



General Certificate of Secondary Education

Physical Education 3582/W Full Course

Specification B

Mark Scheme

2007 examination - June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available to download from the AQA Website: www.aqa.org.uk

Copyright © 2007 AQA and its licensors. All rights reserved.

COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

A1.

(a) What is the pulse?

The beat/pump (a single contraction) of the heart.
accept... heart beat

(1 mark)

(b) In which part of the body are the following muscle groups?

(i) pectorals (ii) quadriceps

(i) The chest.
accept... the torso/the trunk

(1 mark)

(ii) (The front of) The thigh.
accept... upper leg/the leg

(1 mark)

(c) Give three short-term effects of exercise

Three such as:

- skin goes red/ vasodilation;
- body temperature rises/ body gets hot;
- body starts to sweat/ sweating;
- dehydration/ thirsty/ nauseous/ faint;
- breathing rate increases/ breathless/ panting;
- O² debt/ lactic acid build up;
- increased minute volume;
- increased tidal volume;
- increased gaseous exchange;
- heart beats faster/ heart rate increases;
- increased stroke volume;
- increased cardiac output;
- blood pressure rises/ increases;
- muscles tire;
- muscles ache/ pain;
- cramp;
- stitch.

(3 marks)

(d) (i) What is lactic acid?

A waste product (*1 mark*) released into the blood stream as a result of energy breakdown (breakdown of ATP) (a waste product of anaerobic respiration).
accept ... a chemical that builds up in muscles (1 mark).

(ii) How does lactic acid affect performance?

It causes a reduction in the standard of performance (*1 mark*) *such as:*

- not as fast/ slow down;
- not as hard/ intense;
- not as long (time);
- not as far (distance).

Caused by:

- increasing the acidity in the muscle cells;
- reducing the contraction capability of muscles;
- causing pain;
- causing fatigue in muscles.

[3+1]

[2+2]

[1+3]

(4 marks)

(e) **What are the benefits to the heart and circulatory system of an active lifestyle?**

The benefits include bigger and stronger cardiac muscle (*up to 2 marks*) and clear blood vessels (*1 mark*) and increased work capacity (*1 mark*) due to an adequate supply of oxygenated blood to vital organs and tissues (*1 mark*) and the removal of waste products (*1 mark*) which is caused by:

- increased stroke volume;
- lower resting heart rate;
- increased cardiac output;
- heart muscle hypertrophies with a higher reserve capacity;
- blood vessels dilate;
- blood pressure lowers;
- heart beats slower/ works steady state at normal workloads;
- quicker recovery;
- reduced risk of heart attacks/ strokes.

(5 marks)

A2.

(a) Cycling would be a good test for which component of skill?

Balance.

(1 mark)

(b) Give two reasons why skill is important.

Two such as:

- improve standards of performance;
- increase control/accuracy/fluency/ease;
- gain an advantage/effectiveness;
- improve prospects of success;
- improved efficiency/consistency;
- safety/reduce risk of injury;
- delays fatigue;
- increase confidence/ satisfaction.

(2 marks)

(c) Give three ways in which smoking affects performance.

Any **three** such as:

- enhances performance through a calming/ relaxing effect;
- reduces performance/ general physical fitness through tiredness;
- reduces performance/ general physical fitness by reducing speed;
- reduces maximal effort;
- reduces oxygen carrying capacity of the blood (carbon monoxide gases in the haemoglobin/nicotine on the heart/tar sludging up vessels);
- reduces efficiency of the lungs (build up of tar in the lung linings) (lower vital capacity);
- causes shortness of breath;
- irritation through coughing/wheezing;
- damages the lungs;
- blocks arteries;
- makes the heart work harder.

not ... long term cancer related answers.

(3 marks)

(d) Why is rest important in a training programme?

Rest is important because:

- it gives time to bring breathing rate and heart rate back to normal;
- it gives time to bring temperature back to normal;
- it gives time to get rid of waste chemicals (lactic acid, CO²)/ heat;
- it gives time to re-pay oxygen debt;
- it gives time to re-oxygenate blood;
- it gives time to replace exhausted glycogen stores;
- it gives time to re-hydrate;
- it allows for the re-activation of other systems;
- it prevents soreness/ stiffness/ swelling;
- it reduces exhaustion/ weakness/ nausea;
- it reduces likelihood of over-use injury/ over-doing it;

- it facilitates recovery;
- it gives psychological benefits (eg time for reflection, maintain alertness/ interest) (*max 1 mark*).

(4 marks)

(e) **Use examples to explain the effects that physique may have on performance.**

Effects are determined by the suitability of a particular physique to an activity (*1 mark*) – the better the match the better the (potential for) performance (*1 mark*). Examples such as:

- length of limbs/ proportions of body parts
> the longer the legs, more effective hurdling/ high jump;
- composition of the tissue mass
> the greater the muscle, the greater strength, more effective gymnastics/ swimming;
- overall height of the body
> taller, greater reach, more effective basketball/volleyball;
- overall weight of the body
> heavier, greater stability, more effective wrestler/boxer;
> lighter, less handicap to be carried more effective jockey/ rowing cox;
- overall size of the body
> bigger, greater power, more effective rugby forward/ field throw athlete.

Award marks on the basis of ...

- type of physique &/ or description &/ or activity (*1 mark*);
- explanation of the effect on performance (*1 mark*).

eg... a mesomorph (*1 mark*) would be more suited to gymnastics because more muscle means more strength (*1 mark*).

(5 marks)

A3.

(a) **Give one advantage of taking part in sport.**

One reason such as:

- personal health and fitness;
- personal pleasure/ enjoyment/ fun/ socialisation;
- leisure interest/ pursuit/ challenge;
- vocation/ money.

(1 mark)

(b) **Give two reasons for participating as a part-time professional player.**

Two such as:

- paid for playing;
- paid for another job;
- alternative careers;
- long term prospects;
- fall-back options in the event of failure;
- fall-back option in the event of early retirement.

(2 marks)

(c) **Give three different opportunities for participation in activities in a mountain environment.**

Three activities such as:

- potholing/ caving;
- (rock) climbing/ abseiling;
- mountaineering;
- (hill/fell) walking/ fell running;
- orienteering;
- horse riding;
- (hang) gliding/ para-sailing/ ballooning;
- canoeing/ rafting;
- camping;
- ski-ing (and other snow sports)
- certain motor sports;
- mountain biking/ cycling.

Or **three** opportunities created by the natural facility such as:

- open moorland for walking;
- mountain rivers for rafting;
- rocky outcrops for climbing.

(3 marks)

(d) **In gymnastics a judge marks performance. Identify and explain other non-playing ways of participating in sport and physical activity.**

Identify the role (1 mark) and explain what is done (1 mark):

- coaching/ teaching skills and techniques as in football;
- choreographing performance routines as in dance;
- refereeing, or umpiring, the application of the rules as in basketball;
- marshalling performers to the right place at the right times as in athletics;
- scoring as in cricket;
- timekeeping as in rugby league;

- organising the number and order of events as in swimming;
- managing the deployment of resources as in the running of a facility;
- spectating through watching/ studying/ analysing.

accept ... naming any roles without explanation (max 3 marks).

NB the activity does not have to be mentioned.

(4 marks)

(e) How can sportspeople bring harm to their sport?

Bring harm (into disrepute/disgrace/shame) by:

- Not playing to the rules/ cheating;
- match fixing;
- equipment tampering;
- play-acting/ gamesmanship;
- poor sportsmanship/ etiquette;
- inappropriate attitude/ style – eg arrogant/ lazy;
- unattractive style of play;
- bad press publicity/ scandal;
- inciting mis-behaviour;
- substance abuse/ drug taking;
- dissent;
- foul language;
- violent conduct.

Roles other than playing can be used as the basis for an answer (eg bias by a referee).

(5 marks)

A4.

(a) **Give the name of a British sports council.**

One from:

- Sport England;
- Sport Scotland;
- Sports Council for Wales;
- Sports Council NI;
- UK Sport.

(1 mark)

(b) **Name two national governing bodies of sport within the UK.**

Two such as (abbreviations acceptable):

- The FA;
- The RFU/ the RFL;
- The EBBA;
- The ENA;
- British Gymnastics;
- UK Athletics;
- The ASA.

(2 marks)

(c) **Give three different ways in which volunteers help to keep amateur sports clubs running.**

Three such as:

- acting as club committee officials;
- acting as a development officer;
- fund-raising;
- collecting donations;
- liaising with the press;
- laundering the kit;
- transporting players;
- coaching the team;
- officiating/ running a line;
- organising fixtures;
- match day 'odd-job' man;
- maintaining the ground (buildings and playing surfaces);
- stewarding the social facilities.

accept ... naming any role without explanation (max 1 mark).

(3 marks)

(d) **Explain why it might be an advantage for a sport to be in partnership with business.**

For the finance/ sponsorship (1 mark) which in turn can provide the following benefits:

- operational/running costs (eg travel, accommodation);
- personal costs (eg kit, equipment);
- development funding;
- training/ coaching time/ time off work;
- facility improvement;

- publicity/ advertising/ media attention;
- attracting employees.

Without this form of partnership a sport, a competition, a club, even a player (*1 mark*), can hit financial hardship and have to give up (*1 mark*).

(*4 marks*)

(e) How do organisers of events at sports grounds ensure the safety of spectators?

Ensure safety by:

- providing space/seats/comfort;
- reducing crowd capacities;
- providing better access/exits;
- controlling ticket allocations/sales;
- providing emergency services (eg ambulances/ first aid);
- providing trained stewarding/ policing;
- better communications (including CCTV monitoring);
- providing big viewing screens;
- acquiring essential safety certificates;
- erecting safety nets/ protective screens;
- enforcing alcohol bans; people searches;
- segregating/ escorting opposing supporters;
- delaying start times.

(*5 marks*)

B1**General physical fitness varies from person to person.**

- (a) **How do the skeletal and muscular systems determine a person's suppleness?
How is suppleness tested?**

How?...determine suppleness by:

- type of joint;
- shape of bones;
- size of bones;
- elasticity of ligaments;
- elasticity of tendons;
- blood flow;
- stretch capability of muscles;
- tension in muscles;
- muscle bulk/ fat;
- scar tissue/ calcification/ arthritis/ disease/ injury.

How? ... tested by:

- such as the sit and reach/ stand and reach tests – measuring the distance of movements in inches/ cms;
- such as box splits – measuring the angle of movement in degrees.

Award marks for testing suppleness ...

- name of test (*1 mark*);
- description of test (*1 mark*);
- measurement (*1 mark*);
- conclusion (*1 mark*).

- (b) **What would be the benefits to the individual of having good, general physical fitness?**

Benefits such as:

- Looking and feeling good;
- Being able to undertake a manual job where there are constant demands on strength and muscular stamina;
- Having the capability to undertake everyday household tasks such as....
 - having enough strength to lift things;
 - having enough suppleness to reach for things;
 - having enough stamina to complete tasks without becoming tired before the end of the day;
 - being able to engage fully in family/ social life;
 - being able to take part in active leisure pursuits;
 - being able to stay alert and fresh rather than sleepy and lethargic.
- Being less prone to illness/ injury;
accept ... better strength; better speed; better stamina; better suppleness (max 1 mark).
accept ... aspects of circulatory/ respiratory systems without explanation (max 2 marks).

NB All three parts of the question must be answered to gain full marks.

(15 marks)

B2

Taking part in a training programme is important for improving performance.

(a) Explain the principle of overload.

Overload is one of several guiding principles essential to make training effective for improving performance (*1 mark*).

The principle of overload proposes that the body will increase its performance potential if repeatedly (*1 mark*) and progressively stressed (*1 mark*) to a point just beyond its' normal range/ capability (*1 mark*).

It is based on the capacity of tissue (usually muscle) (*1 mark*) to adapt to a given level of workload (*1 mark*), viz hypertrophy (*1 mark*).

Overload (not overwork) can be achieved by increasing one, or a combination, of.....

- duration of work;
- intensity of work;
- frequency of work.

(b) What are the advantages of using circuit training as a method of training?

The advantages of circuit training include:

- suitable for general physical fitness;
- suitable for specific physical fitness;
- suitable for skill;
- tuition is minimal/ exercises suits all participants;
- circuit can be designed to meet personal specifications;
- participants can work at own rate (own reps/ sets);
- regulated overload;
- progress can be checked/ monitored easily;
- not demanding on time;
- not demanding on space/facilities/equipment;
- can be done outdoors or indoors;
- all year round training (not dependent on weather);
- many people can be accommodated;
- supervision is not essential;
- reduces tedium.

accept ... good for strength; speed; stamina; suppleness (max 1 mark).

NB Both parts of the question must be answered to gain full marks.

(15 marks)

B3

Increasing the participation in sport and physical activity is an important objective of many individuals and organisations.

(a) How might role models promote sport on a national basis?

How? (*viz* what do role models do to promote sport?) ... they promote sport by:

- displaying a particular image/ style;
- communicating a particular message;
- demonstrating a particular skill/ ability;
- undertaking a particular task/ action (eg appearances, book signings);
- maintaining high standards of behaviour and sportsmanship.

If the individual is well known then the influence is wide (*1 mark*), as is the influence if the sport is national and attracts media attention (*1 mark*).

Role models need not just be players – but someone in a different role if that person has a positive impact.

(b) How do schools encourage young people to take part in sport and physical activity?

How?...schools encourage participation by:

- offering at least the minimum of curricular PE at all ages;
- making lessons interesting/ fun;
- offering a variety of extra-curricular sport/ activities;
- arranging competitions (eg inter-form, house, school)/ organising teams;
- organising sports tours/ outdoor pursuit trips;
- offering a range of qualification courses;
- holding PE in a positive ethos;
- teachers and coaches acting as role models;
- providing support and extension opportunities for gifted and talented performers;
- celebrating success;
- providing a focal point for community activity;
- fostering positive links with parents and clubs;
- providing a focal point for feeder/ partnership schools;
- providing and maintaining a range of facilities;
- providing a range of coaching staff.

NB Both parts of the question must be answered to gain full marks.

(15 marks)

MARKING CRITERIA FOR QUALITY OF WRITTEN COMMUNICATION

3582 /W

High Performance	Candidates spell, punctuate and use the rules of grammar with almost faultless accuracy, deploying a range of grammatical constructions; they use a wide range of specialist terms adeptly and with precision.	4 marks
Intermediate Performance	Candidates spell, punctuate and use the rules of grammar with considerable accuracy; they use a good range of specialist terms with facility.	2 –3 marks
Threshold Performance	Candidates spell, punctuate and use the rules of grammar with reasonable accuracy; they use a limited range of specialist terms appropriately.	1 mark
Below Threshold Performance		0 marks