Rewarding Learning

**ADVANCED**

**General Certificate of Education**

**Centre Number**

| | | | | |
|---|---|---|---|---|
| | | | | |

**Candidate Number**

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# Sports Science and the Active Leisure Industry

Unit A2 2

*assessing*

The Application of Science to Sports Performance

## [AAL21]

## Assessment

AAL21

**Assessment Level of Control:**
**Tick the relevant box (✓)**

| | |
|---|---|
| Controlled Conditions | |
| Other | |

**TIME**

2 hours.

**INSTRUCTIONS TO CANDIDATES**

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
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)**.

| For Examiner's use only | |
|---|---|
| Question Number | Marks |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| Total Marks | |

Answer **all** questions

| Examiner Only | |
|---|---|
| Marks | Remark |

**1** **(a)** **(i)** Define the term vascular shunting.

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_____ [2]

**(ii)** Explain how vascular shunting assists the performance of an athlete.

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**(b)** During exercise a performer's blood pressure may increase.

Examine **two** factors that influence blood pressure during exercise.

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_____ [2]

2. _____

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| Examiner Only | |
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| Marks | Remark |

**(c)** Outline the respiratory responses an athlete may experience when performing a high intensity training session.

| Examiner Only | |
|---|---|
| Marks | Remark |

[4]

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**(Questions continue overleaf)**

**2** **(a)** Identify **two** causes of the 'learning plateau effect' and explain methods a coach could use to overcome these causes.

| Examiner Only | |
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| Marks | Remark |

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**(b)** Explain how teaching strategies could be used during the three stages of learning to ensure effective performance.

| Examiner Only | |
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| Marks | Remark |

**(i)** Cognitive Stage

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_____ [2]

**(ii)** Associative Stage

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**(iii)** Autonomous Stage

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**3** **(a)** Ergogenic aids, such as altitude training, are widely used to improve performance.

Select **two** other **legal** ergogenic aids and explain how they would improve performance.

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_____ [2]

2. _____

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| Examiner Only | |
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| Marks | Remark |

**(b)** Describe **two** consequences for an elite athlete found guilty of taking an illegal performance-enhancing drug.

| Examiner Only | |
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| Marks | Remark |

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_____ [4]

**(c)** The use of technology by officials has increased greatly in recent years.

Discuss the disadvantages associated with the use of this technology.

**The quality of written communication is assessed in this question.**

[8]

| Examiner Only | |
|---|---|
| Marks | Remark |

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**(Questions continue overleaf)**

**4** **(a)** Regular exercise improves the performers' ability to compete at their optimum level.

Identify **three** structural adaptations and outline the benefits each offers the performer.

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| Examiner Only | |
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| Marks | Remark |

3. _____

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| Examiner Only | |
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| Marks | Remark |

**(b) (i)** Identify **two** characteristics of fast twitch glycolytic (type IIb) muscle fibres.

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_____ [2]

**(ii)** Comment on the use of altitude training for an elite athlete.

**The quality of written communication is assessed in this question.**

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| Examiner Only | |
|---|---|
| Marks | Remark |

| Examiner Only | |
|---|---|
| Marks | Remark |

[10]

**5** **(a)** A ball and socket joint allows a wide range of sporting movements to be performed.

Identify **two** other types of synovial joint. Describe the types of movement they allow and how they can be used in specific sporting actions.

1. _____

_____ [4]

2. _____

_____ [4]

| Examiner Only | |
|---|---|
| Marks | Remark |

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**(Questions continue overleaf)**

**(b)** A coach should be aware of the effects of exercise on the different body systems.

Discuss the effects on the **skeletal** system a coach should be aware of when working with **young** athletes and how this influences the coaching methods used.

**The quality of written communication is assessed in this question.**

| Examiner Only | |
|---|---|
| Marks | Remark |

| Examiner Only | |
|---|---|
| Marks | Remark |

[12]

**(c)** Sports science is constantly evolving.

Comment on the different sports science developments a coach could use to improve an athlete's performance.

**The quality of written communication is assessed in this question.**

| Examiner Only | |
|---|---|
| Marks | Remark |

| Examiner Only | |
|---|---|
| Marks | Remark |

[16]

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

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