UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIO

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2011 quest

for the guidance of teachers

0413 PHYSICAL EDUCATION

0413/13 Paper 1, maximum raw mark 80

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 must be read in conjunction with the question papers and the report on the examination.

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Cambridge is publishing the mark schemes for the May/June 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Section A

1
- running
- jumping
- throwing/punching
- walking

2
- all body systems work well (marks can be awarded if one is n
- no illness
- free from injury
- able to perform better [1]

3
- environment – near to the sea, mountains, lakes etc
- location in relation to facilities – near to a sports centre/urban areas may have more choice/some sports are specific to a particular area
- climate – the climate where you live may determine activities – Nordic countries – skiing etc [1]

4
- too aggressive
- tension/Panic during the activity/feeling unwell
- poor concentration
- unable to focus on the activity
- Poor decision making during the activity. [1]

5
- stretch the muscle slowly and gently
- hold the stretch position
- massage the muscle gently [1]

6 Reasons for the need for volunteers:
- lack of any funding to pay coaches etc
- maintaining clubs within a community
- large numbers of people are needed when clubs provide teams/activities for young children/provide support for groups
- when players no longer participate they often take the role of administrators/coaches in clubs to maintain their involvement
- to raise funds for the club

Roles within a club:
- secretary
- treasurer
- chairperson
- vice-chairperson
- fixtures secretary
- accept role of coach if not already given/referee [2]

7
- red cell – carries oxygen to muscles
- white cell – fights infection which reduces illness and aids rec
- plasma – helps regulate body temperature
- platelets – clot blood, occurs during contact sports

Also accept haemoglobin – carries oxygen

1 mark awarded for the component
1 mark awarded if the response relates to performance rather th function.

8
- tiredness/fatigue – due to sleep problems
- frequent illness – often has colds and flu
- not eating – loss of appetite
- Limping – soreness and joint pain
- unable to relax – feeling of anxiety
- over emotional – anger

The mark must only be awarded for a sign and not a symptom. [2]

9
- many jobs can be done quicker reducing work time
- many jobs are less physical reducing tiredness and giving more energy for playing sport
- the internet can provide opportunities to gain information about a sport/twitter/e-mail
- people can work at home allowing them to dictate the hours that they work/hours of work more flexible
- computers are used to analyse performance
- computers have improved communication which can help if a coach is not easily available/lives close
- media coverage in a variety of formats/less well known sports have a greater exposure
- credit can be given for examples of technological developments in transport [2]

10
- endomorph – sumo wrestler
- mesomorph – sprinter, gymnast
- ectomorph – long distance runner , high jumper [2]

11
- you stop sweating
- the blood vessels under the skin contract
- vasoconstriction takes place
- less blood flows near the surface so less heat is lost
- muscles start to shiver to produce heat
- body hair stands up so that it traps air to act as insulation. [2]

12 Reduction in performance due to:

- demands on their time so less time to train/perform
- drug taking to improve performance
- stories about their past put pressure on relationships
- events may be sensationalised
- speculation about their future can place them under stre transfer requests
- poor performances are highlighted and pressure placed on th
- the media can put pressure on team selection
- multi camera angles at games ensure every aspect of a analysis of performance. [3]

[Total: 20]

Section B

Factors Affecting Performance

B1 (a)
- femur
- ribs

Blood is produced in long bones; other examples can be give

(b)
- being banned from participation
- risks of infection/disease
- HIV/AIDS
- Top athletes already have a high concentration of red cells. Adding more may block capillaries [2]

(c) Marks should be awarded for describing the impact on performance and not just naming the principles.
- specific – training will be focused on improving performance in that particular sport
- measurable – by being able to measure performance the player can see the impact of training to help with changes/adaptions
- accepted – by agreeing targets with the performer there is a commitment to training.
- realistic – the performer will be motivated as they are able to achieve the targets which allows further to be set
- time-related – by time limiting the training period it gives greater focus on the amount
- exciting – by creating targets it adds interest/motivation
- recorded – by recording the results a performer can see the progress that they are making [3]

(d)

action	***description***	***location***
flexion	**decrease the angle at a joint.**	**e.g. bend the knee.**
extension	***increase the angle at a joint.***	***e.g. straightening the arm at the elbow.***
adduction	**moving a limb or bone towards the body.**	***shoulder or hip***

[4]

(e) One mark given for the component and one mark for the exa
The examples MUST relate to the named sport.
The examples should give an instance within the sport e.g. b
jump to rebound the ball
If a sport is not identified marks cannot be awarded.
If a candidate just gives a description of the components no c

- agility
- balance
- co-ordination
- power
- speed of reaction [4]

(f) Features of a voluntary muscle:

- attached to bone
- works when you want it to/conscious effort to move
- provides movement/can be trained
- they work in pairs
- muscles can only pull
- can only work for a limited amount of time

Production of movement:

- muscles are attached to bones by tendons
- they work in pairs (mark can only be given once)
- the pair are called an Antagonistic Pair
- 1 mark awarded for naming a correct muscle pair
- when one muscle contracts the other relaxes
- descriptions of flexion and extension should be given credit [5]

(g) (i) Naming a test without a description should not be given credit
The Cycle Ergometer Test

- you require a stop watch and static cycle machine
- set the resistance speed to 60 rev per minute/150 watts for males, 100 watts for females
- pedal for 5 minutes
- take your pulse for the last 15 seconds
- the lower the rate the fitter you are.

The Harvard Step Test

- you require a bench 30 cm high and a stop watch
- do 30 steps a minute
- work for 5 minutes
- rest for 1 minute
- take your pulse for 15 seconds
- work out your score using a set formula
- the higher the score the fitter you are

The Cooper Test

- you require a flat area, cones to mark the area, stop watch and whistle
- blow the whistle to start the test
- run as fast as you can around the marked track
- at the end of the 12 mins count the number of laps and part laps
- the further you run the fitter you are

The Multistage fitness test (bleep test)

- you require a pre recorded tape, tape 20 m apart
- when the tape starts you run between the two tape run before the bleep
- the time between the bleep reduces
- when you cannot keep up with bleeps you have to st
- the higher the level achieved (21 levels) the fitter you

Credit can only be give for recognised tests; the list abo that can be given credit.

(ii)

- compare results against previous test to look at progress or lack of progress and adjust training programme accordingly
- retest after 6 weeks to identify progress
- compare results against expected norms to establish standard of performance
- identify the level that a performer needs to reach to make progress
- locate strengths and weaknesses
- use the data in conjunction with target setting principles to motivate a performer

[Total: 25]

Health, Safety and Training

B2 (a)
- the volume of oxygen that is consumed during the reco
  that which would normally be consumed in the same peri

(b)
- carbohydrates – provide readily available source of ener
- proteins – provide small amounts of energy, help grow n
  tissue
- fats – supply about 70% of energy
- vitamins and Minerals – calcium forms bones
  regulate body fluids

Credit can also be given for fibre – helps in digestion/prevents long term illness [2]

(c) Answers must relate to a game that is played outdoors, games that could be played either indoors or outdoors should be given the BOD due to the variations in experience that candidates may have.
Safety checks should include:
- surfaces should be free of obstacles
- surfaces should be appropriate to the game being played
- equipment should be the appropriate size
- equipment should not be damaged
- footwear should be appropriate
- safety clothing should be worn if needed
- appropriate clothing/removal of jewellery
- teams should be of the same age/ability/size [3]

(d)
- the rib muscles grow stronger
- the diaphragm grows stronger
- the chest cavity gets bigger when you breathe in
- the lungs are able to expand more
- vital capacity increases
- more oxygen is taken in with each breath and more carbon dioxide removed
- there is an increase in the number of capillaries around the alveoli
- increase in the amount of blood available for gas exchange [3]

(e) Continuous training

Advantages:

- ideal for aerobic fitness
- no need for any specialist training
- good for burning body fat
- easy to overload by increasing the amount of time or exercise

Disadvantages

- can be boring
- progress can seem limited in the early stages

Aerobics

Advantages:

- good fun
- classes can be a social activity
- can be expensive due to cost of classes and some specialist equipment
- works every part of the body

Disadvantages

- jumping and stamping can cause damage to joints
- classes often have a mix of abilities which can be difficult for someone starting

Fartlek Training

Advantages:

- training can use a variety of activities
- you can change the speed/pace and rest easily to suit the level of fitness
- the variety makes training interesting

Disadvantage:

- not always easy to determine how hard someone is working so it is not easy to push yourself in the early stages
- there needs to be considerable determination from the performer to be able to continue when the harder aspects of training are started

Answers should relate to the fact that the person is unfit so weight training would not be an appropriate response.

If the responses do not give answer the question no mark should be awarded from just naming a type of training [4]

(f) (i) Carbon dioxide
Credit other answers

(ii) Glucose

- glucose is obtained from carbohydrates

Examples of food types should be given credit – pasta, ri

- during digestion enzymes break starch down into glu
- the glucose passes out through the gut wall and into
- some glucose gets stored in the muscle as glycogen
- Some gets stored in the liver as glycogen and releas

Oxygen

- blood is pumped to the lungs to pick up oxygen
- the oxygen joins with the haemoglobin
- haemoglobin becomes oxyhaemoglobin
- oxygenated blood is pumped round the body
- in the capillaries oxyhaemoglobin breaks down and oxygen is set free
- oxygen is passed out to the muscle fibre [6]

[Total: 20]

Reasons and opportunities for participation in physical activity

B3 (a)
- a sport is always competitive
- a sport is organised and has rules
- a sport requires physical effort or complex skills
- a sport can have financial rewards

(b)
- provide students with additional time to participate
- increase awareness of certain sports/greater knowledge
- increase understanding of physiology
- involvement of outside coaches
- students access specialist facilities [2]

(c)
- level of health and fitness
- financial capability
- access to transport
- range of activities available that may be low impact physically
- access to activities that may provide a social life
- increase in the amount of time available may alter the type of activity [2]

(d) (i)
- greater public awareness of disability sports has increased the amount of participation/increased motivation to participate
- an increase in media coverage has created role models that encourage participation/increase in sponsorship helps performer dedicate more time to training/competition
- media coverage has created greater understanding of disability sports. [2]

(ii)
- work with schools to promote greater understanding of the sport
- provide specialist coaches to sports centres and schools
- campaigns to increase awareness of the sport
- subsidise events at sports centres
- adapt sports to be more available for disability participants
- develop levels of competition, including Paralympics teams etc
- provide funding for elite performers [2]

(e)
- an increase in the amount of tourism
- an increase in the amount of commerce/industry that is attracted to the country
- an increase in the political awareness in that country – hosting major political conferences
- money generated from the games can fund a variety of socially beneficial projects
- improvement in sports facilities
- improvements in coaching structure
- increase in participation levels
- improvement in the number/quality of hotels
- improvement in the number/quality of restaurants
- improvement in transport networks
- improvement in communication systems
- increased opportunities for major events to be held in the future. [6]

[Total: 15]