

MARK SCHEME for the October/November 2012 series

9396 PHYSICAL EDUCATION

9396/12

Paper 1 (Theory), 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 2012 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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Section A

Applied Anatomy and Physiology

1 (a) (i) 4 marks in total

Sub max 2 marks from

- 1 Pivot joint / atlas-axes [type of synovial joint]
- 2 Allows rotation (around a vertical axis)

Sub max 2 marks from

- 3 Cartilaginous / semi moveable-joint (have no joint cavity)
- 4 Compression of discs during activity contribute to movement e.g. flexion, extension, rotation

Sub max 2 marks from

- 5 Gliding joint – type of synovial joint
- 6 Allowing flexion, extension, lateral flexion, rotation and circumduction / allows wider range of movement [4]

(ii) 4 marks from
(if no sport example max 3 marks)

- 1 Both muscles help provide core strength
- 2 They help to stabilise the spine / help provide good posture
- 3 Reduce the risk of back injury
- 4 Sports high in impact / high intensity movements e.g. tackling in rugby, tennis serve, fast bowling in cricket require good core strength
- 5 Control change in body direction e.g. dodging in netball
- 6 Helps distribute stresses of weight bearing e.g. during long distance weight bearing activities e.g. running [4]

(b) 6 marks from
(must be in order)

- 1 [Impulse / wave of depolarisation / action potential] starts at the SA node
- 2 Passes through atria
- 3 To the AV node
- 4 Atrial systole/atrial contraction
- 5 Blood is forcefully ejected out of both atria / blood flows into the ventricles
- 6 During ventricular diastole
- 7 Impulse passes down Bundle of His to apex of heart (down septum)
- 8 Impulse spread through ventricles via purkinje fibres creating wave of contraction
- 9 Ventricular systole
- 10 AV valves close to prevent backflow
- 11 Blood is forcefully ejected out of both ventricles
- 12 Then semi-lunar valves close to prevent backflow [6]

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(c) 6 marks from

Sub max 2 marks

- 1 The skeletal/muscle pump mechanism
- 2 The contraction of skeletal muscles puts pressure on/squeezes the vein walls helping to force blood back to the heart

Sub max 2 marks

- 3 Valves in the veins
- 4 Prevent back flow / keep blood flowing in one direction back to the heart

Sub max 2 marks

- 5 The respiratory pump mechanism
- 6 Changes in pressure in the thoracic cavity put pressure on the abdominal veins helping to force blood back to the heart

Sub max 2 marks

- 7 Venous tone
- 8 Partial contraction of the smooth muscle in the vein wall helps to force blood back to the heart

Sub max 2 marks

- 9 Gravity
- 10 From veins flowing from above the heart helps force blood back to the heart

Sub max 2

- 11 Suction pump of the heart
- 12 During diastole blood is sucked into the heart from the veins [6]

(d) 4 marks from

- 1 Blood velocity is highest in the arteries when pressure is at highest
- 2 When blood has been ejected from the heart / highest nearest the heart
- 3 Where the total cross sectional area of the vessels is comparatively small
- 4 Blood velocity reduces as blood passes through arterioles and capillaries
- 5 Total cross sectional area of blood vessels increases furthest away from heart
- 6 Velocity decreases as total cross sectional area of blood vessels is increased
- 7 Velocity is reduced to allow exchange of gases, nutrients and waste products
- 8 As blood flows through the venules and veins cross sectional area decreases / velocity increases [4]

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(e) 6 marks in total

Sub max 4 marks from

(inspiration at rest)

- 1 External intercostals contract to lift rib cage upwards/outwards
- 2 Diaphragm contracts/flattens/lowers
- 3 Increasing volume of thoracic cavity / volume of lungs increases
- 4 Outer pleural membrane attached to thoracic wall
- 5 Pressure within the lungs drops
- 6 Pressure lower in lungs than in the atmosphere
- 7 Air enters lungs from atmosphere

Sub max 2 marks from

(inspiration during exercise)

- 8 More inspiratory muscles are used / pectoralis minor, scalenes, sternocleidomastoid/abdominals [need 2 muscles named]
- 9 Increasing volume of thoracic cavity resulting in a greater reduction in pressure in the lungs [6]

[Total: 30]

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Section B

Acquiring, Developing and Performing Movement Skills

2 (a) 4 marks for 4 from

(Externally paced)
(2 marks sub max)

- 1 The speed/start of the skill is controlled by the environment/others
- 2 Suitable practical example e.g. receiving a pass in football

(Internally paced)
(2 marks sub max)

- 3 The speed/start of the skill is controlled by the performer / dispositional control
- 4 Suitable practical example e.g. passing the ball in netball [4]

(b) 6 marks for 6 from
(4 marks max if no practical example)

- 1 Motor ability named e.g. strength/speed / abilities innate-genetic
- 2 This is needed as a foundation / basis to build skill learning / a building block e.g. you need strength before learning a handstand in gymnastic
- 3 Fundamental motor skill named e.g. running/jumping/throwing/kicking, / learned.
- 4 This gets refined/adapted / more complex skills
- 5 An example of the skill being developed from the fundamental form, e.g. the push to the flick in hockey
- 6 Needs practice/repetition
- 7 Reinforcement of movement also helps learning
- 8 Coaching/teaching must show good demonstrations for each progression to be successful [6]

(c) 4 marks for 4 from

- 1 Positive reinforcement
- 2 Negative reinforcement
- 3 Use of rewards
- 4 Repetition / drills / intense training (Thorndike's) law of exercise
- 5 Showing benefits / understanding / cognitive aspects of skill learning
- 6 Teach as a whole to help this understanding
- 7 (Thorndike's) law of effect / giving a 'satisfier' rather than an 'annoyer' / praise
- 8 (Thorndike's) law of 'readiness' / physical / mental preparation
- 9 Punishment when response is incorrect (can strengthen other correct bonds)
- 10 Feedback on performance / information to correct errors / kinaesthesia
- 11 Increasing determination / self-motivation / inner drive
- 12 Enhancing interest in activity
- 13 Specific mental preparation e.g. selective attention [4]

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(d) 3 marks for 3 from
(Max of 1 mark with no example)

- 1 This affects how the performer reacts in a particular situation / affects the response / memory trace [starts the movement] (not controls)
 - 2 Involves often ballistic / fast actions / closed skills (e.g. a volley at the net in tennis)
 - 3 There is little time to act on feedback / there is no feedback acted upon
 - 4 Performer relies on motor programmes to be run / autonomous
 - 5 A single decision is made
 - 6 Outside / no conscious control
- [3]

(e) 5 Marks for 5 from
(3 marks sub max for definitions)

- 1 (Reaction time) time between the onset of the stimulus and the initiation of the movement. [not 'time it takes to react']
- 2 (Movement time) from the initiation of the response to completion of the action (not time it takes to move)
- 3 (Response time) reaction time + movement time / time from the onset of the stimulus to the end of the movement

(2 marks sub max for importance of short reaction time)

- 4 To be able to have more time to complete the movement
 - 5 To be able to outwit / quicker decision making
 - 6 To get away from opponents
 - 7 To give yourself more time to prepare for the next movement
- [5]

(f) 5 marks for 5 from
(no example = max 4 marks)

- 1 Intrinsic feedback / kinesthesia that gives you information about where you are and what you are doing
 - 2 Via intrinsic feedback you can detect errors / reinforce effective actions
 - 3 Extrinsic feedback from others / the environment that enables you to assess effectiveness / to put right what went wrong / to reinforce effective movements, e.g. during a trampoline sequence the teacher calls out advice about the movements involved
 - 4 Positive feedback will encourage e.g. praise
 - 5 Negative feedback may motivate e.g. criticism
 - 6 Knowledge of performance [KP] gives information about technique
 - 7 Knowledge of results [KR] gives information about outcomes that can be used to improve performance
 - 8 Terminal feedback given at the end of the movement that provides information about results/performance, e.g. after a golf shot the golf coach tells you about your swing technique
 - 9 Concurrent feedback given during the activity that provides information about results/performance
 - 10 Delayed e.g. for experienced / immediate e.g. necessary for novices
- [5]

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(g) 3 marks for 3 from (these points may be awarded through relevant practical examples)

- 1 Vary your practices / experiences in training / develop parameters
- 2 Highlight what can be transferred effectively to the game situation
- 3 To make performer aware of environmental conditions / initial conditions in training / during the game
- 4 To reinforce good practice / give praise when things go right / to reinforce knowledge of response specifications / give effective coaching points
- 5 Make performer aware of sensory consequences / get the feeling of the correct movement / kinaesthesia
- 6 Give results of activities / make aware of response / movement outcomes / give knowledge of results KR

[3]

[Total: 30]

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Section C

Contemporary Studies in Physical Education and Sport

- 3 (a) (i)** 4 marks for 4 of
(no example max 3 marks)

Must relate to an example e.g. kicking a ball

- 1 Freedom of choice / free will / voluntary
 - 2 Fun / intrinsic / enjoyment
 - 3 No moral obligation e.g. coach / team mates
 - 4 Satisfaction / 'well being' gained from taking part
 - 5 Very few, if any rules / modified / made up rules [not 'no rules']
 - 6 Few, if any time constraints
 - 7 Low level of organisation / self officiated – no formal official
- [4]

- (ii)** 5 marks for 5 of

Must relate to an example [no example max 4 marks]

- 1 Stress relief / cathartic – mental health / escape reality
 - 2 To be creative/expressive
 - 3 Health and fitness – physical health [not just physical]
 - 4 Hobby to keep occupied / out of trouble [not social control]
 - 5 Social / friendships
 - 6 Enjoyment
 - 7 Achievement / knowledge / new skills / self esteem / self fulfilment
 - 8 Refreshment / prepare individual for work
- [5]

- (b)** 4 marks for 4 of

(participation)

- 1 Offer a variety / range of activities in the programme
 - 2 Teach basic skills to give confidence
 - 3 Encourage a positive attitude to activity
 - 4 Make the programme enjoyable
 - 5 Understanding of the value of activity / health and fitness / values of fair play / respect
 - 6 Introduce ways of accessing activity after school / extra curricular / publicise opportunities
 - 7 Make compulsory
 - 8 Employ specialist teachers/staff / specialist facilities
- [4]

- (c) (i)** 2 marks for 2 of

(Definition)

- 1 Special ability / beyond the norm
 - 2 Achieved by very few
 - 3 Judged by national/international/world standards
 - 4 Athletes who achieve the pinnacle/highest level/ of performance in a chosen sport
 - 5 Able bodied–disabled
 - 6 Amateur–professional
- [2]

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- (ii) 6 marks for 6 of
(policy, provision and administration)

Sub max 2 marks (policy)

(will relate to country of choice)

- 1 Beliefs and values of a country / status of elite sport
- 2 Government initiatives
- 3 Governing body initiatives
- 4 Other initiatives

(Or eq)

Sub max 2 marks (provision)

(will relate to a country of choice)

- 5 Selection procedures
- 6 Specialist schools, colleges, universities / centres of excellence
- 7 Training venues
- 8 Top coaching
- 9 Additional support / sport science / nutrition / psychology / physiotherapy

(Or eq)

Sub max 2 marks (administration)

(will relate to a country of choice)

- 10 Structure of sport / federations / institutes / departments
- 11 Centralised / decentralised systems
- 12 World class programmes
- 13 Schools / clubs / regional/governing bodies
- 14 All funding provision

[6]

- (d) 3 marks from 3 of

- 1 **Traditionally** it is thought women have not physical strength / endurance as men
- 2 **Traditionally** it is thought that women's role is in the home
- 3 **Traditionally** it is thought child bearing capacity damaged / pregnancy can interrupt participation
- 4 Training hard develops muscles thought to be masculine
- 5 Sport is perceived as a male dominated activity / male control
- 6 Less role models / prize money / media coverage
- 7 Religious/cultural factors
- 8 Discrimination / sexism
- 9 Prejudice / stereotype [femininity]
- 10 Less access to facilities / less clubs / less competitions

[3]

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(e) 6 marks for 6 of

- 1 Importance of the result / material rewards / win at all costs ethic / coach instruction
- 2 Nature of the game e.g. physical contact
- 3 Provocation by the opposition / racism / crowd incitement
- 4 Pre-match hype / local game
- 5 Use of weapons in the game / e.g. ice hockey
- 6 Frustration of losing / not playing well
- 7 Emotional state of players / over arousal / drugs
- 8 Dehumanisation of opposition / helmets
- 9 Referee's decisions

[6]

[Total: 30]