

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International Advanced Level

## **MARK SCHEME for the October/November 2014 series**

### **9396 PHYSICAL EDUCATION**

**9396/33**

Paper 3, maximum raw mark 90

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2014 series for most Cambridge IGCSE<sup>®</sup>, Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

Page 2	Mark Scheme	Syllabus	Paper
	Cambridge International A Level – October/November 2014	9396	33

**Section A**  
**Exercise and Sport Physiology**

**1 (a) (i) 2 marks for 2 of:**

1. Energy – capacity of the body to perform work
2. Kinetic energy – energy of an object due to its motion / work needed to cause an acceleration of the body from rest to a specific velocity

**(ii) 6 marks for 6 of:**

1. Glycolysis
2. Glycogen / glucose broken down ...
3. ... into pyruvate / pyruvic acid
4. Some ATP produced / 2 ATP
5. Krebs cycle
6. (Fats used in the form of) triglycerides / fatty acids / glycerol
7. Beta oxidation / fats provide much higher amounts of ATP (depending on type)
8. Oxidation of acetyl coenzyme A / citric acid / production of CO<sub>2</sub>
9. 2 ATP produced
10. Electron transport chain
11. Water / H<sub>2</sub>O formed / hydrogen ions formed (H<sup>+</sup>) / hydrogen / protons
12. Large quantities of ATP produced or resynthesized / 34 ATP (from ETC) / 38 ATP in total

**(b) 4 marks for 4 of:**

1. Lifestyle – lack of exercise / smoking / poor diet
2. Training – continuous / aerobic / fartlek improves VO<sub>2</sub> max / stamina / endurance training
3. Age – VO<sub>2</sub> max decreases with age
4. Physiology – number of slow twitch fibres / capillary density / number of mitochondria / haemoglobin content / surface area of alveoli / red blood cell count / efficiency of heart or equivalent
5. Physiology – second mark available or any other suitable physiological example
6. Genetics – inherited factors limit possible improvement
7. Gender – men generally have (approx. 20%) higher VO<sub>2</sub> max than women
8. Body composition – higher percentage of body fat decreases VO<sub>2</sub> max / poor diet reduces VO<sub>2</sub> max / overweight / obese

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge International A Level – October/November 2014	9396	33

**(c) 6 marks for 6 of:**

1. (Divided into two stages) – fast and slow components
2. (Fast component) alactacid / alactic debt
3. Re-saturation of myoglobin with oxygen
4. Restoration of ATP / PC levels
5. (Slow component) lactacid debt
6. Removal of lactic acid
7. By oxidation / aerobic energy production
8. In other organs (liver) / muscle / Cori cycle
9. Conversion to pyruvate
10. To water and carbon dioxide
11. Conversion to glycogen / glucose
12. Conversion to protein / excreted in sweat and/or urine
13. Elevated circulatory / respiratory rates to maintain oxygen supply to muscles
14. Extra oxygen used as temperature remains high

**(d) (i) 3 marks for 3 of:**

1. 60 – 80% max. heart rate
2. Max. heart rate = 220 – current age
3. Karvonen Principle / formula
4. (Explanation of Karvonen Principle)  

$$\text{HR reserve} = \text{HR (max)} - \text{HR (rest)}$$

$$([\text{HR (max)} - \text{HR (rest)}] \times \% \text{ intensity of exercise}) + \text{HR (rest)}$$

**(ii) 5 marks for 5 of:**

1. Cardiac hypertrophy (Do not accept: bigger / stronger heart)
2. Increased stroke volume
3. Lower resting heart rate / bradycardia
4. Increased maximum cardiac output
5. Increased capillarisation (of trained muscle) / development of new capillaries
6. Improved efficiency of vasoconstriction and vasodilation / improved vascular shunt / increased elasticity of arteries/arterioles
7. Decrease in resting blood pressure
8. Increase in blood plasma / decreased blood viscosity
9. Increase in red blood cell volume and haemoglobin

**(e) 4 marks for 4 of:**

1. Involves the removal and re-injection of the blood of a performer
2. Approximately 1 litre / 2 pints
3. Causes an increase in red blood cells/haematocrit
4. More haemoglobin
5. Improves the oxygen carrying capacity of the blood
6. Greater amount of oxyhaemoglobin formed

<b>Page 4</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge International A Level – October/November 2014</b>	<b>9396</b>	<b>33</b>

**Section B**  
**Psychology of Sport Performance**

**2 (a) (i) 3 marks for 3 of:**

identify and describe for the mark (sub-max 1 mark if no example)

1. Cognitive (component) – beliefs / thoughts, e.g. fitness is good for you
2. Affective (component) – feelings / emotions, e.g. fitness is fun
3. Behavioural (component) – actions / responses of the player, e.g. complete training programme

**(ii) 3 marks for 3 of:**

1. Use a messenger of high status / person delivering information should be respected / significant other
2. Deliver a high quality message / new information to challenge existing thoughts and emotions / consistent message / correct use of attribution theory
3. Select a suitable situation / time when message is given / one to one situation
4. Assess the individual / team resistance to change / individual or team must want to change

**(b) 3 marks for 3 of:**

(sub-max 1 if no practical example)

1. Highly focussed on the task / good selective attention / fully absorbed in the activity / ignore irrelevant stimuli / effective decision making
2. Movement or skill feels effortless / automatic
3. Clear goals / high levels of achievement motivation
4. High levels of confidence / self-efficacy / positive attitude / low anxiety / mastery orientation
5. Sub-conscious feelings of control / being on autopilot
6. Enjoyment / satisfaction / self-fulfilment

<b>Page 5</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge International A Level – October/November 2014</b>	<b>9396</b>	<b>33</b>

**(c) 3 marks for 3 of:**

**1. Imagery / visualisation / mental rehearsal**

2. Formation of mental pictures of good performance / imagine in a calm place
3. Internal – creating the feeling of the movement / sensations
4. External – seeing themselves completing the movement

**5. Self-talk / positive self-talk**

6. Use when negative thoughts occur
7. Replace with positive statements about performance
8. Example – nerves are good before the race or equiv.

**9. Thought-stopping**

10. Use of cue / action / word
11. Re-directs attention to positive thoughts
12. Example – key word – focus / click fingers or equiv.

**13. Rational / Positive Thinking**

14. Challenge negative thoughts by reasoned argument
15. Identify specific areas and switch to create an opportunity rather than a distraction
16. Example – I haven't trained enough – identify training completed – believe training has been successful

**(d) (i) 4 marks for 4 of:**

1. Larger number of home supporters / encouragement / positive reinforcement / expectation of success
2. Increased self-efficacy / lower levels of anxiety / increased motivation / increased arousal
3. Home teams tend to play more attacking styles / tactics / functional aggressive behaviour
4. Proximity effect / closeness of crowd has negative effect on visiting teams / crowd noise distracting away team
5. Larger crowd / hostile crowd has a negative effect on away teams
6. Away teams often commit more fouls / can become anxious / over-aroused due to crowd or unfamiliar surroundings / accept reverse answer for home team
7. More matches won at home than away / during early rounds of competitions / Olympic and World medals by host nation

<b>Page 6</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge International A Level – October/November 2014</b>	<b>9396</b>	<b>33</b>

**(ii) 5 marks for 5 of:**

1. Introduce an audience at training sessions / gradually increase the number of spectators at training
2. Reduce the importance of the event
3. Improve selective attention
4. Avoid social comparison with others / teach / coach in a non-evaluative environment / verbal encouragement
5. Team mates actively support each other / avoid blame culture / team building exercises
6. Use stress management and relaxation techniques / goal setting / mental rehearsal / accept named examples
7. Accept second named stress management technique
8. Use attributions correctly / accept suitable examples
9. Ensure skills are well learnt / over-learned to encourage the dominant habit to occur as the levels of arousal increase / highly skilled / autonomous phase
10. Performance accomplishments / ensure success / create opportunities for success

**(e) (i) 4 marks for 4 of:**

1. (Cohesive group) – the tendency of a group to stay together to achieve certain objectives or outcomes
2. Task cohesion – the ability of the group to achieve a common goal
3. Social cohesion – the ability of the group to relate well to each other / get along socially

Reasons for importance of cohesion: (sub-max 3)

4. Avoid motivation / co-ordination losses / social loafing / Ringelmann effect
5. Players need to be able to have good communication / interact effectively
6. Need to understand own role / role of others / awareness of strategies and tactics / trust each other
7. Good task cohesion can help social cohesion
8. Task cohesion is more important than social cohesion / social cohesion is not vital for group success
9. Social cohesion can aid team performance by challenging the norm

<b>Page 7</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge International A Level – October/November 2014</b>	<b>9396</b>	<b>33</b>

**(ii) 5 marks for 5 of:**

1. Practice / training to ensure all players understand the tactics
2. Vary practice to maintain motivation / train in small groups
3. Set common team goals
4. Task oriented goals are more effective
5. Have highly motivated individuals / issue rewards / create desire for success / punish selfish play / positive reinforcement for good team work
6. Set individual goals / give individuals specific responsibility / explain specific roles within the team / individuals understand and accept their role within team / awareness of roles of others within team
7. Appropriate leadership style / democratic leadership / decision making style
8. Keep team together / give time for cohesion to develop / social events / limit change of team members / team bonding exercises
9. Give feedback / video analysis of performance
10. Develop peer support / encourage each other / encourage open discussion
11. Improve fitness levels
12. Avoid social cliques / select 'team' players
13. Create a group identity, e.g. team kit
14. Develop self-confidence / self-efficacy / self-esteem / credit use of attributions

Page 8	Mark Scheme	Syllabus	Paper
	Cambridge International A Level – October/November 2014	9396	33

**Section C**  
**Olympic Games; A Global Perspective**

- 3 (a) (i) 6 marks for 6 of:**  
(sub-max 4 per section)

Differences – must have both points to be credited with mark:

<p>Ancient</p> <ol style="list-style-type: none"> <li>1. Religious festival</li> <li>2. Over 5 days</li> <li>3. Prizes were wreaths of olive leaves</li> <li>4. Males only</li> <li>5. 32 events</li> <li>6. Always held at Olympia</li> </ol>	<p>Modern</p> <ol style="list-style-type: none"> <li>1. Secular</li> <li>2. Over 2 weeks</li> <li>3. Medals</li> <li>4. Women included</li> <li>5. Over 300 events</li> <li>6. Different countries / cities used</li> </ol>
--	---

Similarities:

7. The term Olympiad still used
8. Institutionalised
9. Similar sports e.g. athletics
10. Still every 4 years
11. Different cultures meet and compete / festival nature / sporting and cultural event
12. Specialist sites
13. Economic benefits sought by cities / economic benefits to successful athletes on return to home / became cult figures
14. Eligibility standards of competition
15. Specialised training
16. Values and ethics embedded
17. Athletes take oath / opening ceremony
18. Olympic flame
19. Force for social unity

- (ii) 5 marks for 5 of:**  
(sub-max of 4 marks for benefits or drawbacks)

Benefits:

1. Promote the city / country / civic pride
2. Improve infrastructure / redevelop / rejuvenate city / legacy facilities / sustainability
3. Gain income from tourism / economics / employment
4. Improve community spirit / integration
5. Increase participation = improved health / more medals
6. Home crowd support / volunteers
7. Training camps put on by other cities / areas

Drawbacks:

8. Cost / money could be spent in other areas of society
9. Pressure on infrastructure / increased traffic
10. Only [London] city may benefit / not other areas
11. Security threats
12. Relocation of businesses / housing
13. Facilities unused after the event / White Elephants
14. Poor running of event can hinder future bids



<b>Page 9</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge International A Level – October/November 2014</b>	<b>9396</b>	<b>33</b>

**(iii) 6 marks for 6 of:**

Role: (sub-max 3)

1. Leads the Olympic movement / protects independence of Olympic Movement / select host city / ensure regular celebration of Olympic Games
2. Promote ethics of fair play in sport / ideals of Olympism
3. Encourage education of youth through sport
4. Act against discrimination affecting Olympic movement
5. Protect health of athletes
6. Anti-doping policies / accredited laboratories
7. Equality issues / sport for all / promotion of women in sport
8. Protect sports from political or commercial abuse
9. Support activities of International Olympic Academy
10. Promote positive Games legacy / responsible concern for environmental issues

Problems: (sub-max 3)

11. Controversy over bidding and selection of cities / bribery / corruption allegations
12. Criticism of host countries e.g. China – human rights / Berlin – banning Jewish athletes
13. Political issues affecting specific games e.g. Munich – terrorism / various boycotts
14. Athletes doping
15. Ethical sponsors of the Games
16. Transition from amateurism to professionalism
17. Accept any other problem if valid

**(b) (i) 3 marks for 3 of:**

1. Compete in sport for the love of it
2. No monetary reward
3. Tended to be a social class distinction / upper class / gentry / 'gentleman amateur'
4. Values of participation more important than winning / sportsmanship / fair play
5. All-rounder highly regarded rather than specialising professional
6. Term used to exclude working class from Olympic Games

<b>Page 10</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge International A Level – October/November 2014</b>	<b>9396</b>	<b>33</b>

**(ii) 6 marks for 6 of:**

1. (Global media coverage) attracts sponsorship / increase in funding
2. Allows OG to attract world class athletes
3. Companies have to abide by ethics / Olympic ideals
4. Do not have stadium advertising
5. Funding from variety of sources, e.g. government / private companies / media rights
6. NOC's provided with financial help / prevent host city getting into financial difficulty
7. Provide merchandise
8. Ensure financial stability of Games
9. Provides free air / TV transmission across world
10. Employment of professionals in the business administration / design / creativity, etc.
11. Money towards anti-doping measures

**(c) 4 marks for 4 of:**

1. Prior to World War II belief that disabled people could not participate in sport
2. Developed through treatment of injured soldiers / Sir Ludwig Guttman / Stoke Mandeville
3. Rehabilitative / morale boosting
4. Technology helped develop equipment / new sports
5. Legislation / growth in equal opportunities in society / aim to create elite sports competition for disabled athletes which is equivalent to the Olympic Games
6. Classification system developed
7. Treated similarly to Olympic Games today– venues / media coverage / opening-closing ceremonies etc.
8. Seoul Paralympics – first use of name