



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

PHYSICAL EDUCATION

8666/01

Paper 1

October/November 2009

3 hours

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.
Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs, or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **four** questions, **1 question from each of Sections A, B and C and 1 other from any section.**

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [] at the end of each question or part question.



This document consists of **7** printed pages and **1** blank page.



Section A: Applied Anatomy and Physiology.

Answer at least **one** question from this section.

- 1 (a) Fig. 1 shows a swimmer, in the take your marks position on the starting block.



Fig. 1

- (i) Identify the movement occurring in the hip, knee and ankle joint at the take your marks position. [3]
- (ii) Identify the movement which will occur in the hip, knee and ankle joint on leaving the starting block to enter the water. [3]
- (iii) Name the agonist muscle responsible for each movement occurring at the hip, knee and ankle joint when leaving the starting block to enter the water. [3]
- (b) The swimmer in Fig. 1 completes an 800 metre freestyle race in a time of 9 minutes 22 seconds. Sketch a graph to show the heart rate response, prior to, during and for a five minute recovery after the race. [4]
- (c) The heart contracts at regular intervals, but the timing is controlled by intrinsic, hormonal, and neural factors.
- Describe the contribution of the intrinsic and hormonal factors in the control of heart rate. [6]
- (d) The body is able to control the volume of air that is ventilated in order to ensure that the body has a sufficient supply of oxygen when exercising.
- Explain the neural control of ventilation during exercise. [6]

[Total: 25]

- 2 (a) The weight lifter in Fig. 2 is performing the **upward** phase of a bench press.

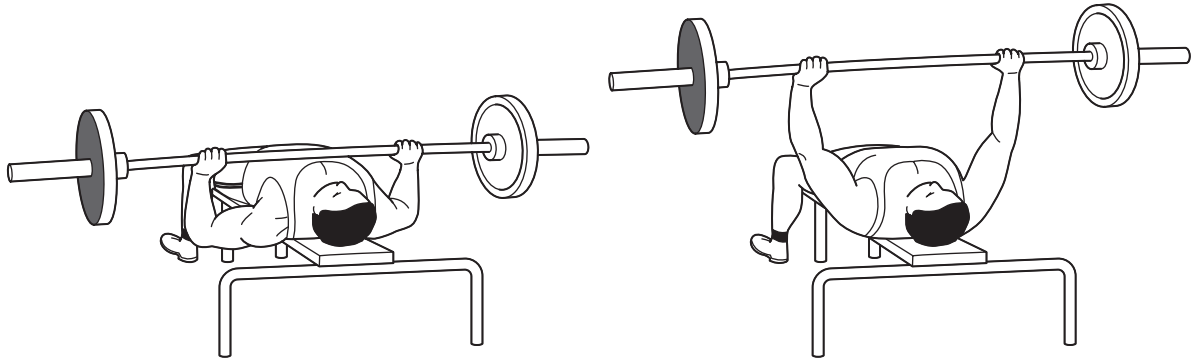


Fig. 2

- (i) Identify the bones that articulate in the elbow joint. [2]
- (ii) Identify the type of synovial joint located at the elbow joint. [1]
- (iii) Describe how the elbow joint is constructed to prevent hyperextension. [2]
- (iv) In the upward phase of the bench press name the agonist and antagonist muscles. [2]
- (v) Name the type of contraction which is occurring in the agonist muscle in the upward phase of the bench press. [1]
- (b) The arm muscles of the weight lifter who is performing the bench press will contain a high percentage of fast twitch muscle fibres.
- (i) Give **one other** example of a sporting activity which requires a high percentage of fast twitch fibres in the arm muscles. [1]
- (ii) Relate the characteristics of fast twitch fibres to the activity given in (b)(i). [3]
- (c) Veins offer little resistance to blood flow. When blood enters the veins the blood pressure is low and active mechanisms are needed to ensure venous return.
- (i) Describe **two** of the mechanisms which help to maintain venous return. [4]
- (ii) Explain why a good venous return is essential to an athlete. [3]
- (d) Whilst the weight lifter is undertaking bench press exercises it is essential that sufficient oxygen reaches the muscle tissue.
- (i) Explain the movement of oxygen between the alveoli and the alveoli capillaries in the lungs during bench press exercises. [3]
- (ii) Explain the movement of oxygen between the muscle cell capillaries and the muscle cells during bench press exercises. [3]

[Total: 25]

Section B: Acquiring, Developing and Performing Movement Skills.

Answer at least **one** question from this section.

- 3 (a) (i) Define what is meant by the self-paced – externally paced continuum of skill classification. [3]
- (ii) Give an example of a self paced skill and explain reasons for this classification. [2]
- (b) Fig. 3 is a basic model of information processing.

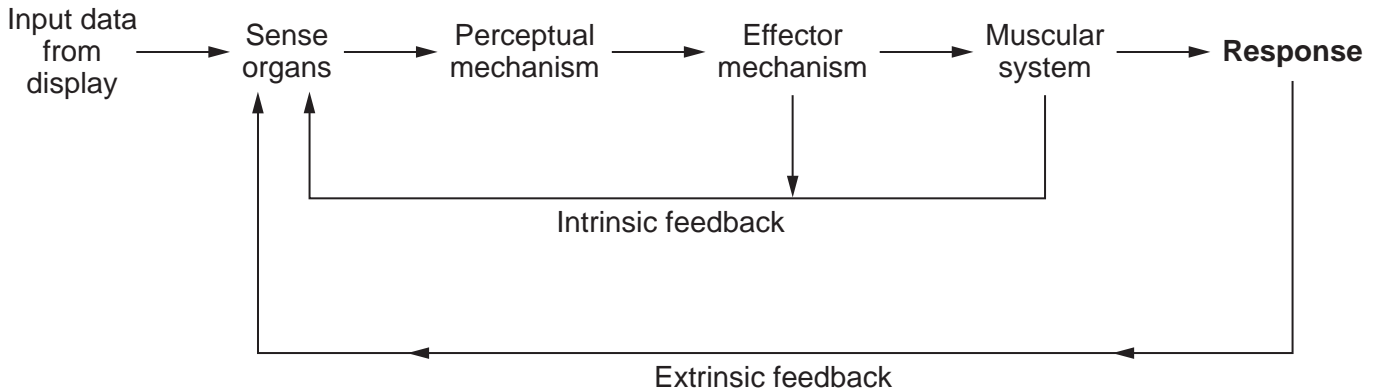


Fig. 3

- Using the example of a fielder catching a ball explain each section of this model. [8]
- (c) Long term memory is very important to athletic performance as it holds a store of motor programmes.
- As a teacher, explain **three** strategies you may use to ensure that motor programmes are retained in the long term memory. [6]
- (d) A novice performer needs feedback on their performance if they are to improve.
- Explain the types of feedback you would use to help the novice to become more skilful. [6]

[Total: 25]

- 4 (a) Ability and skill are closely linked and both are essential to achieve success in sport.
- (i) Describe **two** of the main characteristics of a skilful movement. [2]
- (ii) Describe **two** of the main characteristics of ability. [2]
- (iii) Explain the links between ability and skill. [2]
- (b) Describe the characteristics of the cognitive phase of learning. [4]
- (c) Fig. 4 is a model showing the four rules of schema.

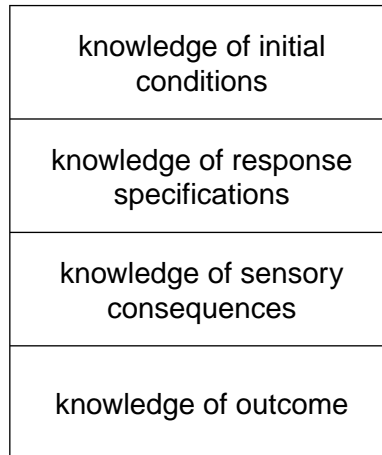


Fig. 4

- (i) A skilful rounders player is introduced to the new skill of tennis. Using this example explain each rule of schema. [4]
- (ii) Explain why the schema theory is considered to be an explanation of how skills are learned. [2]
- (d) Explain the psychological refractory period and describe how you could use this to good effect in a sport of your choice. [5]
- (e) Define the term reinforcement and explain its importance in the learning of motor skills. [4]

[Total: 25]

Section C: Contemporary Studies in Physical Education and Sport

Answer at least **one** question from this section

5 (a) Football is a popular activity. Explain why it can be classed as:–

- (i) Play [2]
- (ii) Physical education [2]
- (iii) Physical recreation [2]
- (iv) Sport [2]

(b) Fig. 5 is a model showing a performance pyramid. This shows the progression from a foundation level to international standard.

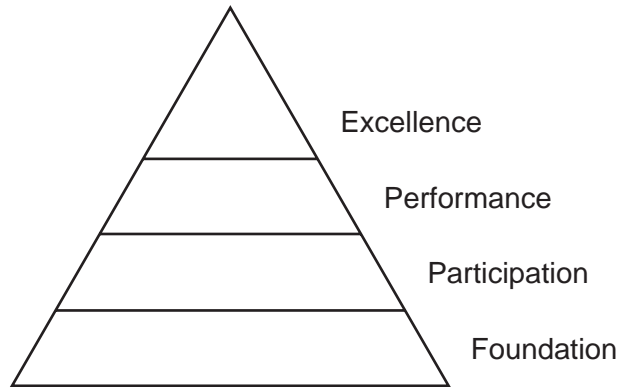


Fig. 5

- (i) Using examples from sport explain each level of the pyramid. [4]
- (ii) How can a country widen the participation level of the pyramid? [5]
- (c) Olympic success is highly regarded. Explain why this success is important to countries in the world. [4]
- (d) Why do some performers take performance enhancing drugs? [4]

[Total 25]

- 6 (a)** “Great things are done when men and mountains meet” (William Blake).
Outdoor pursuits are thought to be very beneficial to the individual.
- (i)** Explain the values to be gained by taking part in outdoor pursuits. [3]
- (ii)** Various factors may limit participation in a broad range of outdoor pursuits in schools.
Describe some of these factors. [3]
- (b) (i)** Explain the characteristics of sport. [3]
- (ii)** Explain why sport can be accepted as a leisure activity by some, yet as work by others. [4]
- (c) (i)** Explain the causes of crowd violence at sporting events. [4]
- (ii)** Describe the measures you would introduce to try to reduce this violence. [3]
- (d)** Choose any group of people who are under represented in sport, for example, the disabled or the elderly.
Explain why they may have chosen not to participate. [5]

[Total 25]

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