



Cambridge International AS & A Level

PHYSICAL EDUCATION

9396/13

Paper 1

October/November 2022

2 hours 30 minutes



You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)

INSTRUCTIONS

- Answer **all** questions.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.
- You may use a calculator.
- You should show all your working and use appropriate units.

INFORMATION

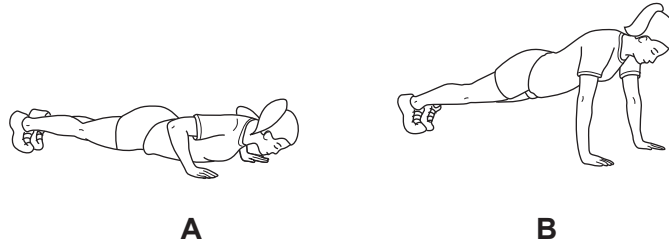
- The total mark for this paper is 90.
- The number of marks for each question or part question is shown in brackets [].

This document has **8** pages. Any blank pages are indicated.

Answer all questions.

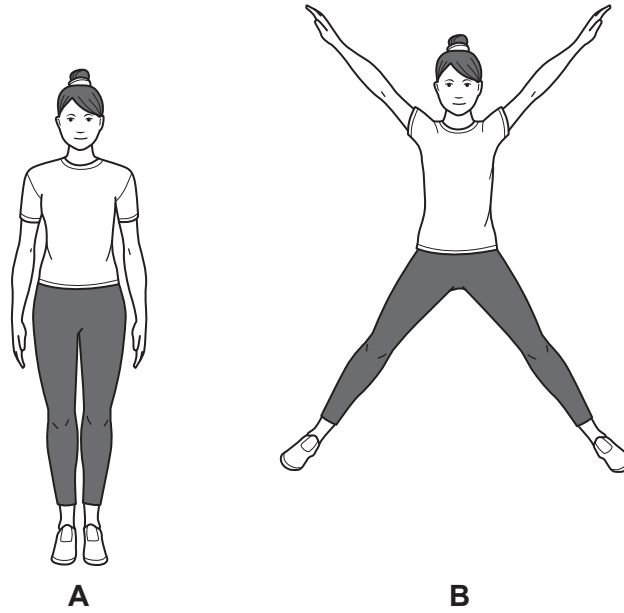
Section A: Applied anatomy and physiology

- 1 (a) (i) State the type of synovial joint found at the radioulnar joint. [1]
- (ii) Identify the muscles that work antagonistically to cause movement at this joint. [2]
- (b) The diagrams show the sequence of movements during a performance of a press-up.



- (i) Identify the type of muscle contraction in the triceps brachii during each of the following phases:
- the upward phase from **A** to **B**
 - the stationary phase at **B**.
- [2]
- (ii) Describe each type of muscle contraction identified in (b)(i). [2]

(c) The diagrams show part of a fitness exercise.



Identify the items 1–3 in the table to describe a movement analysis of the shoulder joints and the hip joints of the performer 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 joints from A to B	1	2
hip joints from A to B		3

[3]

- (d) Describe the route taken by blood as it moves from the vena cava, through the chambers and valves of the heart, to the lungs. [4]
- (e) Suggest why the cardiac output of two performers can be the same when they are resting but can be different during maximal exercise. [4]
- (f) Explain how an increase in venous return causes an increase in stroke volume during exercise. [4]
- (g) Explain how oxygen is transported by the blood into a muscle cell. [3]
- (h) During exercise chemoreceptors detect increases in blood acidity and proprioceptors detect movement in muscles.

Explain how other neural and chemical factors control the ventilation of a performer during exercise. [5]

[Total: 30]

Section B: Acquiring, developing and performing movement skills

- 2 (a) (i) Skilful performances are learned, efficient and fluent.

Identify **three** other characteristics of skilful performances. [3]

- (ii) The skill of a goalkeeper saving a shot in a team game can be classified using various continua.

Justify a classification of this skill using each of the following continua:

- open or closed
- discrete or serial or continuous
- simple or complex.

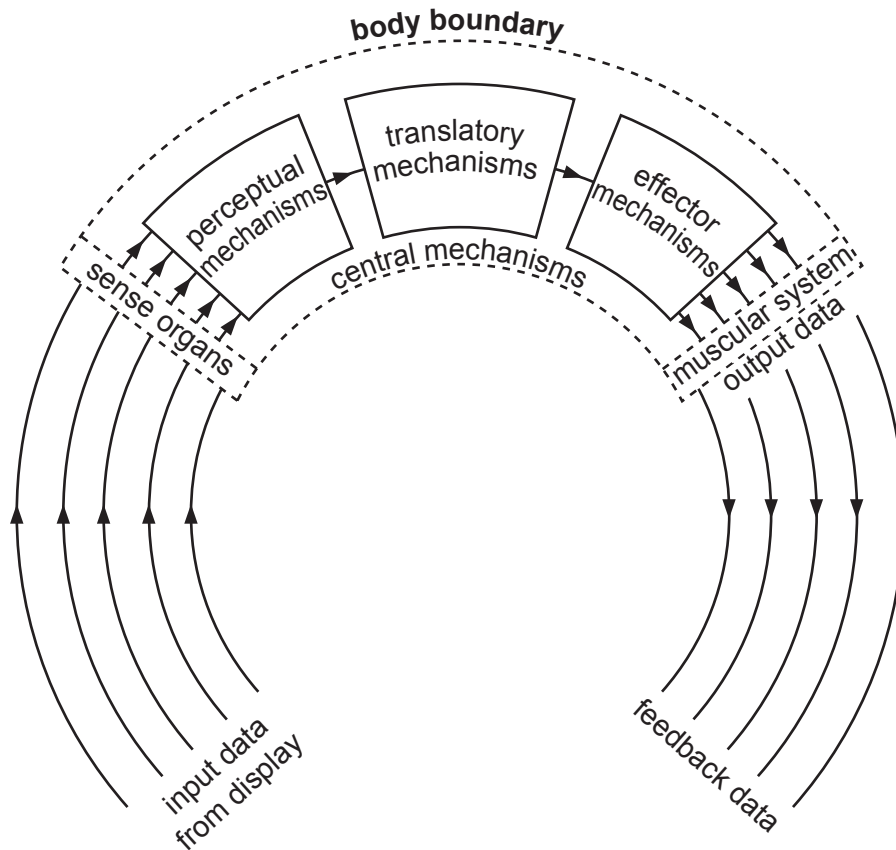
[3]

- (b) Explain how motor skill development is affected by early childhood experiences and environmental exposure. [3]

- (c) Outline the principles of the cognitive theory of learning. [3]

- (d) Explain why closed-loop control of motor programmes is **not** applicable to all skills. [3]

(e) The diagram shows an information-processing model.



The diagram shows a process of five arrows entering the perceptual mechanisms and only one arrow leaving.

- (i) State the name given to this process. Explain why it is necessary. [3]
- (ii) Suggest factors that help a performer with this process. [3]
- (f) Explain, using a practical example, how the psychological refractory period can affect reaction time when performing a movement skill. [3]
- (g) Suggest strategies that a coach could use to help a performer progress from the associative phase of learning to the autonomous phase of learning. [3]
- (h) One theory linked to arousal is drive-reduction theory.

Explain this theory.

[3]

[Total: 30]

Section C: Contemporary studies in physical education and sport

- 3 (a) Many people are introduced to a range of sporting activities through physical education programmes in schools.
- (i) Sport is competitive.
- Identify other characteristics of sport. [3]
- (ii) Describe how the concept of physical education differs from the concept of physical recreation. [3]
- (b) Describe the benefits for a country of achieving Olympic success. [4]
- (c) Describe the provision required by a performer to achieve excellence in sport. [5]
- (d) Describe what is meant by gamesmanship. Suggest **two** examples of how gamesmanship may be used by performers to gain an advantage. [3]
- (e) Describe the characteristics of private-sector provision of leisure facilities. [3]
- (f) Outline possible barriers faced by school-age children that may reduce their participation in physical activity. [5]
- (g) Suggest why some elite performers may take prohibited performance-enhancing drugs. [4]

[Total: 30]

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