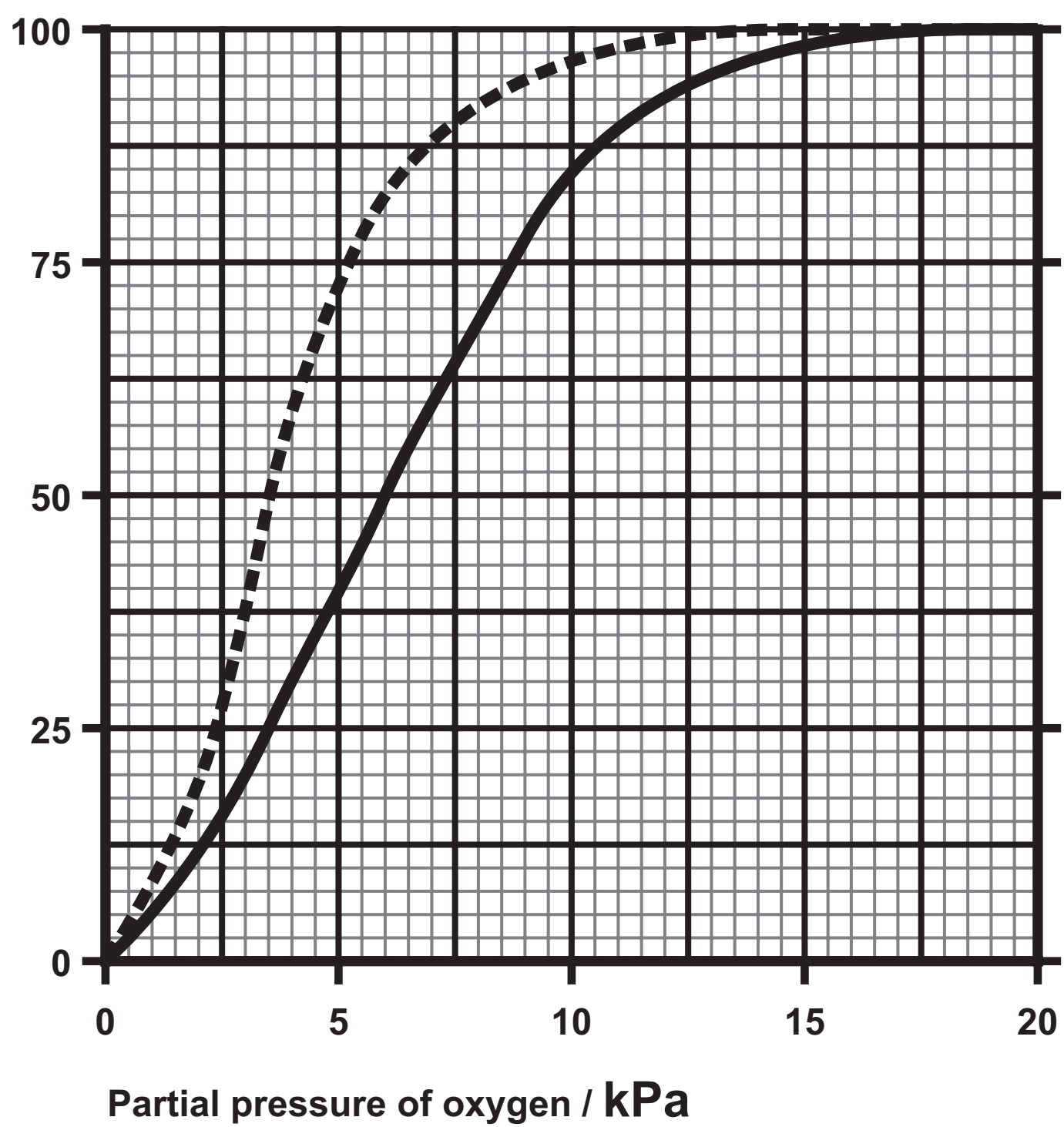
Question 6

KEY:

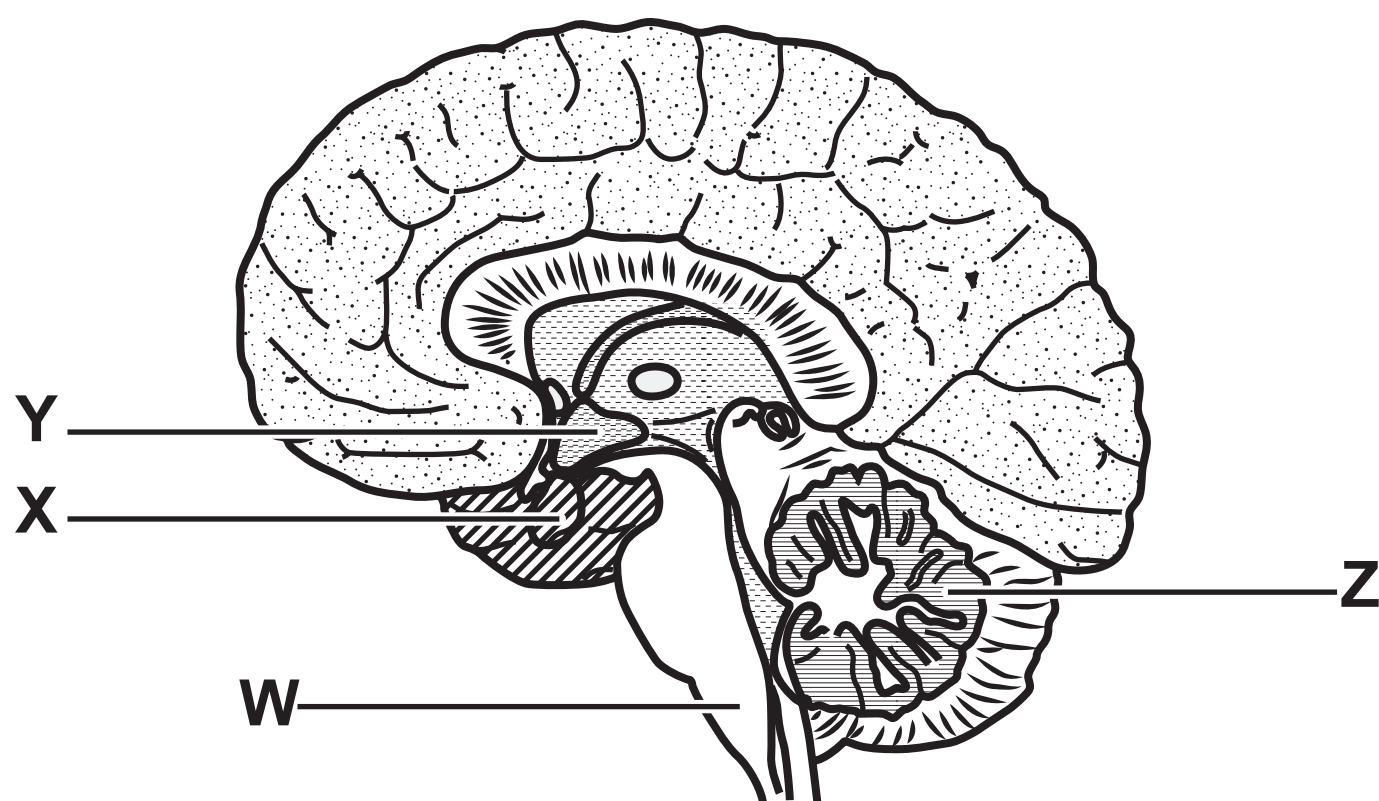
■ ■ ■ ■ ■ haemoglobin without drug

———— haemoglobin with drug

Percentage saturation
with oxygen (%)



Question 7(a)



Question 7(b)

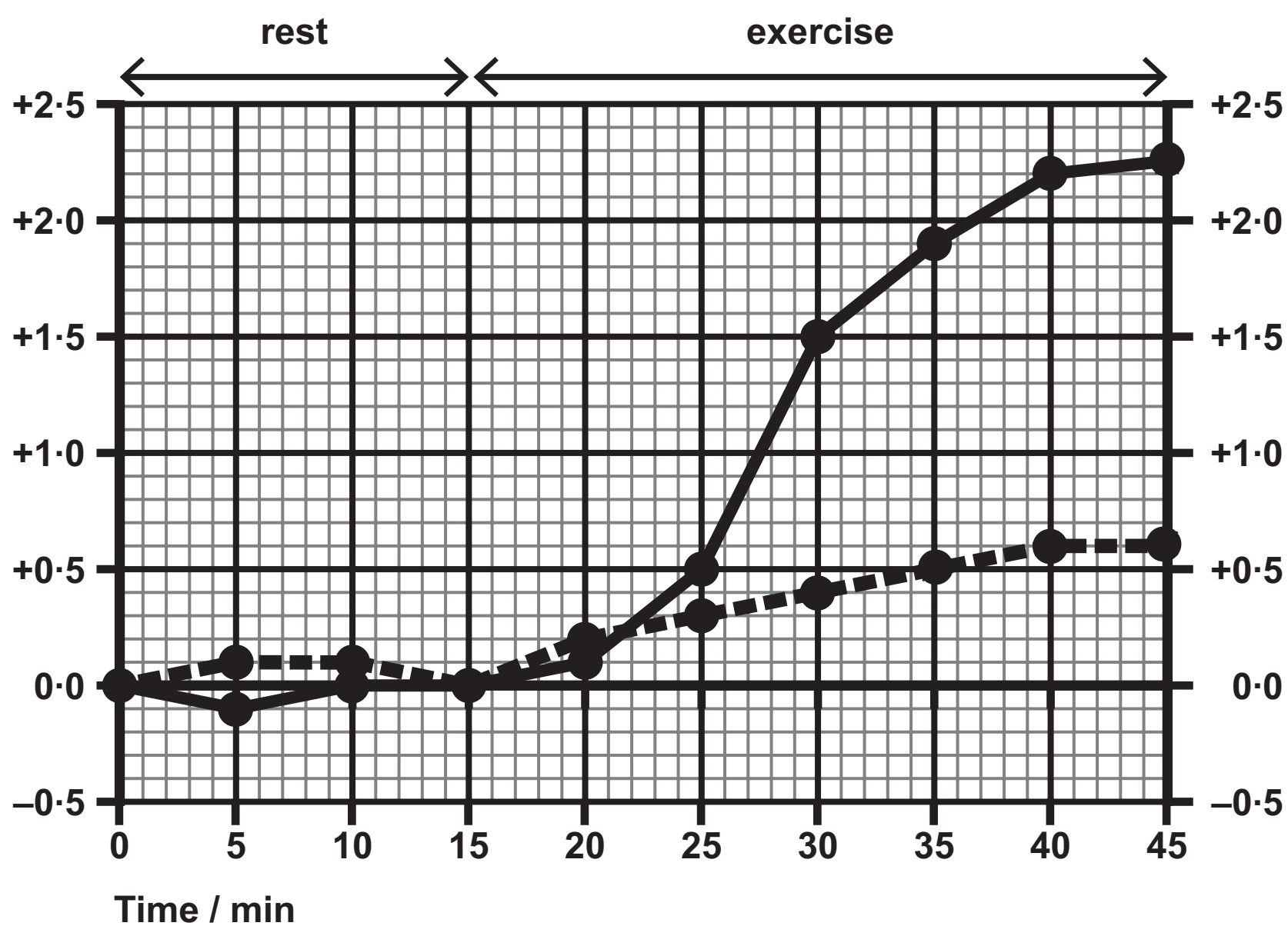
GRAPH 1

KEY

———— skin on forearm

----- core body

Change in temperature / °C



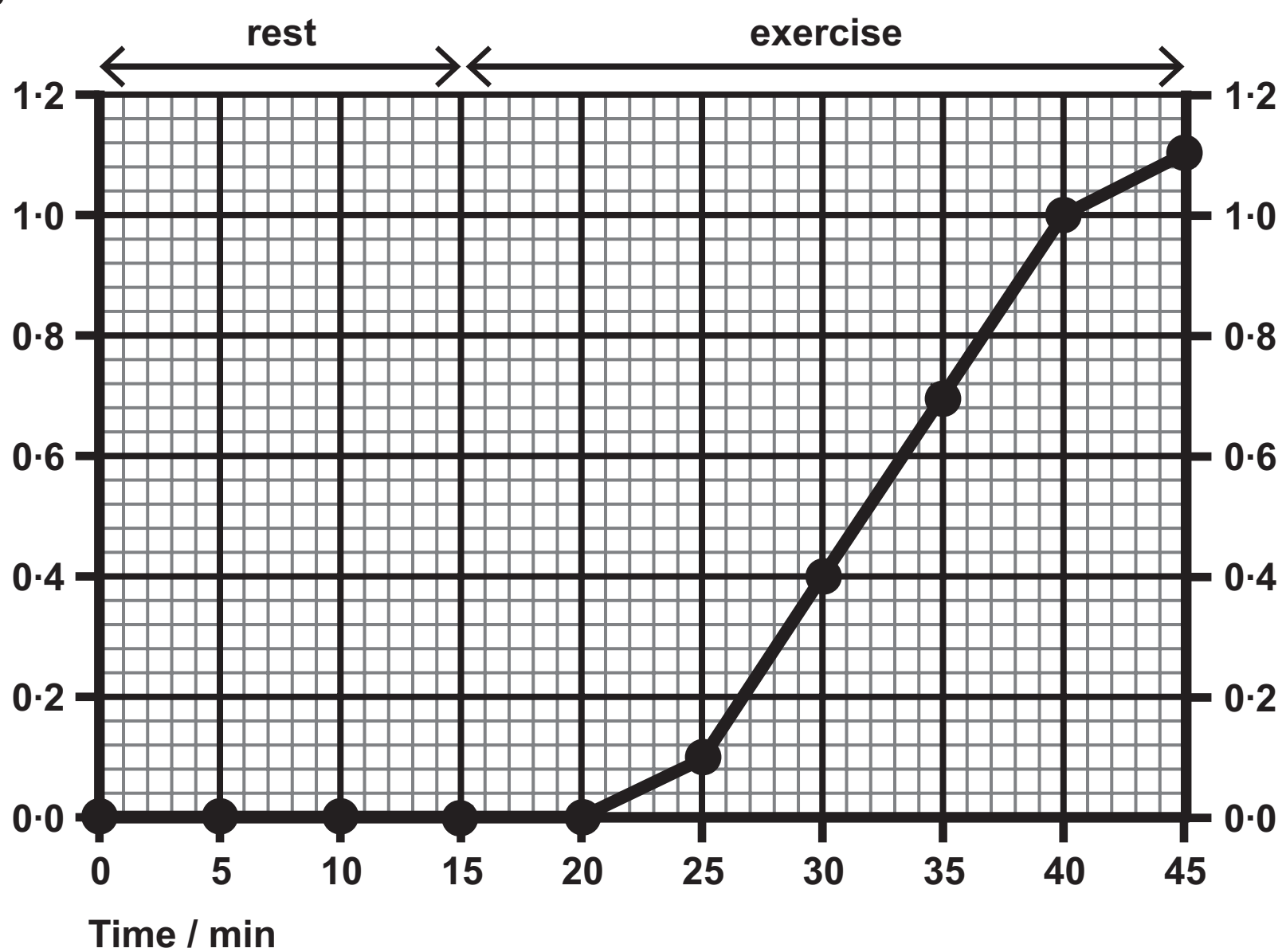
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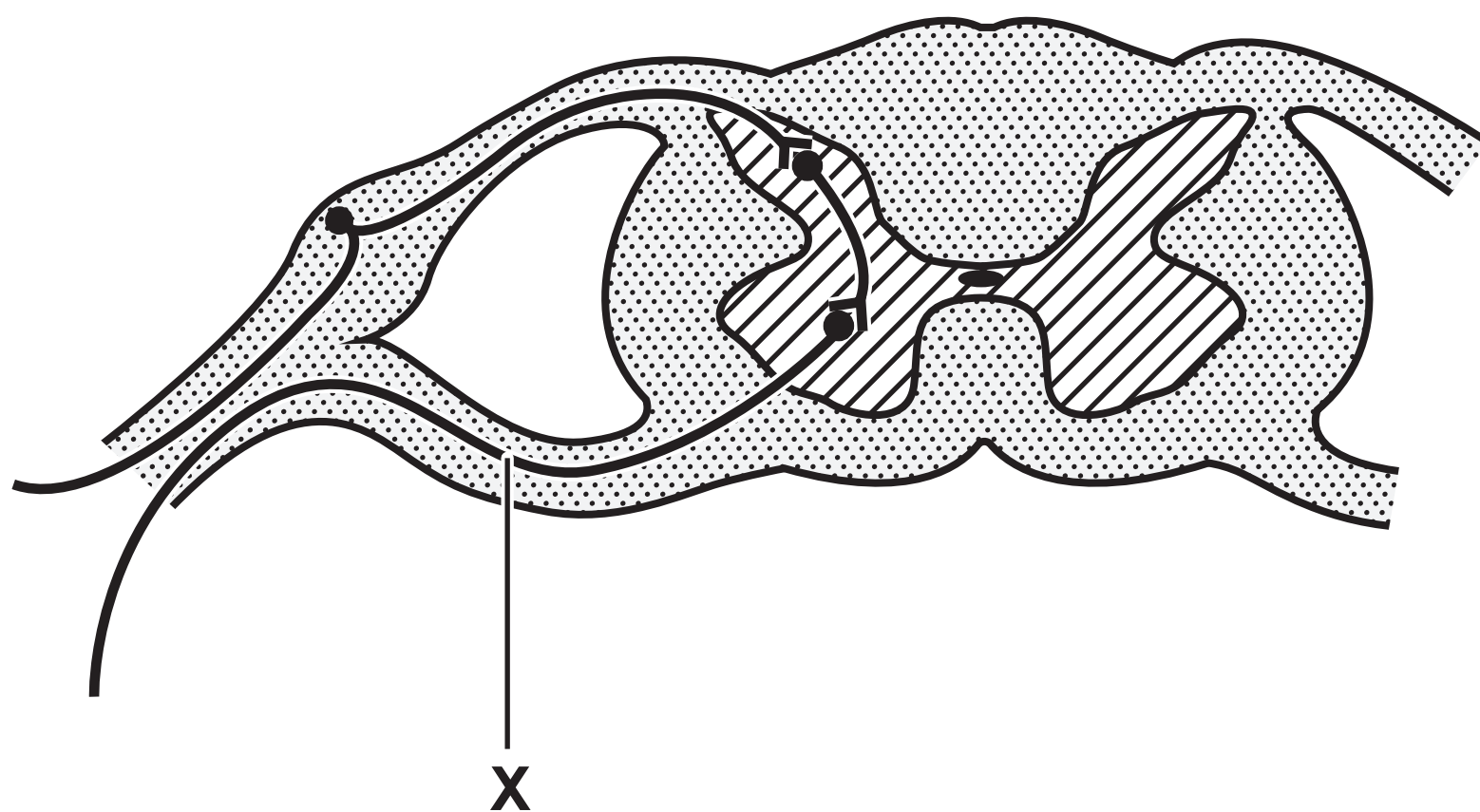
Question 7(b) continued.

GRAPH 2

Change in sweat production /
 $\text{mg cm}^{-2}\text{min}^{-1}$

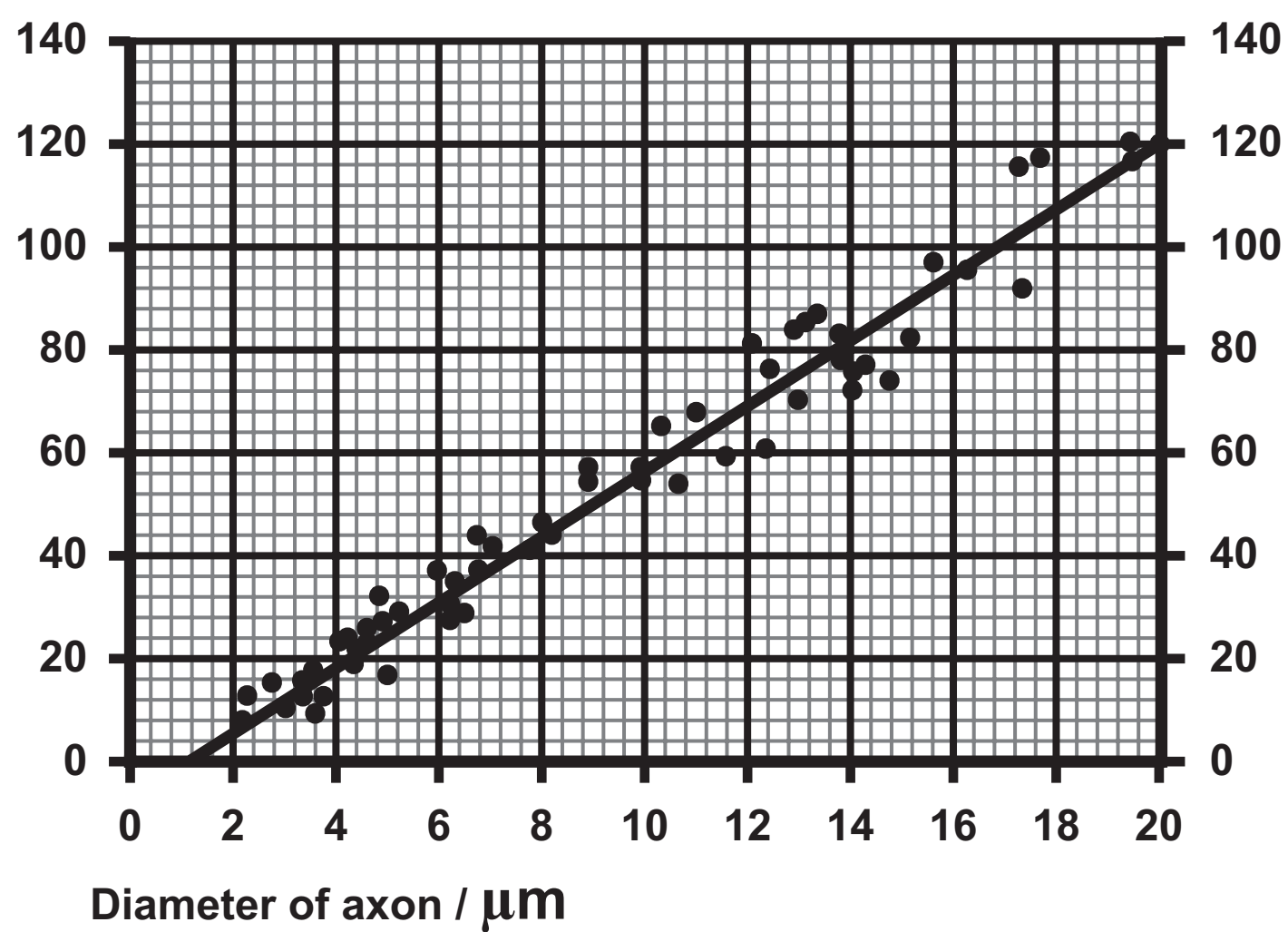


Question 8(a)

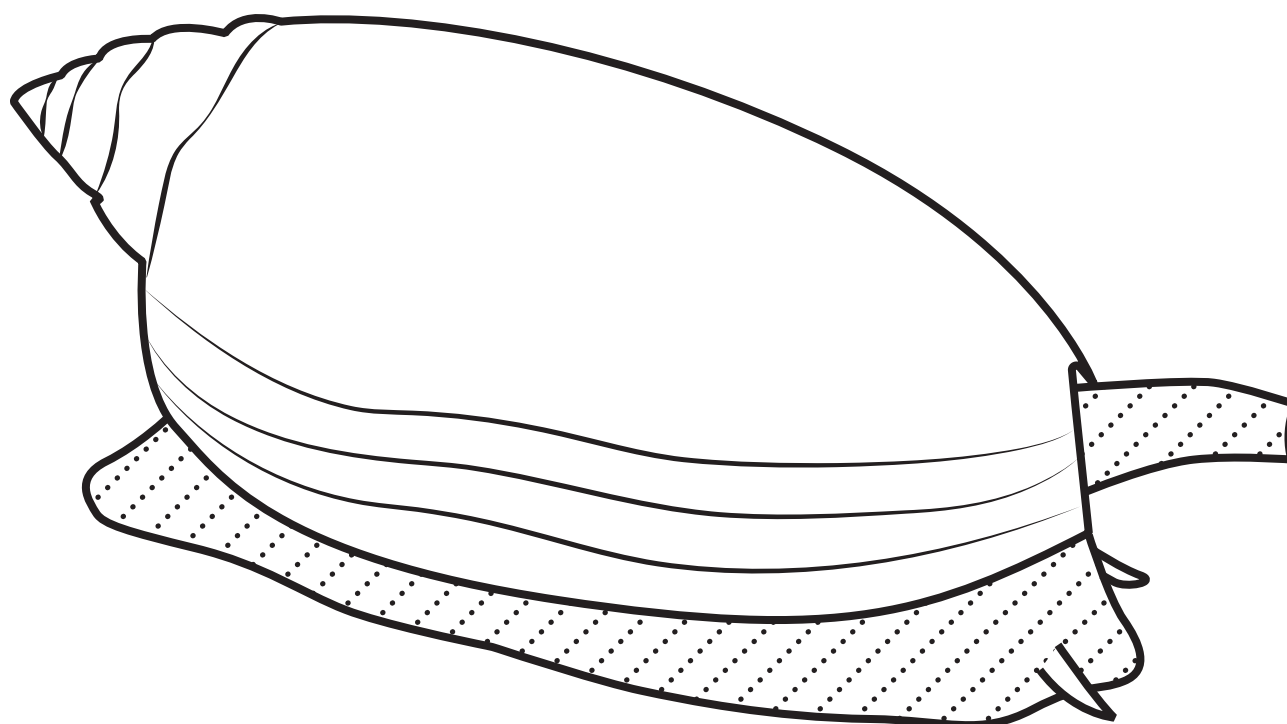


Question 8(b)

Speed of transmission
/ metres per second



Question 8(c)

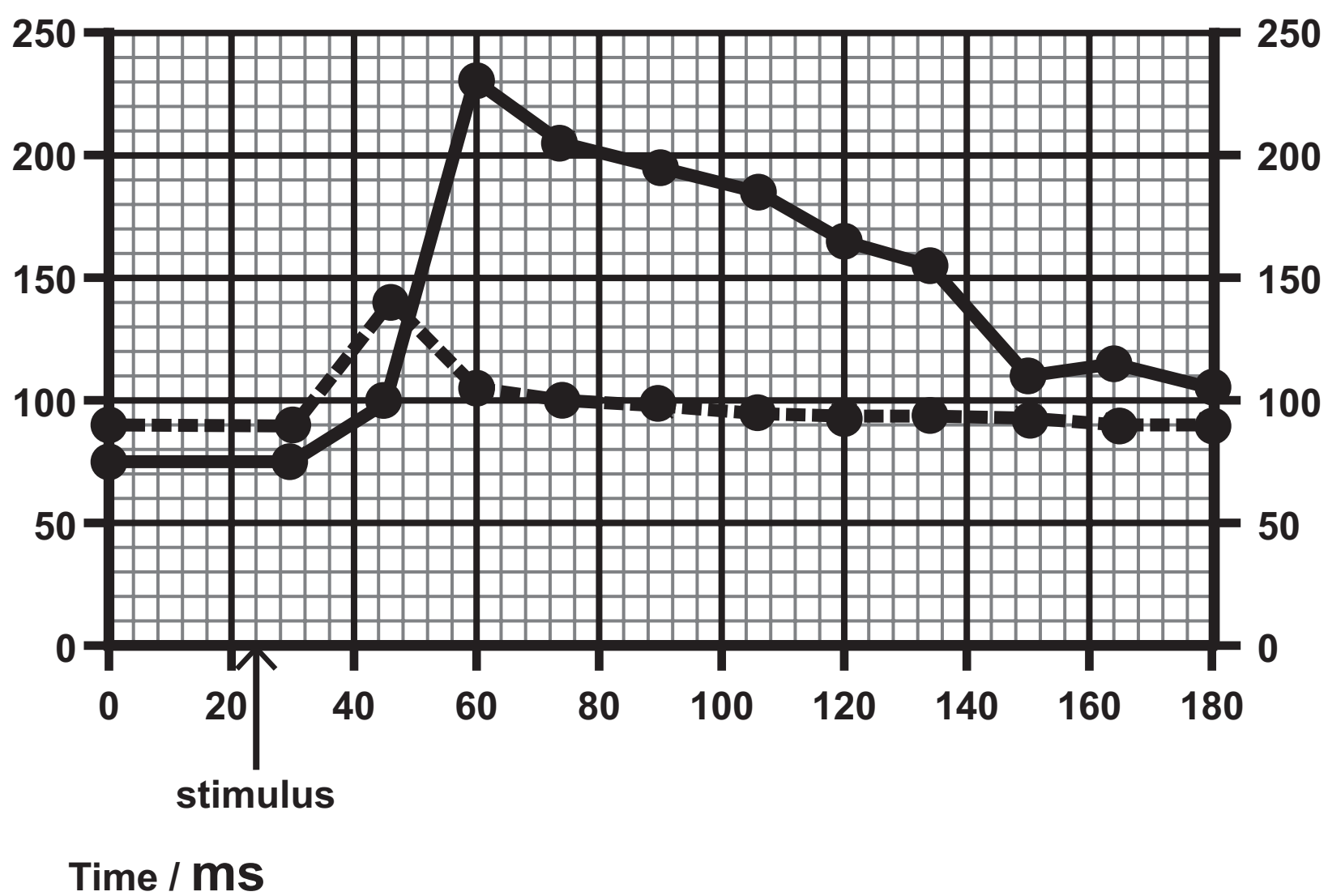


Question 8(c)(iii)

KEY:

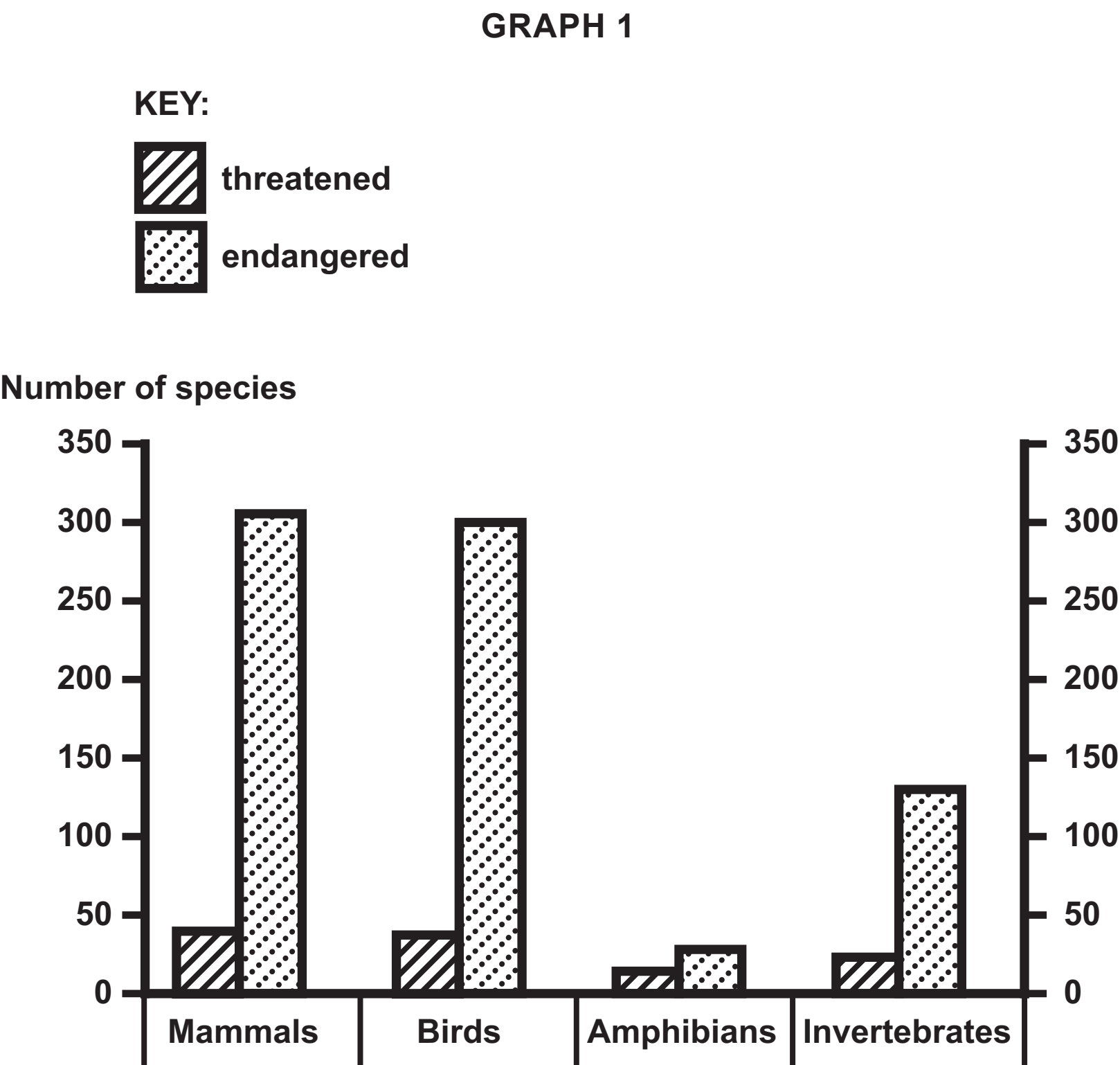
---●--- with toxin
—●— without toxin

Concentration of Ca^{2+} inside
neurone / nmol dm^{-3}





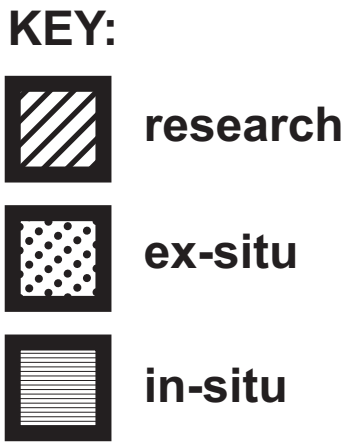
Question 9(b)



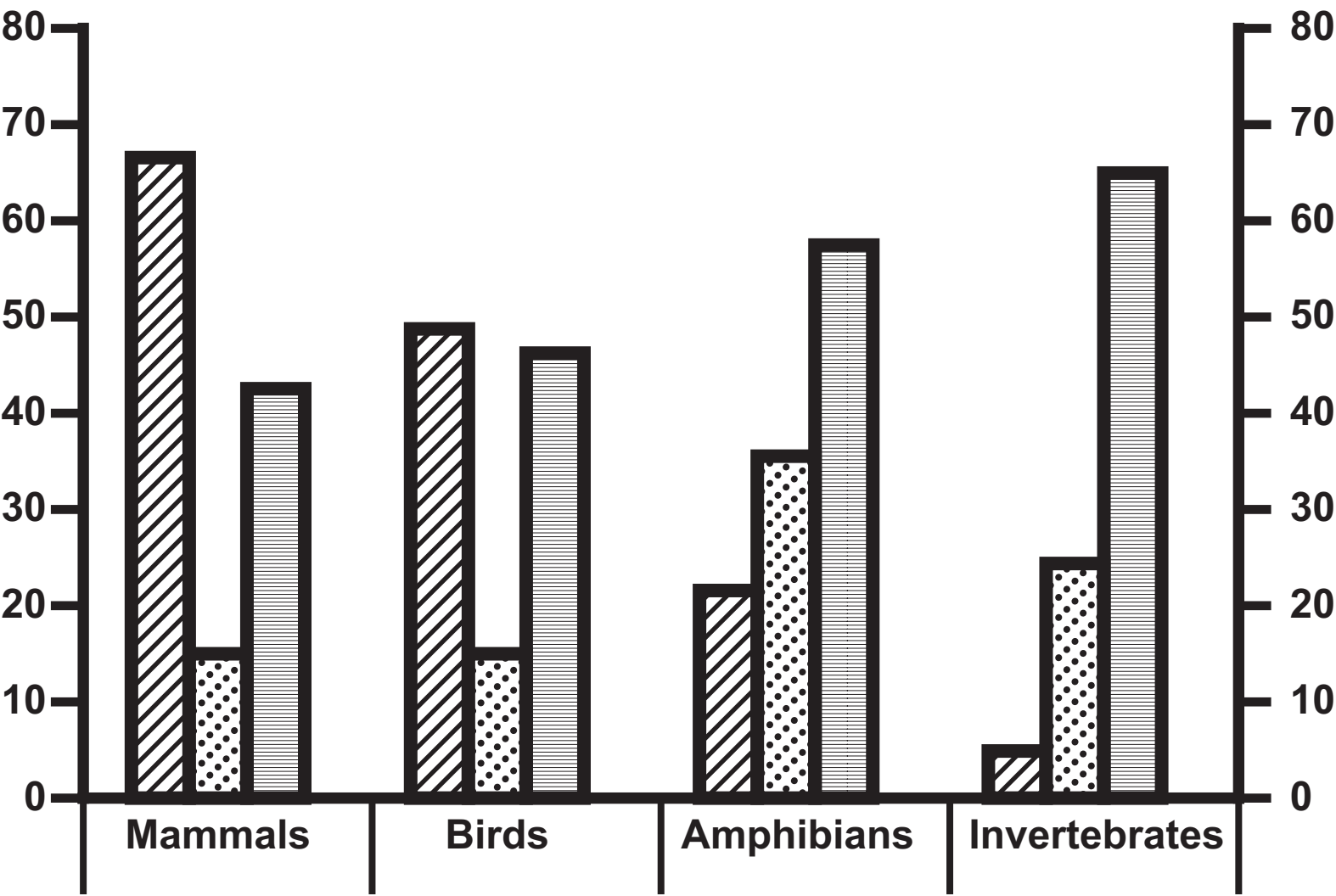
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Question 9(b) continued.

GRAPH 2



Percentage of species of each group kept in zoos



Question 2(c)(ii) – Blank

Question 1

(Source adapted from: © Biophoto Associates / Science Photo Library)

Question 2

(Source adapted from: © Nigel Cattlin / Holt Studios / Science Photo Library)

Question 8(c)

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Question 9

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