OCR
Oxford Cambridge and RSA

Thursday 11 June 2015 – Morning

A2 GCE PHYSICAL EDUCATION

G453/01 Principles and Concepts Across Different Areas of Physical Education

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Candidates answer on the Answer Booklet.

OCR supplied materials:
*   12 page Answer Booklet (OCR12)
    (sent with general stationery)

Other materials required:
*   Calculators may be used

Duration: 2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES

*   Write your name, centre number and candidate number in the spaces provided on the Answer Booklet. Please write clearly and in capital letters.
*   Use black ink. HB pencil may be used for graphs and diagrams only.
*   Answer **three** questions, at least one of which must be from Section A.
*   Read each question carefully. Make sure you know what you have to do before starting your answer.
*   Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

*   The number of marks is given in brackets **[ ]** at the end of each question or part question.
*   The quality of your written communication will be assessed in questions that are indicated accordingly (*).
*   The total number of marks for this paper is **105**.
*   This document consists of **8** pages. Any blank pages are indicated.

A calculator may
be used for this
paper

OCR is an exempt Charity

Turn over

SECTION A

Candidates must answer at least one question from Section A.

Historical Studies (Option A1)

1   **(a)**   Outline the objectives of the 1933 Syllabus of physical training for state schools.

State **one** reason why the 1933 Syllabus was replaced in the 1950s.   **[4]**

(b)   Outline different types of activities associated with rural pre-industrial community sports festivals.

State **one** pre-industrial activity that was taken into the public schools and adapted to a named athletics event.   **[5]**

(c)   Describe how the technical development and values of football changed from stage one to stage three in nineteenth century public schools.   **[6]**

(d)* Explain how increased free time and improved transport affected the emergence of rational recreations from 1850 to today.   **[20]**

SECTION A

Comparative Studies (Option A2)

2   **(a)**   Outline reasons why Australian Rules Football is so popular in Australia.   **[5]**

       (b)   Outline Australian cultural values that impact on participation in physical activity in Australia. Describe how **one** of these cultural values originates from the country's historical relationship with the UK.   **[5]**

       (c)   Describe strategies to encourage mass participation in physical activity in the USA. Explain why opportunities for mass participation are considered to be fewer in the USA than in the UK.   **[5]**

       (d)*   Compare how cultural factors impact on excellence in sport in the USA and the UK.   **[20]**

Turn over

SECTION B

Sports Psychology (Option B1)

3 (a) Describe the social learning and interactionist theories of personality. [4]

(b) Using practical examples, explain why people adopt different attitudes towards a balanced, active and healthy lifestyle. [5]

(c) Using practical examples, describe the possible causes of aggressive behaviour in sport. [6]

(d)* Using **one** example from sport, explain Vealey's model of sport confidence shown in Fig. 1 below.

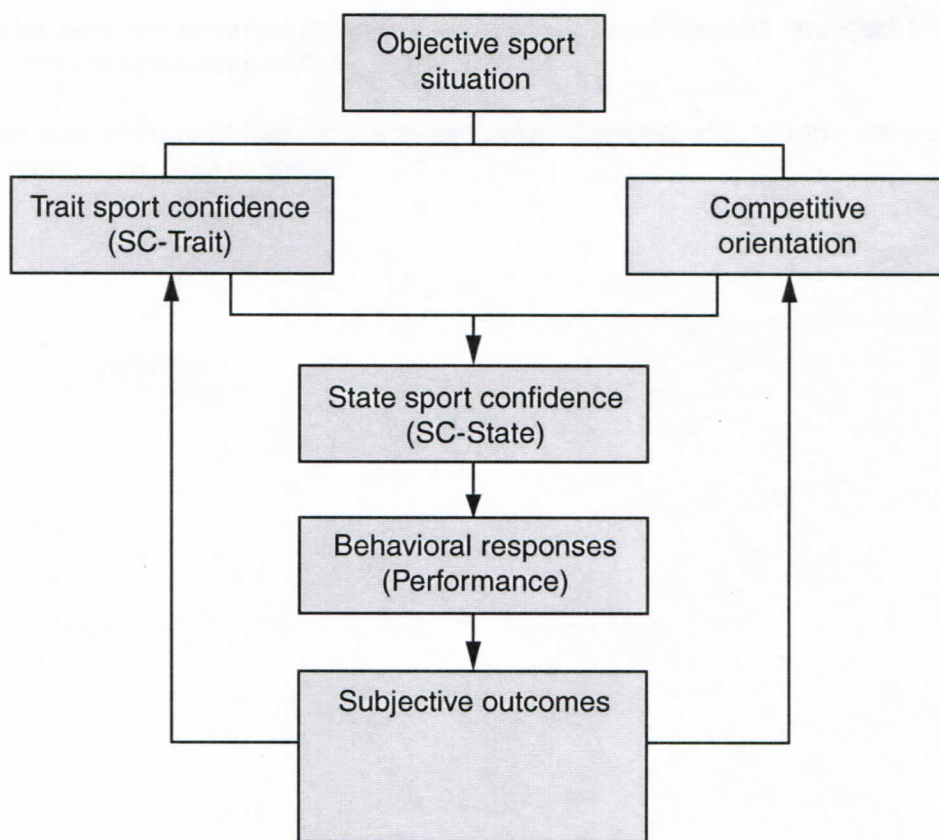Describe the methods that might be used to raise self-efficacy in sports performance. [20]

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                    ┌─────────────────────┐
                    │   Objective sport   │
                    │     situation       │
                    └─────────────────────┘

  ┌─────────────────────┐             ┌─────────────────────┐
  │ Trait sport confidence│           │    Competitive      │
  │    (SC-Trait)        │            │   orientation       │
  └─────────────────────┘             └─────────────────────┘

                    ┌─────────────────────┐
                    │ State sport confidence│
                    │    (SC-State)       │
                    └─────────────────────┘

                    ┌─────────────────────┐
                    │ Behavioral responses│
                    │   (Performance)     │
                    └─────────────────────┘

                    ┌─────────────────────┐
                    │ Subjective outcomes │
                    │                     │
                    └─────────────────────┘
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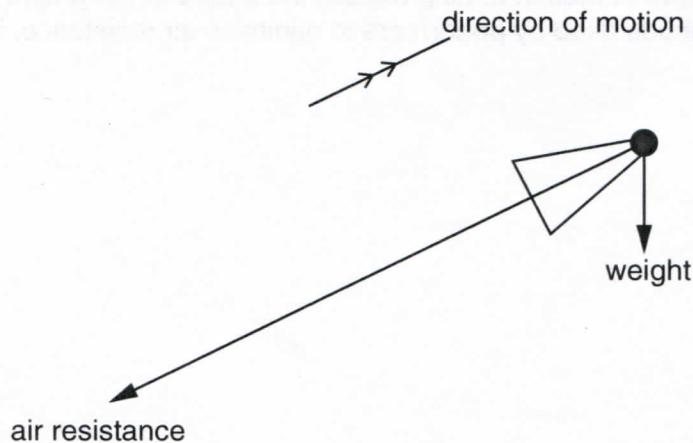**Fig. 1**

SECTION B

Biomechanics (Option B2)

4   (a)   **Fig. 2** shows a force/time graph of a single foot plant during the early stage of a 100 metre sprint.
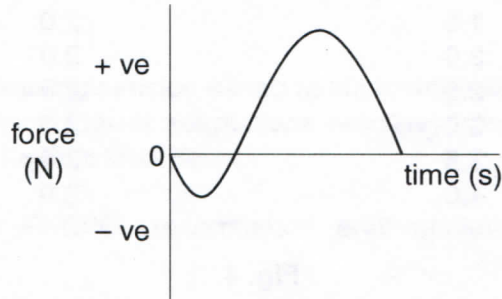
Fig. 2

Define impulse and explain the shape of the force/time graph in **Fig. 2**.   [5]

(b)   **Fig. 3** shows the forces acting on a fast moving shuttle during flight.

Fig. 3

Using the information in Fig. 3, draw a parallelogram of forces diagram to show how to resolve the net force acting on a fast moving shuttle during this phase of its flight.
Explain how this net force causes a deviation in the normal flight path of a fast moving shuttle.   [5]

(c)   Define moment of inertia and explain the factors that affect the moment of inertia of a rotating body in sport.
Explain why a runner has a flexed knee during the recovery phase of the stride action.   [5]

(d)* **Fig. 4** shows the speed of a swimmer at set times after pushing off from the side of a pool at the start of a race.

Time / secs	Speed / ms^{-1}
0	0
0.5	3.0
1.0	2.5
1.5	2.0
2.0	2.0
2.5	2.0
3.0	2.0
3.5	2.0
4.0	2.0

Fig. 4

Sketch a graph of speed against time for the swimmer.
The mass of the swimmer is 80 kg. For the first 0.5 seconds after pushing off from the side of the pool, calculate:
- the average acceleration of the swimmer
- the average net force acting on the swimmer.

Use Newton's Laws of Motion to help explain the shape of the graph.
Analyse the methods used by performers to minimise air resistance, fluid friction or drag.

[20]

SECTION B

Exercise and Sport Physiology (Option B3)

5   (a)   Define the term aerobic capacity.

Age and gender are two factors that affect VO_2 max. Identify **three** other factors that affect an individual's VO_2 max.   **[4]**

(b)   Describe an interval training session aimed at improving aerobic capacity.
Explain how **three** physiological adaptations resulting from interval training contribute to a balanced, active and healthy lifestyle.   **[6]**

(c)   Discuss the use of RhEPO (recombinant erythropoietin) as a method of enhancing performance.   **[5]**

(d)*   Explain factors that affect explosive strength.
Devise a six week training programme to improve explosive strength.
Explain how the programme would improve health and fitness.   **[20]**