OCR
RECOGNISING ACHIEVEMENT

ADVANCED GCE

PHYSICAL EDUCATION

G453

Principles and concepts
across different areas of Physical Education

OCE/26254

Candidates answer on the answer booklet.

OCR supplied materials:
- 8 page answer booklet
  (sent with general stationery)

Other materials required:
None

Monday 31 January 2011
Morning

Duration: 2 hours 30 minutes

G4533

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. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Answer **three** questions, at least one of which must be from Section A.
- 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.

Section A

Candidates must answer at least one question from Section A.

Historical Studies (Option A1)

1 **(a)** The 1933 Syllabus for Physical Training was followed in the 1950s by *Moving and Growing* and *Planning the Programme*.

Compare the teaching methodology of the 1933 and the 1950s approaches and give reasons why the 1950s approach was introduced. **[5]**

(b) Explain social and cultural factors that influenced the nature of mob football in pre-industrial Britain. Explain the impact of improved transport on the development of association football as a rational game between 1850 and 1900. **[5]**

(c) Stage three of public school development is sometimes referred to as the cult of athleticism.

Define athleticism and explain the expansion of sports and games during stage three. Describe **one** way in which the physical activity of young people in schools today is still influenced by the public schools of the nineteenth century. **[5]**

(d)* Discuss athletics as a pre-industrial popular recreation and as a post-industrial rational recreation.

Include a critical evaluation of the effect of social class on participation in popular and rational athletic events and on participation and performance in athletics today. **[20]**

[Total: 35]

Section A

Comparative Studies (Option A2)

2 **(a)** Many young people in the USA attend summer camps.

Outline the aims of summer camps in the USA and suggest why summer camps for young people are less popular in the UK than in the USA. **[6]**

(b) Social factors such as stacking and centrality impact on both mass participation and sporting excellence in the USA.

Explain and give examples of both stacking and centrality in elite USA sport. Describe other social factors that impact on mass participation in both the USA and the UK. **[5]**

(c) Excellence in international sport is important in Australia and in the UK.

Describe the strengths and weaknesses of the Australian Institute of Sport (AIS) in the development of sporting excellence. How does the Australian system for pursuing sporting excellence compare with that in the UK? **[4]**

(d)* Compare the game of cricket in Australia and in the UK with reference to tradition, development and the growth of commercialism. How do cultural factors influence excellence in high level cricket in Australia? **[20]**

[Total: 35]

Section B

Sports Psychology (Option B1)

3 **(a)** Having a good attitude towards sport or physical activities is often regarded as important for success and to maintain a healthy lifestyle.

Identify what is meant by an attitude and describe the components of attitudes that young people might have towards sport and health. **[4]**

(b) Having the right level of arousal can be important for performing well in sport.
Explain what is meant by cue utilisation and how it links with levels of arousal. **[5]**

(c) The actual productivity of a team in sport depends on the individual abilities within the group and how they operate together. Fig. 1 shows Steiner's model of group performance.

Actual productivity = Potential productivity – Losses due to faulty processes

Fig. 1: A representation of Steiner's model of group performance

Describe the possible 'faulty processes', identified in the model, that may occur in sport. **[6]**

(d)* Using practical examples, explain and critically evaluate the cognitive and somatic anxiety management techniques that may be used by performers in sport. **[20]**

[Total: 35]

Section B

Biomechanics (Option B2)

4 **(a)** Sketch a diagram of a 2nd class lever system and identify the load arm and effort arm on your diagram. Give an example of this type of lever system from the human body when it is used in sports performance and explain why it is the most efficient class of lever system. **[4]**

(b) Fig. 2 shows a speed-time graph of a sprinter of mass 80 kg completing 100 m.

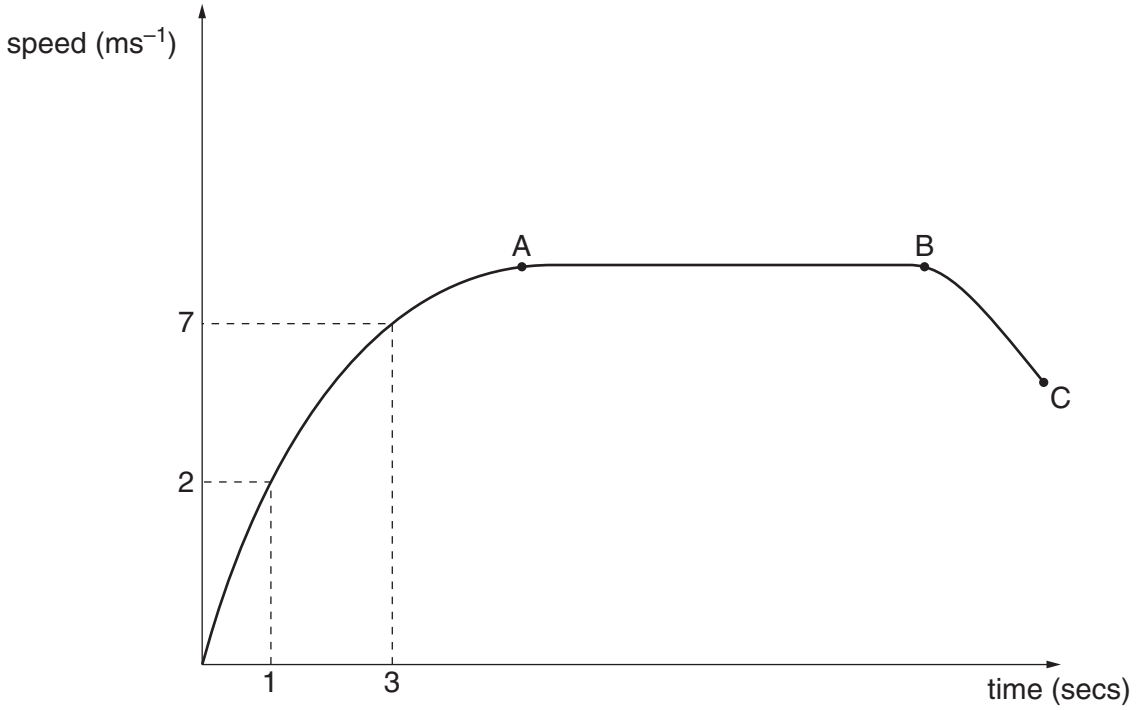

Fig. 2

Using information from the graph:

(i) Calculate the acceleration of the sprinter between 1 and 3 seconds.

(ii) Calculate the average force acting on the sprinter between 1 and 3 seconds.

(iii) Explain the motion of the sprinter between points A and B and between points B and C. **[6]**

(c) Use a diagram to work out the resultant force acting on a hard hit badminton shuttle during the early stages of the flight path of a long serve. Explain the effect of the resultant force acting on the flight path of the shuttle. **[5]**

(d)* Fig. 3 is a force-time graph for the take off phase of the Fosbury Flop during the high jump.

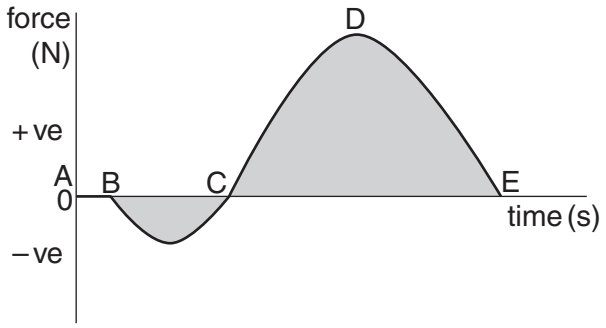

Fig. 3

Use Newton's Laws of Motion to explain the relationship between impulse and the motion of the high jumper during take off. Explain how the high jumper uses the centre of mass in order to maximise performance. Explain the relationship between impulse and decreasing momentum when landing on the safety bed. **[20]**

[Total: 35]

Section B

Exercise and Sport Physiology (Option B3)

5 **(a)** Define the terms endothermic reaction and exothermic reaction. Give an example for each type of reaction. **[4]**

(b) Describe how you would perform a stretch during a proprioceptive neuromuscular facilitation (PNF) session. Explain the physiological principle behind this type of flexibility training. **[5]**

(c) Explain the effect of **three** of the adaptations to endurance training listed in Fig. 4 on aerobic performance. **[6]**

Body System	Adaptations to Endurance Training
Cardiovascular	• Increased cardiac output • Increased red blood cell count
Musculoskeletal	• Increased mitochondrial size and density • Increased myoglobin concentration • Increased oxidative enzyme concentrations • Increased glycogen stores

Fig. 4

(d)* As exercise intensity increases, lactate levels increase.

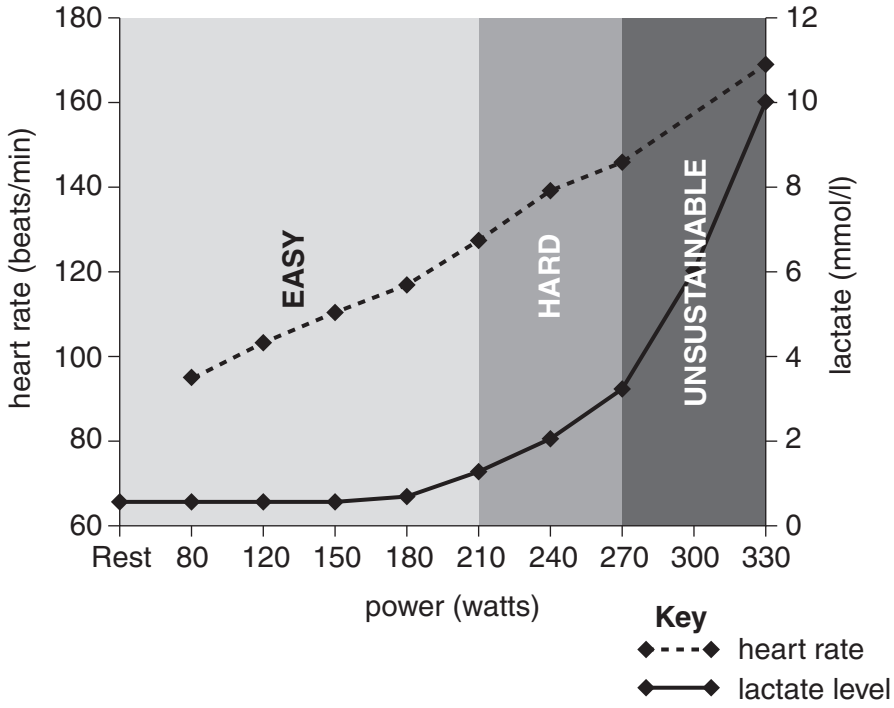

Fig. 5

With reference to Fig. 5 give reasons for the trend in lactate levels shown in the areas marked easy, hard and unsustainable. Explain the training methods that can be used to increase a performer's lactate threshold. **[20]**

[Total: 35]