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**PHYSICAL EDUCATION**

**9396/12**

Paper 1

**October/November 2018**

**2 hours 30 minutes**

No Additional Materials are required.

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**READ THESE INSTRUCTIONS FIRST**

An answer booklet is provided inside this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

Answer **all** questions.

Electronic calculators may be used.

You may lose marks if you do not show your working or if you do not use appropriate units.

The number of marks is given in brackets [ ] at the end of each question or part question.

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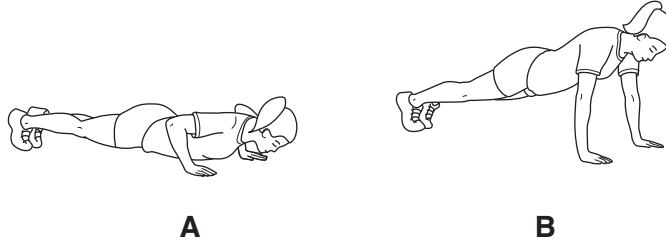
This document consists of **4** printed pages and **1** Insert.

Answer **all** questions.

**Section A: Applied anatomy and physiology**

- 1 (a) Describe, using sporting examples, the role of the pronator teres muscle and the role of the supinator muscle. [4]

- (b) The diagrams show a performance of the upwards phase of a press-up (or push-up).



- (i) Identify the items 1–4 in the table to describe a movement analysis of the shoulder and elbow joints from position **A** to position **B**. Your analysis should include the type of movement occurring and the main agonist.

|                | type of movement occurring | main agonist |
|----------------|----------------------------|--------------|
| shoulder joint | 1                          | 2            |
| elbow joint    | 3                          | 4            |

[4]

- (ii) Explain how the main agonist at the elbow performs **three** different types of muscle contraction during a press-up. [3]

- (c) (i) Define the following terms and state appropriate units for each.

- stroke volume
- cardiac output
- heart rate

[3]

- (ii) State a formula to calculate maximum heart rate. [1]

- (d) Describe the route of blood from the right ventricle to the left ventricle. [4]

- (e) The respiratory system plays an important role in gaseous exchange.

- (i) Describe how neural and chemical factors control ventilation during exercise. [4]

- (ii) Explain the process of gaseous exchange between the capillaries and muscles. [3]

- (iii) Explain how the structure of the lungs assists the process of gaseous exchange. [4]

[Total: 30]

**Section B: Acquiring, developing and performing movement skills**

- 2 (a) Skilful performances are learned, aesthetically pleasing and follow a technical model.  
Identify **three** other characteristics of skilful performance. [3]
- (b) Explain the term *gross motor ability* and the term *psychomotor ability*. [2]
- (c) Skilled movements are controlled by motor programmes.
- (i) Explain, using a practical example, the term *executive motor programme*. [4]
- (ii) Describe closed-loop control of motor programmes. [3]
- (d) (i) State the main functions of feedback when learning a skill. [3]
- (ii) Explain why feedback should differ between the associative and autonomous phases of learning. [4]
- (e) (i) State the relationship between movement time, response time and reaction time. [1]
- (ii) Suggest strategies that a performer could use to reduce their response time. [4]
- (f) A performer's level of arousal often influences their performance of movement skills.  
Explain, using the inverted-U theory, how the level of arousal can affect the performance of a movement skill. [6]

[Total: 30]

### Section C: Contemporary studies in physical education and sport

- 3 (a) Physical performance falls into the activity categories of play, physical recreation, sport and physical education.
- (i) Describe, using a named physical activity, **four** similarities between play and physical recreation. [4]
- (ii) State **four** differences between play and sport. [4]
- (b) (i) Describe what is meant by the term *elite performer*. [2]
- (ii) Suggest physical and psychological qualities that are required by a performer to achieve excellence. [4]
- (c) Explain why many governments try to increase participation in physical activities. [4]
- (d) Countries have different approaches to the development of elite sport.  
Suggest the benefits to a country of investing heavily in developing elite sport. [4]
- (e) Describe the potential negative effects on a performer's ethics of trying to achieve excellence in sport. [3]
- (f) Outline the disadvantages to sport of increased control by the media. [5]

[Total: 30]

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