



Cambridge International AS & A Level

PHYSICAL EDUCATION

9396/13

Paper 1

October/November 2023

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) Describe each of the following:

- extension at the shoulder
- elevation at the shoulder.

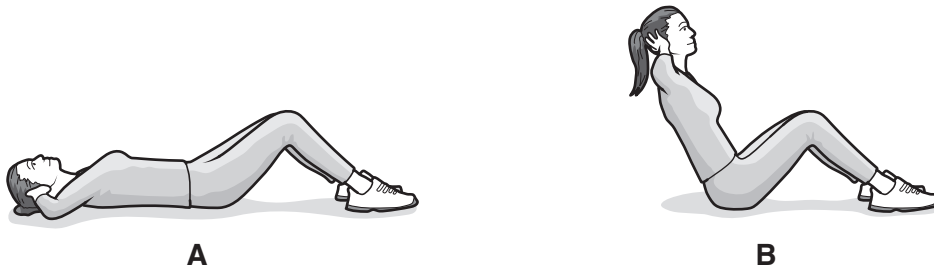
[2]

(b) Describe the action of each of the following muscles:

- biceps femoris
- teres minor.

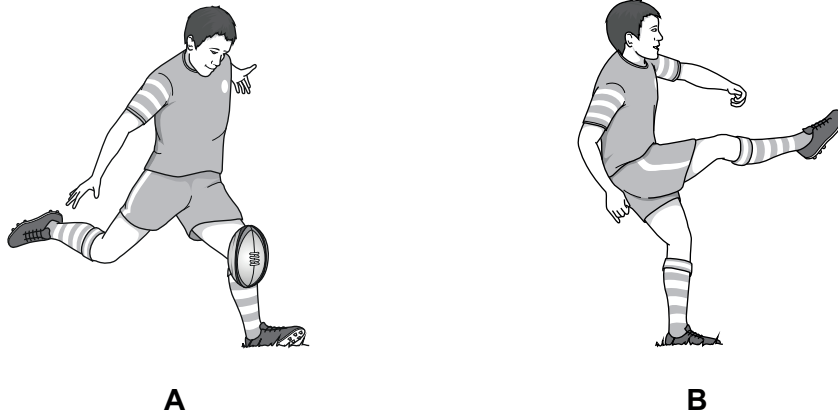
[2]

(c) The diagrams show a performance of a sit-up, which involves a performer moving from position **A** to position **B** before returning to position **A**.



Explain how **three** different types of muscle contraction are used by the rectus abdominis during this performance of a sit-up. [3]

(d) The diagrams show a performer kicking a ball.



Identify the items 1–4 in the table to describe a movement analysis of the knee joint and the hip joint of the performer's right (kicking) leg 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
performer's right knee joint from A to B	1	2
performer's right hip joint from A to B	3	4

[4]

(e) Heart rate and cardiac output increase before and during exercise.

(i) Explain the hormonal control of this increase in heart rate. [3]

(ii) Define cardiac output. State a unit for cardiac output. [2]

(iii) During exercise a large percentage of the cardiac output is redistributed to the working muscles through the vascular shunt mechanism, which includes vasodilation.

Explain how this redistribution of blood is achieved. [4]

(f) Describe the pulmonary circulatory system. [3]

(g) (i) At higher altitudes there is a reduction in the partial pressure of oxygen in the atmosphere.

Explain the short-term effects of a lower partial pressure of oxygen on the respiratory system. [3]

(ii) Describe the role of each of the following respiratory muscles during exercise:

- external intercostal muscles
- sternocleidomastoid muscles
- internal intercostal muscles
- abdominal muscles.

[4]

[Total: 30]

Section B: Acquiring, developing and performing movement skills

2 (a) (i) Abilities are enduring.

State **two** other characteristics of abilities. [2]

(ii) Using a practical example of each, describe the following:

- gross motor ability
- psychomotor ability.

[2]

(b) The effective learning of movement skills is assisted by reinforcement.

Describe a sporting example of each of the following:

- positive reinforcement
- negative reinforcement
- punishment.

[3]

(c) (i) Explain, using a sporting example, what is meant by an executive motor programme. [4]

(ii) Explain the open-loop theory of motor programme control. [3]

(d) Describe the characteristics and functions of short-term memory. [5]

(e) (i) Suggest why a quick reaction time is important in sporting activities. [2]

(ii) Suggest strategies that a performer could use to improve their response time. [3]

(f) Describe the following types of transfer of learning:

- negative
- proactive.

[2]

(g) (i) Define intrinsic motivation. [1]

(ii) Suggest how intrinsic motivation may be used by a coach to improve a player's performance. [3]

[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 the characteristics of physical recreation. [3]
 - (ii) State **four** ways in which sport differs from play. [4]
- (b) Countries have different approaches to the development of sporting excellence.
- (i) Suggest why some countries spend money to develop elite sport. [4]
 - (ii) Outline how elite performers are funded. [3]
 - (iii) Other than funding, suggest the provision needed for a performer to remain at an elite level. [4]
- (c) Outline religious factors that may reduce participation in sport. [4]
- (d) Explain the close links between sport, sponsorship and the media. [4]
- (e) Sporting organisations have introduced bans to try to reduce the problem of drugs in sport. Suggest other ways that sporting organisations could reduce this problem. [4]

[Total: 30]

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