

**MARK SCHEME for the October/November 2009 question paper
for the guidance of teachers**

9396 PHYSICAL EDUCATION

9396/01

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.

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- 1 (a) Sub max 2 marks for
- 1 Humerus
 - 2 Radius and ulna
- Sub max 1 mark for:
- 3 Hinge joint
- Sub max 1 mark for:
- 4 Extension
- Sub max 1 mark for:
- 5 Triceps brachii
- Sub max 1 mark for:
- 6 Biceps brachii
- Sub max 2 marks for:
- 7 Agonist – concentric contraction
 - 8 Antagonist – eccentric contraction
- [8]
- (b) All should have a suitable example to gain 1 mark
- (i) (concentric)
Sub max 1 mark for:
Agonist/prime mover/shortening (under tension) [1]
 - (ii) (eccentric)
Sub max 1 mark for:
Antagonist/lengthens (under tension)/acts as a brake [1]
 - (iii) (isometric)
Sub max 1 mark for:
Increase (in tension) but no change in length/therefore no movement [1]
- (c) Sub max 4 marks for 4 of:
(intrinsic factors)
- 1 Temperature increases (when exercising)/heart muscle gets warmer, heart rate increases.
 - 2 Conduction of nerve impulses speeds up.
 - 3 Temperature decreases leading to a drop in heart rate.
 - 4 Conduction of nerve impulses slows down.
 - 5 During exercise venous return increases stretching the cardiac muscle.
 - 6 Increase in venous return (increases EDV) and therefore SV (Starling's Law).
 - 7 This stimulates the SA node increasing heart rate.
 - 8 It also increases the force of contraction.
- Sub max 2 marks for 2 of:
(hormonal)
- 9 before and (during) exercise adrenalin is released into the blood stream
 - 10 adrenalin (stimulates the SA node) to increase HR/increases SV
 - 11 adrenalin increases strength of ventricular contraction
- [6]

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- (d) (i) Sub max 4 marks for 4 of:
(Describe two mechanisms)
List not acceptable/must have description
- 1(a) Pocket valves
 - 1(b) which prevent back flow
 - 2(a) Muscle pump
 - 2(b) contracting and relaxing of muscles squeezes veins situated between them
 - 3(a) Respiratory pump
 - 3(b) during exercise breathing deeper/faster, increases pressure in abdomen squeezing large veins in that area forcing blood back to heart
 - 4(a) Smooth muscle
 - 4(b) in wall of veins contracts and relaxes pushing blood towards heart
 - 5(a) Gravity
 - 5(b) aids blood to return from upper body and head back to heart [4]
- (ii) Sub max 3 marks for 3 of:
- 6 Venous return determines end diastolic volume/amounts of blood in ventricles larger.
 - 7 Stroke volume dependent on venous return/Starlings law – SV dependent on venous return.
 - 8 If venous return increases so does SV/Q.
 - 9 Venous return maintains blood pressure.
 - 10 The more blood returned the more can be oxygenated/or opposite. [3]
- (e) (i) Sub max 3 marks for:
- 1 Partial pressure of O₂ in alveoli in lungs is high compared to deoxygenated blood flowing into alveoli from (pulmonary artery).
 - 2 Difference between the two pressures is called diffusion/concentration gradient.
 - 3 Oxygen diffuses from an area of high pressure to an area of low pressure/down the gradient.
 - 4 O₂ diffuses into haemoglobin (in RBCs) to become oxyhaemoglobin. [3]
- (ii) Sub max 3 marks for 3 of:
- 5 Partial pressure of O₂ in alveoli reduced at altitude.
 - 6 Causing reduction in diffusion gradient.
 - 7 Causing decrease in O₂ and Hb association.
 - 8 Causing decreased O₂ transport in the blood.
 - 9 Long term – decreased ppO₂ increases Hb and RBC production.
 - 10 Which increases external respiration and O₂ transport. [3]

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- 2 (a) (i) Sub max 2 marks for:
(ability)
- 1 Genetically determined/innate/born with/inherited
 - 2 Enduring/lasting
 - 3 Enhanced through childhood experiences [2]
- (ii) Sub max 2 marks for:
(skill)
- 4 Efficient/appears effortless
 - 5 Fluent/well coordinated/controlled
 - 6 Aesthetic/good to look at
 - 7 Goal directed/achieves a set result
 - 8 Follows a technical model [2]
- (iii) Sub max 2 marks for:
(link)
- 9 Abilities are underlying factors essential for the learning of skill/under pin skills.
 - 10 Ability is not learned, skill is learned.
 - 11 Abilities determine learning and performance of skills. [2]
- (b) 4 marks for 4 of:
- 1 Earliest phase/beginner
 - 2 Performer understands what has to be done/thinks about skill.
 - 3 Trial and error learning
 - 4 Movements may be successful or fail.
 - 5 Use of demonstration by teacher
 - 6 Build up of mental picture/mental rehearsal.
 - 7 Reinforcement is important.
 - 8 Movement lacks fluidity/smoothness.
 - 9 Extrinsic feedback needed/cannot rely on intrinsic [4]
- (c) (input)
- 1 fielder receives all information from environment/trajectory/speed of ball/crowd/noise/sunshine
(sense organs)
 - 2 eyes receive all information (send to brain)
(perceptual mechanism)
- Sub max 1 mark for 1 of:
- 3 selectively attend to: speed/trajectory of ball
 - 4 information interpreted by brain, used to make decision/refer to memory
 - 5 formation of motor programme
(effector mechanism)
 - 6 impulses/motor programme sent to muscles
(muscular system)
 - 7 muscles work to carry out motor programme/move into position/hands ready to catch
(response)
 - 8 action of catching carried out
(intrinsic feedback)
 - 9 kinaesthetic feedback/catch feels good or bad
(extrinsic feedback)
 - 10 fielder sees result/coach/crowd applaud/batsman walking [8]

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(d) (schema theory)

(i) 4 marks for 4 of:

Sub max 1 mark for:

(knowledge of initial conditions)

5 Where is the activity taking place/rounders has taken place on a similar surface.

Sub max 1 mark for:

(knowledge of response specification)

6 Child has forehand hitting programme from rounders/knows how to swing racket/
similar action to rounders.

Sub max 1 mark for:

(knowledge of sensory consequences)

7 Knowledge of feel of how hard to hit the tennis ball/kinaesthetic sense.

Sub max 1 mark for:

(knowledge of outcome)

8 What has happened when child has hit tennis ball/over net/in court/successful
forehand. [4]

(ii) Sub max 2 marks for:

1 Schema a build up of experiences.

2 Experiences/motor plans can be adapted to meet new situation/process called
transfer.

3 Experiences/motor plans (stored in LTM) as generalised programmes, e.g. hitting. [2]

(e) 6 marks for 6 of:

1 Extrinsic is best for beginners as intrinsic may not be recognised by them.

2 Extrinsic is feedback from teachers/coaches/parents.

3 Teach beginner to recognise the feel of the movement/begin to use intrinsic.

4 Positive feedback will reinforce learning for beginner.

5 Good for motivation/encourage beginner.

6 Good actions are reinforced/SR bond strengthened.

7 Some negative needed to make movement successful next time/bad habits prevented.

8 Terminal is good for beginner/does not have to wait.

9 Concurrent not appropriate/can only process small amounts of information at a time/in
cognitive phase of learning.

10 Given in manageable amounts.

11 Needs to be easily understood.

12 Knowledge of results

[6]

[Total: 30]

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3 (a) Must relate to football

(i) (play)

Sub max 2 marks for 2 of:

- 1 (who) children and adults
- 2 (when) playtime at school/lunch break at work/time
- 3 (where) any space in playground/yard
- 4 (why) enjoyment/non-serious
- 5 (how) no rules/unstructured

[2]

(ii) (physical education)

Sub max 2 marks for 2 of:

- 6 (who) all school children/college students
- 7 (when) in curriculum/compulsory
- 8 (where) designated sports area
- 9 (why) learn skills/fitness and health
- 10 (how) in organised lesson

[2]

(iii) (physical recreation)

Sub max 2 marks for 2 of:

- 11 (who) all/have a choice
- 12 (when) no fixed time/any time
- 13 (where) local recreation area/neighbourhood
- 14 (why) fitness/social
- 15 (how) flexible rules/flexible space

[2]

(iv) (sport)

Sub max 2 marks for 2 of:

- 16 (who) professional/elite performers/those who wish to excel
- 17 (when) designated time
- 18 (where) football pitch/stadium
- 19 (why) win/competition/extrinsic reward
- 20 (how) highly organised

[2]

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- (b) (i) 4 marks for 4 of:
(must have examples from sport)
(foundation)
- 1 school children taught fundamental motor skills, rules/variety of activities to establish ability, skill, interest
(participation)
 - 2 recreative level/regular participation/fun, enjoyment, friends
(performance)
 - 3 commitment to coaching, training/formal competition
(excellence)
 - 4 national, international representation/elite groups/sport science support/funding/high level of coaching [4]

- (ii) 5 marks for 5 of:
- 1 provision of facilities/equipment
 - 2 provision of organisation/leagues/schemes
 - 3 provision of funding/sponsorship
 - 4 talent identification at foundation level
 - 5 support for clubs
 - 6 advertising/educating
 - 7 school club links
 - 8 coaching (courses)
 - 9 target all sectors of society
 - 10 role models/media
 - 11 make access safe
 - 12 education/PE [5]

- (c) 4 marks total:
Sub max 2 marks for:
(leisure)
- 1 unpaid/amateur
 - 2 done in spare/free time
 - 3 standard of performance not important
 - 4 relieve stress/relaxation
 - 5 enjoyment/intrinsic value
 - 6 should be available to all
- Sub max 2 marks for:
(work)
- 7 professional paid for playing
 - 8 commitment to training time
 - 9 very selective/only take part if good enough
 - 10 controls life/time/contracted
 - 11 high standards essential to keep place in team [4]

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- (d) 4 marks for 4 of:
- 1 shop window effect/seen as politically successful
 - 2 sporting recognition attracts financial support/economic progress
 - 3 cultural identity/respect from other countries/pride
 - 4 tourism
 - 5 stability/social control/reduce internal conflict/divert from problems
 - 6 brings groups together/common goal/aspirational target
 - 7 improves health of nation/healthy work force
 - 8 deflects from undesirable behaviour
 - 9 good athletes often employed by army/police
 - 10 can increase mass participation/creates role models
 - 11 to justify money spent on preparation
- [4]

- (e) 5 marks for 5 of:
- Elderly or disabled or women
- 1 (money) lack of money/low pension/no longer earning/cost of taking part/lack of sponsorship
 - 2 (transport) lack of car/public transport poor
 - 3 (fitness/health) physically restricted/poor health
 - 4 (facilities) lack of specialised/adapted facilities/equipment
 - 5 (role models) lack of role models to encourage participation/media coverage
 - 6 (coaches) lack of leaders/specialist coaches
 - 7 (esteem) poor self image/physical activity for younger/able people/fear
 - 8 (options) unsuitable activities on offer
 - 9 (information) lack of information about what is on offer/no media focus
 - 10 discrimination/stereotype
 - 11 lack of suitable competition
- [5]

[Total: 30]