

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

**9396 PHYSICAL EDUCATION**

**9396/11**

Paper 1, 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.

**Section A**  
**Applied Anatomy and Physiology**

(a) (i) 5 marks for 5 of:

	type of muscle contraction	type of movement occurring	agonist muscle
shoulder joint	Isotonic/concentric	(Horizontal) flexion/ (Horizontal) adduction / (lateral) flexion	Pectoralis Major / (anterior) deltoid
elbow joint		Flexion	Biceps brachii

(ii) 2 marks for 2 of:

1. Shoulder joint – humerus and scapula
2. Elbow joint – humerus and radius / ulna

(iii) 5 marks for 5 of:

(sub-max of 1 mark)

1. Shoulder joint – ball and socket

(sub-max of 4 marks)

2. Shape of the articular surface – allow bones to fit together
3. Ligaments – attach bone to bone / restrict movement
4. Muscles around the joint – support bones / restrict movement
5. Joint capsule / fibrous capsule – lined with synovial membrane / encloses / supports / eq. joints
6. Synovial membrane – secretes synovial fluid
7. Synovial fluid – provides lubrication
8. Hyaline / articular cartilage – prevents friction / stops bone rubbing together
9. Bursae – (sacks of fluid) to reduce friction
10. Pads of fat – absorb shock

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**(b) (i) 4 marks for 4 of:**  
(N.B. requires descriptive element and explanation for mark)

1. Enters right atrium + during diastole / relaxation / resting
2. Tricuspid / AV valve + closes to prevent back flow / pressure forces valve open
3. To right ventricle + during diastole / relaxation
4. (right) atria contract / atrial systole + blood forced out of atria / into ventricles
5. Ventricle contracts / systole + blood forced out of ventricle
6. through pulmonary valve / semi-lunar valves + which prevents back-flow / pressure forces valve open
7. To pulmonary artery – transports deoxygenated blood to the lungs
8. To lungs – gaseous exchange / carbon dioxide removed / fresh oxygen absorbed

**(ii) 6 marks for 6 of:**  
(sub-max of 2 marks per section)

1. (Point A) – Anticipatory rise
2. Caused by release of adrenaline / noradrenaline
3. Causes SA Node to increase heart rate
4. (Point B) – rapid increase in heart rate
5. To remove carbon dioxide / decrease acidity of blood
6. Detected by chemoreceptor
7. (Point C) – Steady state
8. Heart rate matches exercise demand / level
9. The oxygen demands of the muscles are being met

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

1. (Tidal Volume) – volume of air inspired or expired / exchanged per breath
2. Increases during exercise
3. (Residual volume) – volume of air left in the lungs after maximal expiration
4. Stays the same

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

1. Detected by chemoreceptors
2. Located in carotid arteries / aortic arch / medulla
3. Nerve impulses / message to respiratory control centre / RCC / medulla of brain
4. Nervous system sends message to diaphragm / intercostal muscles
5. via phrenic / sympathetic nerve / sympathetic nervous system
6. Increased rate of contraction of diaphragm / intercostal / respiratory muscles

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**Section B**  
**Acquiring, Developing and Performing Movement Skills**

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

1. Skill is learnt / developed over time
2. Ability is innate / genetic / born with it / inherited

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

(accept either point 3 or 4 if justification correct)

1. Open – environment is unstable / other performers affect completion of the skill / state of the race constantly changing / performer has to adjust to the situation / decisions need to be made during the race
2. Continuous – repetitive skills / movements / one movement starts the next movement / sub-routines have no clear beginning and end / extended time duration to complete the skill
3. Externally paced – speed of movement determined by the other runners / start of the movements determined by other runners / start of race controlled by the starter

**OR**

- Internally paced – runner controls the speed of the race / runner controls the start of the movement (if they decide to lead from the front, etc.)
4. High organisation – sub-routines difficult to separate from whole movement / practised as part of whole movement / large amounts of information to be processed / many decisions to be made quickly

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

Principles

(sub-max of 4 marks)

1. Aim to develop / strengthen the S-R bond / stimulus-response bond
2. Trial and error learning
3. Shaping
4. Change the environment / modify the environment to change behaviour
5. Reinforcement strengthens the S-R bond
6. Positive reinforcement + creates positive feelings / praise from coach / observing target being hit, etc.
7. Negative reinforcement + withdrawal of an adverse stimulus / coach stops shouting
8. Punishment / annoyance weakens the S-R bond
9. Physical / mental preparedness strengthens S-R bond

Disadvantages

10. Difficult to adjust skills to new situations / modify skills
11. Unable to develop their own strategies / reliant on the coach
12. Performer does not understand relationship between S-R bond / sub-routines

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

(sub-max of 1 mark)

1. Cognitive (phase of learning)

(sub-max of 3 marks)

2. Clear / accurate demonstration
3. Make sure performer can see / make sure performer is paying attention
4. Highlight key points / use appropriate language
5. Do not overload with information
6. Encourage positive transfer / prevent negative transfer of learning
7. Create a mental picture / imagery / visualisation
8. Provide (extrinsic) feedback
9. Allow time for questions / rest / practice

**(e) 2 marks for 2 of:**

1. (Terminal feedback) – provided at the end of the skill + e.g. coach explaining the good points of the game after the final whistle or equiv.
2. (Concurrent feedback) – provided during the skill or event + e.g. coach calling instructions to change tactics or performer detecting errors in the skill and making adjustments or equiv.

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

1. (Extrinsic motivation) – rewards from another person
2. Tangible or intangible – e.g. certificates / prizes / trophies / money or equiv. (Intangible – e.g. praise / feedback / applause / records or equiv.)
3. (Intrinsic motivation) – pride / self-satisfaction / personal achievement / enjoyment or equiv.

Explanation:

4. Intrinsic more important + overuse of extrinsic motivation undermines intrinsic motivation
5. Intrinsic more important + performer may become over-reliant on extrinsic rewards / only participate if given praise or equivalent
6. Intrinsic more important + greater chance of continued participation

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

(sub-max of 3 marks per section)

(Open loop control)

1. No conscious control / movements are automatic
2. Skills are well learned
3. No feedback during the movement
4. No adjustments during the movement / whole movement is performed
5. Fast / rapid / eq. actions

(Closed loop control)

6. Memory trace starts the movement
7. Involves feedback / intrinsic feedback during movement
8. Perceptual trace allows comparison
9. Performer able to adjust the movement
10. Updates memory trace

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

1. Relevant practice / overlearn the skill
2. Reinforcement / praise / rewards / encourage
3. Improve selective attention / focus on specific cues
4. Mental rehearsal / visualisation
5. Improve anticipation / temporal anticipation / spatial anticipation
6. Optimum arousal levels / Zone of Optimal Functioning / motivate performer
7. Alter the intensity of the stimulus
8. Transfer of learning / link to past experience
9. Make information relevant / meaningful / enjoyable / fun / interesting / memorable
10. Chunking / chaining / (progressive) part learning

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**Section C**  
**Contemporary Studies in Physical Education and Sport**

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

1. Outdoor education – learning within or about the outdoors / natural environment
2. Implied instruction element / structured learning, e.g. school ski trip
3. Outdoor recreation – in person's free time / holidays / with friends (recreation) / choice
4. E.g. activity in natural environment, e.g. rock climbing weekend

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

1. Appreciation / understanding of the natural environment / environmental issues
2. Know personal limits / self-reliance / courage / bravery / overcome fear
3. Communication / team work
4. Trust in / awareness of others / survival / safety
5. Decision making / leadership
6. Acquire new skills – for example / map reading / bushcraft
7. Opportunities for active leisure / choice of activity / escape from stress
8. Health / fitness
9. Intrinsic motivation / fun
10. Sense of achievement / fulfilment / confidence / self-esteem / awards
11. Social / friendship

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

1. Resources – access to money / transport / disposable income
2. Leisure time / holidays
3. Availability of clubs / facilities
4. Access to coaching
5. Peers / friends / family influence (positive or negative)
6. Cultural / religious / race issues / holy days / dress codes
7. Previous experience / experienced via school PE programme / previous success in similar sports
8. Discrimination (require explanation)
9. Media coverage / society's image / role models / health awareness.

**(c) (i) 5 marks for 5 of:**

1. Increased chance of success
2. Increase in national prestige / feel good factor / morale
3. Advertisement for the country / shop window effect
4. Infrastructure, e.g. better facilities / coaching / TIPs
5. Demand from population for national success
6. Confirmation of political superiority / political popularity
7. Encourage participation / better health / social control
8. To enable individuals to succeed / human potential can be discovered

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

1. Win at all costs / Lombardian ethic
2. Negative deviancy
3. Example of negative deviancy, e.g. cheating / aggression / drugs or equiv.
4. Accepting sponsorship deals from disreputable companies / products
5. Monetary values more important than sporting values
6. Positive deviancy
7. Example of positive deviancy, e.g. overtraining / perform when injured

**(d) 7 marks for 7 of:**

1. Increased security / police / CCTV in grounds
2. Banning of alcohol within grounds / drunks / and in local establishments / pubs shut early
3. Moving kick off / start times
4. Segregation of rival fans
5. Restriction / control of ticket sales / family areas / identity cards
6. All seater stadia
7. Police intelligence / sharing of intelligence
8. Prevention of known troublemakers travelling to matches / reporting in to local police / life ban / equiv.
9. Ban / fine team / country / close stadia
10. Better player behaviour / not inciting spectators
11. Appeal by role models / NGBs for fans to behave / fan education schemes / campaigns
12. Responsible media reporting