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Sports, exercise and health science
Standard level
Paper 2

30 April 2025

Zone A morning | **Zone B** morning | **Zone C** morning

Candidate session number

1 hour 15 minutes

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Instructions to candidates

- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Section A: answer all questions.
- Section B: answer one question.
- Answers must be written within the answer boxes provided.
- A calculator is required for this paper.
- The maximum mark for this examination paper is **[50 marks]**.



Section A

Answer **all** questions. Answers must be written within the answer boxes provided.

1. A study examined effects of exercise on long-term memory. Participants were presented with a list of words before or after exercise. Recall of the list of words was measured twice: 60 minutes and 24 hours after being presented with the words. Participants were randomly assigned to one of three groups:
- Control group
 - Words presented before exercise group
 - Words presented after exercise group.

The table shows the mean and standard deviation (SD) of the correct recall count of the words for the three groups.

Group	60-minute recall count (SD)	24-hour recall count (SD)
Control	4.93 (2.66)	4.21 (2.58)
Words presented before exercise	7.53 (2.90)	6.57 (3.08)
Words presented after exercise	6.00 (2.90)	4.64 (2.56)

(This question continues on the following page)



(Question 1 continued)

- (a) (i) Identify the group and condition with the lowest mean recall count. [1]

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- (ii) Calculate the difference between the standard deviation values for the words before exercise and words after exercise groups during the 60-minute recall count. [1]

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- (iii) Using the data, analyse the standard deviations for the words before exercise and words after exercise groups during the 60-minute recall count. [2]

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- (b) Outline the characteristics of long-term memory. [3]

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(Question 1 continued)

(c) (i) Define *selective attention* (SA).

[1]

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(ii) Discuss how memory and selective attention (SA) interact in the cognitive phase of learning a skill.

[2]

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(iii) Discuss how rehearsal when memorizing a word list may have affected the data in this study.

[2]

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2. (a) Characteristics of muscle tissue include being controlled by nerve stimuli. Outline **five** other general characteristics common to muscle tissue.

[5]

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- (b) Discuss the variability in VO_2 max in trained and untrained individuals.

[2]

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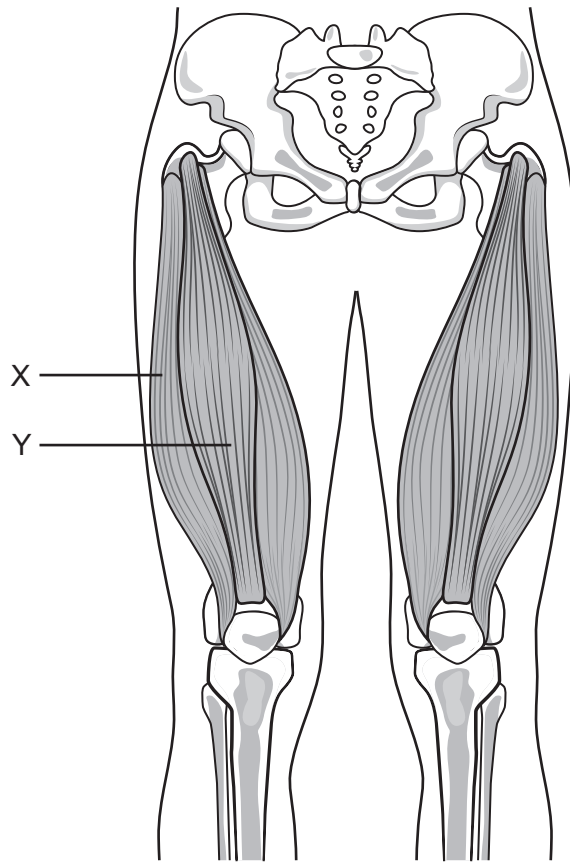
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3. (a) The diagram shows the skeletal muscles in the anterior upper leg. Identify the parts labelled X and Y. [2]



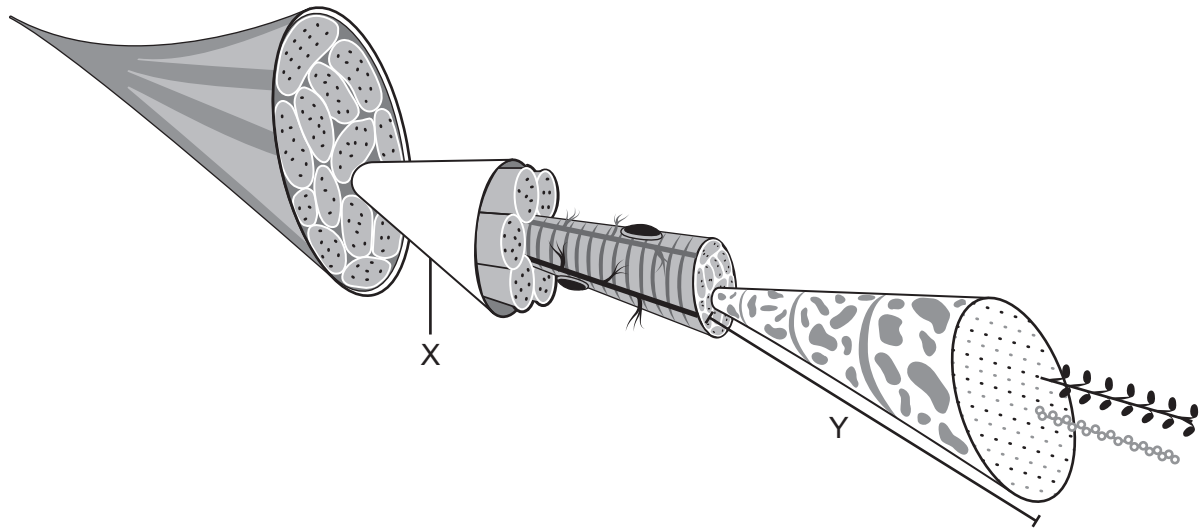
X:
Y:

(This question continues on the following page)



(Question 3 continued)

(b) The diagram shows skeletal muscle. Identify the parts labelled X and Y. [2]



X:

Y:

(c) Discuss characteristics of a type IIb fast glycolytic muscle fibre. [4]

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(This question continues on page 9)



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Answers written on this page
will not be marked.



(Question 3 continued)

(d) Explain the role of insulin in the formation of glycogen.

[3]

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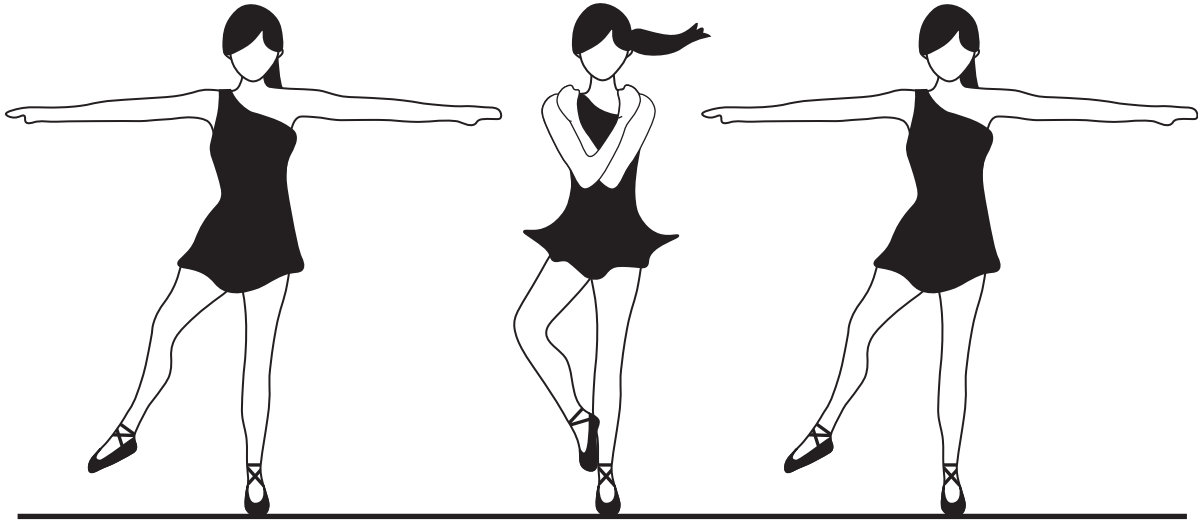
16EP09

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Section B

Answer **one** question. Answers must be written within the answer boxes provided.

4. (a) Running during a soccer (football) game and throwing a dart are examples of motor skills that can be classified into various continua. Using these examples, analyse the use of muscle mass and precision, and environmental impact on the skill continua. [4]
- (b) The diagram shows a person performing a pirouette in ballet.



Explain the concept of angular momentum when the ballet dancer performs the pirouette. [6]

- (c) Describe the re-synthesis of ATP by the ATP-CP system. [4]
- (d) Describe the process of gaseous exchange at the alveoli during rest and exercise. [6]



5. (a) Using examples, outline Newton's three laws of motion during a soccer (football) match. [6]
- (b) Periodization and progression can be used to optimize an athlete's performance. Explain how a coach uses the **other** key principles of training to maximize athletic development. [4]
- (c) Discuss the factors that determine the dominant energy system. [5]
- (d) Describe blood redistribution as a soccer (football) player begins running during a game. [5]
6. (a) Explain different methods of presentation when teaching a skill. [4]
- (b) Evaluate **two** valid field tests of aerobic capacity. [6]
- (c) On completion of an 800 m race, a sprinter breathes heavily during their recovery period. Explain the factors that influence the sprinter's elevated breathing after the race. [5]
- (d) Outline cardiovascular drift and methods of reducing it. [5]



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16EP13

Turn over

A large rectangular area containing horizontal dotted lines for writing.



Large rectangular area with horizontal dotted lines for writing.



16EP15

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16EP16