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Sports, exercise and health science
Higher level
Paper 2

29 April 2026

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

Session number

2 hours 30 minutes

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Instructions to students

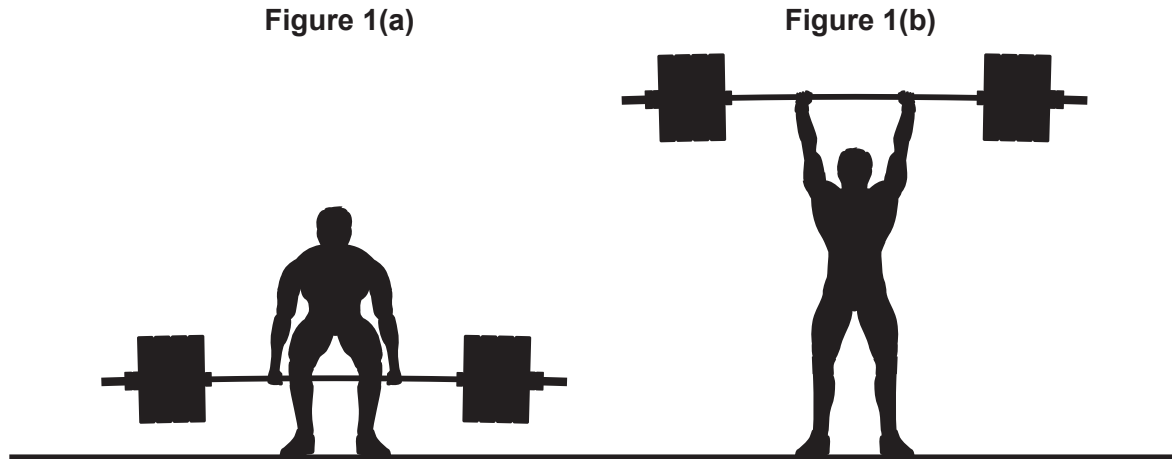
- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Answer all questions.
- Answers must be written within the answer boxes provided.
- A calculator is required for this paper.
- A clean copy of the **SEHS data booklet** is required for this paper.
- The maximum mark for this examination paper is **[80 marks]**.



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

1. Olympic weightlifting is a competitive sport which focuses on strength and power. **Figure 1(a)** shows an athlete preparing to lift a loaded bar. **Figure 1(b)** shows the bar lifted above the athlete's head.

Figure 1: (a) An athlete preparing to lift a loaded bar and (b) the bar lifted above the athlete's head



- (a) State the joint movement, the axis of movement and the movement plane for the knee joint as the bar is lifted from **Figure 1(a)** to **Figure 1(b)**.

[3]

Joint movement:
 Axis of movement:
 Movement plane:

- (b) Predict the prime mover and contraction type that cause the movement of the knee in the lift from **Figure 1(a)** to **Figure 1(b)**.

[2]

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(Question 1 continued)

- (c) Calcium is important in muscle contraction. Outline the role of calcium in exposing actin binding sites.

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- (d) Suggest **one** example of a performance goal and **one** example of a process goal for a weightlifter to enhance their motivation.

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- (e) PETTLEP is a model used for the delivery of imagery-based interventions. Apply the emotional modality of imagery to a weightlifter.

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2. (a) Discuss how a coach can use specificity and variety of training for a 100 m runner. [3]

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- (b) Outline **one** reason a coach would conduct a 60 m sprint test and a 1RM strength test at the start of a sprint training programme. [1]

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- (c) State **one** reason to measure the power output of a sprinter during training. [1]

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- (d) A female sprinter has adapted their training during pregnancy. Describe **three** potential risk factors for injury when training while pregnant or immediately after giving birth. [3]

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3. Many elite athletes travel around the world to compete, often experiencing high ambient temperatures.

(a) Describe how the body loses excess heat when exercising in high ambient temperatures.

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(b) Dehydration can lead to a 2% drop in aerobic performance. Explain how dehydration impairs performance when exercising in a hot environment.

[4]

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(c) An athlete increases their water intake to stay hydrated. Discuss the implications of over-hydrating.

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(Question 3 continued)

- (d) Potassium is a micronutrient required by the body. State **two** roles of potassium within the body.

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- (e) An athlete is competing in an unexpected heatwave and they have not had time to acclimate to the heat. Therefore, they employ an emotion-focused coping strategy.

Describe why an emotion-focused coping strategy would be suitable for this situation.

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- (f) Suggest **three** physiological responses to a 14-day acclimation programme that prepares athletes to race in a hot environment.

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4. (a) Olympic rowers self-report high levels of mental toughness in high-pressure environments. Describe how mindfulness helps develop mental toughness in aspiring rowers.

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- (b) Rowers have a large vital capacity which they use during a 2 km race. Contrast the role of the muscles used for inspiration during rest and rowing.

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- (c) Analyse the relative energy contribution of a rower competing in a 2 km race.

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(Question 4 continued)

- (d) Suggest **two** factors that affect oxygen deficit during a 2 km row.

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- (e) A new crew member has high levels of arousal as they start their first rowing race. Apply inverted U theory of psychological arousal to their potential performance.

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5. Stand up paddleboarding (SUP) is a fast-growing recreational activity and competitive sport.

Figure 2: Stand up paddleboarder



- (a) An experienced surfer is interested in taking up SUP on the ocean. Explain the type of transfer that may occur as the surfer begins SUP.

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- (b) Outline **three** behaviours of a high-achiever who is starting SUP.

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(Question 5 continued)

- (c) Discuss how the surfer's high ego orientation may affect their motivation in SUP. [2]

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- (d) Outline **one** way regularly participating in aerobic exercise like SUP reduces the risk of cardiovascular disease. [1]

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- (e) Describe **one** method to reduce injuries in athletes caused by biomechanical maladaptations. [1]

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6. As a tennis player begins their warm up, epinephrine is released.

(a) List **three** physiological effects of increased epinephrine within the tennis player. [3]

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(b) Discuss the advantages and disadvantages of a tennis player disguising by deception where they intend to place a shot. [3]

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(c) Tennis players use spin to make the ball lift or dip. Using an example, describe how spin can be created when a tennis ball is struck in a match. [2]

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(Question 6 continued)

- (d) Explain the effect of air pressure on the flight path of a ball hit with top spin.

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- (e) Tennis is played on different surfaces (clay, grass and hard court). Explain the relevance of the coefficient of friction between the playing surface and a player's shoe when preparing to move and change direction when playing tennis.

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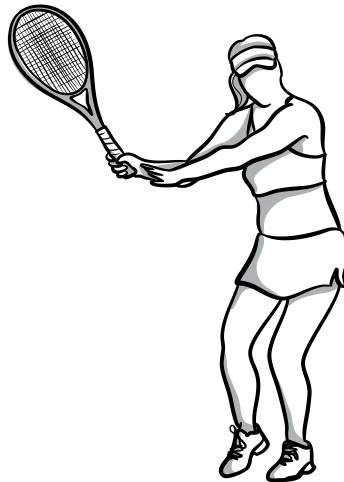


(Question 6 continued)

- (f) **Figure 3** shows a tennis player in the preparation phase of hitting a tennis forehand stroke. Outline the force production, critical instant and follow through phases of a tennis forehand stroke.

[3]

Figure 3: Tennis player



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- (g) During a tennis match, a tennis player consistently lands a forehand shot out of the court. The tennis player shouts to their coach that 'I can't do this, they're better than me'. Using knowledge of attribution theory, analyse the psychological state of the tennis player.

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References:

- Figure 1** YoungID, 2012. *Vector of weight lifters with weights - stock illustration*. [image online] Available at: <https://www.gettyimages.co.uk/detail/illustration/vector-of-weight-lifters-with-weights-royalty-free-illustration/165789939?adppopup=true> [Accessed 6 June 2025]. Source adapted.
- Figure 2** Recep-bg, 2020. *Senior adult man with artificial leg paddleboarding in sea - stock photo*. [image online] Available at: <https://www.gettyimages.co.uk/detail/photo/senior-adult-man-with-artificial-leg-paddleboarding-royalty-free-image/1287999201?searchscope=image%2Cfilm&adppopup=true> [Accessed 6 June 2025]. Source adapted.

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16EP15

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16EP16