



Rewarding Learning

**ADVANCED**  
General Certificate of Education  
2025

Centre Number

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Candidate Number

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# Sports Science and the Active Leisure Industry

Assessment Unit A2 2

*assessing*



The Application of Science to Sports Performance

**[AAL21]**

\*AAL21\*

**FRIDAY 23 MAY, AFTERNOON**

### TIME

2 hours.

### INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

**You must answer the questions in the spaces provided.**

**Do not write outside the boxed area on each page, or on blank pages.**

Complete in black ink only. **Do not write with a gel pen.**

Answer **all five** questions.

### INFORMATION FOR CANDIDATES

The total mark for this paper is 100.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in questions **3(c)**, **4(b)(ii)**, **5(b)** and **5(c)**.



Answer **all** questions

1 (a) Explain the function of vasodilation and vasoconstriction during exercise.

(i) Vasodilation:

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[2]

(ii) Vasoconstriction:

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[2]



**(b)** Explain the role of haemoglobin and myoglobin in the body.

**(i)** Haemoglobin:

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[2]

**(ii)** Myoglobin:

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[2]

[Turn over

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2 (a) Identify and describe **two** transfer of learning methods a coach could use to enhance performance.

(i) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [3]

(ii) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [3]

[Turn over

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**(b)** Skills can be classified along a continuum.

Using a named sporting activity, describe each classification of skill.

**(i)** Closed:

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[2]

**(ii)** Fine:

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[2]





(iii) Externally paced:

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[2]

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[8]

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- 4 (a) Preparing to execute a tennis serve requires extension of the shoulder, flexion of the elbow and hyperextension of the spine.

Define the movement pattern of each body part. Identify the joint, articulating bones and the agonist responsible for each movement pattern.

(i) **Extension of the shoulder:**

Definition: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Type of joint: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Articulating bones: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Agonist: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[4]



**(ii) Flexion of the elbow:**

Definition: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Type of joint: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Articulating bones: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Agonist: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[4]

[Turn over

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**(iii) Hyperextension of the spine:**

Definition: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Type of joint: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Articulating bones: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Agonist: \_\_\_\_\_

\_\_\_\_\_

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[4]









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**(Questions continue overleaf)**

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[16]

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**THIS IS THE END OF THE QUESTION PAPER**

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| <b>For Examiner's use only</b> |              |
|--------------------------------|--------------|
| <b>Question Number</b>         | <b>Marks</b> |
| 1                              |              |
| 2                              |              |
| 3                              |              |
| 4                              |              |
| 5                              |              |

|                    |  |
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| <b>Total Marks</b> |  |
|--------------------|--|

**Examiner Number**

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