

# Muscle

## Question Paper 2

<b>Level</b>	International A Level
<b>Subject</b>	Biology
<b>Exam Board</b>	Edexcel
<b>Topic</b>	Respiration, Muscle and Internal Environment
<b>Sub-Topic</b>	Muscle
<b>Booklet</b>	Question paper 2

**Time Allowed:** 48 minutes

**Score:** /40

**Percentage:** /100

**Grade Boundaries:**

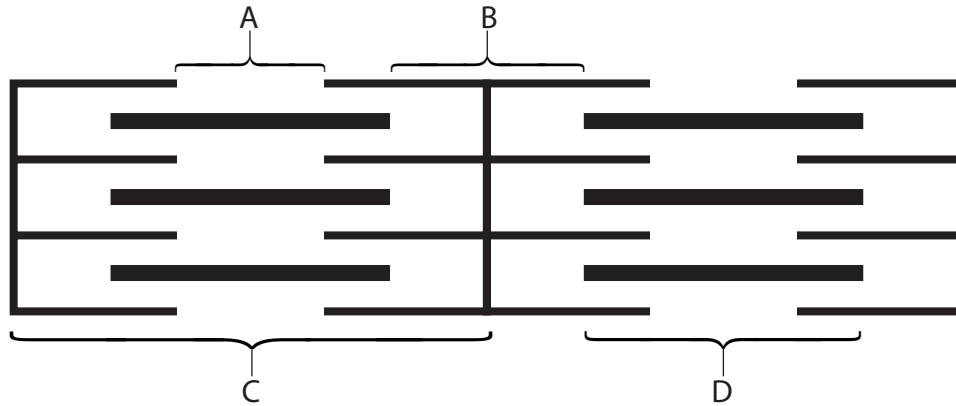
A*	A	B	C	D	E	U
>85%	77.5%	70%	62.5%	57.5%	45%	<45%

1 Muscles, tendons and the skeleton all interact when the leg of a human moves.

(a) Place a cross in the box ☒ that completes each statement about skeletal muscles.

(i) The diagram below shows part of a muscle fibre.

(1)



The label that shows a sarcomere is

- A
- B
- C
- D

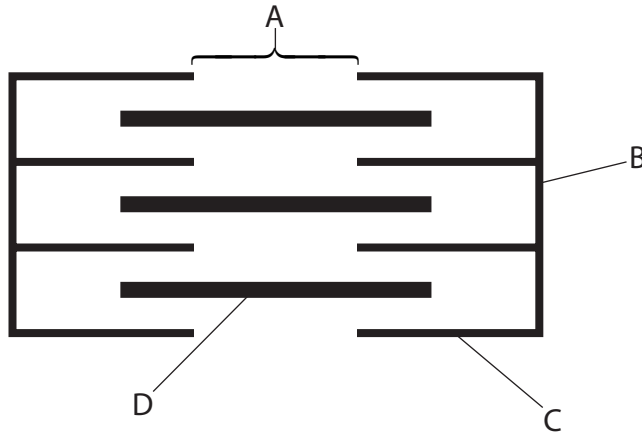
(ii) When a muscle contracts, the length of a sarcomere

(1)

- A becomes zero
- B decreases
- C increases
- D stays the same

(iii) In the diagram below, tropomyosin is found in

(1)



- A
- B
- C
- D

(iv) The sarcoplasmic reticulum releases ions that bind to troponin. These ions are

(1)

- A calcium
- B phosphate
- C potassium
- D sodium

(v) The thin filament in a muscle fibre is

(1)

- A actin
- B ATP
- C ATPase
- D myosin

(vi) Slow twitch muscle fibres have

(1)

- A less myoglobin than fast twitch fibres
- B more myoglobin than fast twitch fibres
- C no myoglobin
- D the same quantity of myoglobin as fast twitch fibres

(b) Explain why tendons need to be inelastic.

(3)

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**(Total for Question 1 = 9 marks)**





(ii) Suggest how an increase in breathing rate can help to reduce the concentration of carbon dioxide in a person walking away from a volcano.

(3)

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**(Total for Question 2 = 13 marks)**







(c) The ECG below was recorded at rest.



(i) This person had a resting heart rate of 74 beats per minute.

Calculate the time taken for this ECG. Show your working.

(2)

Answer .....

(ii) Suggest suitable units for the vertical axis (y-axis) of this ECG.

(1)

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**(Total for Question 3 = 13 marks)**

4 A number of drugs, including EPO, have been used by athletes.

EPO is a drug that stimulates the formation of red blood cells. EPO has been used to enhance the performance of certain types of athlete.

(a) Sprinters usually have more fast twitch fibres in their leg muscles than long distance runners.

Suggest why EPO may have less of an effect on the performance of a sprinter than on a long distance runner.

(3)

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(b) Suggest **two** ethical reasons why the use of drugs, such as EPO, should be banned from sport.

(2)

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**(Total for Question 4 = 5 marks)**