UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIO

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2

for the guidance of teachers

0413 PHYSICAL EDUCATION

0413/12 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 October/November 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Section A

1
- shape and support
- movement
- protection
- blood production

2
- shortage of breath / reduced capacity to transport O_2 / lung
  lower ability to sustain effort

3
- ability to cope with stress
- in control of emotions
- feeling good about oneself [1]

4
- cardio-vascular endurance [1]

5
- energy balance is the amount of food (calorie intake) required to meet daily energy needs
- unused energy stored as fat
- person can become obese / lose weight
- being overweight can lead to medical issues
- lack of food could lead to weakness / tiredness / lethargy / reduce performance [2]

6
- their age / level of fitness / health
- personal interests
- social circumstances / time available
- facilities available
- where people live
- peer pressure / family influence
- cost of activities [2]

7
- internal motivation
- personal drive for success and achievement
- willpower
- compete for oneself / love of sport / activity / satisfaction [2]

8
- rest; stop taking part immediately, sit / lay down and take no further part in the activity
- ice; place a cold compress on the injured area (intermittently removing to prevent frost bite. This will help reduce swelling and sped the recovery process.
- compression: holding or bandaging the injury will also help reduce swelling. Ensure compress is not too tight that blood circulation is affected
- elevation; support the limb at a raised level (i.e. above the heart). This reduces the flow of blood and swelling because it has to flow against gravity [2]

9
- prepares the body for onset of exercise / helps a performer pl
- decreases likelihood of injury and muscle soreness
- releases adrenalin speeding up the delivery of O_2 to working
- raises muscle temperature / flexibility
- prepares player psychologically, focus on game
- allows practice of certain skills
- increase heart rate

10
- synovial fluid: "lubricates" the joint to help with ease of move
- cartilage: a protective layer between bones which absorbs impact, acts as a shock absorber, protects the end of bones
- ligament: strong, elastic fibrous tissue which attaches bones together and holds them in place [3]

11
- extra curricular activities
- enlist assistance of specialist coaches
- dual use facilities (use of school / use of local clubs)
- teams
- visiting sporting stars / celebrities / former pupils
- local area co-operation / shared schemes
- provide a wide range of activities
- provide wider opportunities / coaching / refereeing / presentation of sports
- depending on age provide more recreational activities [3]

[Total: 20]

Section B

Factors affecting performance

B1 (a) • Oxygen / O_2

(b) Candidates must adequately describe two recognised forms
improve flexibility during participation. Ballistic / dynamic / acti
Exemplar; sitting on the floor with legs outstretched and in a
forward as possible maintaining position for several seconds. Such an exercise stretches the hamstring.
1 mark can also be awarded for examples such yoga [2]

(c)
- helps prepare them to perform as they know what is to be achieved
- helps them feel in control and so less anxious about performance
- increases confidence when target has been achieved
- motivation to work hard and achieve [3]

(d)
- stimulants: speed up reaction and increase aggression. Mask pain. BUT can make an athlete train too hard, lead to HBP, heart, liver problems, strokes, addiction
- narcotic analgesics: Kill pain so injuries do not affect performance as much. BUT addictive with unpleasant withdrawal symptoms, feeling less pain can make athlete train too hard, low blood pressure, constipation!
- anabolic agents / steroids; increase muscle size and allow athletes to train harder for longer. BUT HBP, heart disease, infertility, cancer. Women may develop male characteristics.
- peptide hormones: similar to anabolic steroids and blood doping (increased capacity to transport O_2) BUT can cause strokes and abnormal growth
- diuretics: increased urination causing weight loss, can mask traces of other drugs in the body. BUT can cause cramp and dehydration

also accept Beta Blockers: reduce heart rate causes excessive tiredness / nausea / sleep disturbance [3]

(e)
- mesomorph: wide shoulders and narrow hips. Muscular body. Strong arms and thighs. Not much body fat. Suitable for powerful / explosive events. Decathlon, swimming, gymnastics.
- ectomorph: narrow shoulders, hips and chest. Not much muscle or fat. Long, thin arms and legs. Suitable for activities such as long- distance running, high jump.
- endomorph; wide hips with relatively narrow shoulders. Carry a lot of fat on body, arms and legs. Ankles and wrists relatively slim. Suitable for activities like wrestling, shot-putt.

(No mark awarded for body type, however correct name must be given to gain full marks) [4]

(f)
- only so much new information can be taken in / unders capacity
- too much / complex information will lead to overload
- demonstrate / input a little at a time, break down the skill
- instructions should be simple / easy to understand / mi stages
- initial learning goes into short term memory
- allow performer time to practice
- eventually information will be stored in long term memory
- environment where practice takes place / no distractions
- activity is appropriate to the age / physique of performer [6]

(g) (i)
- cardiovascular endurance [1]

(ii)
- males are generally more likely to take part in regular sport / activity and so level of fitness raised
- male physique (stride length) greater at this stage
- male endurance more developed at this stage [2]

(iii)
- regularly take part in whole body exercise, running, swimming or cycling
- keep heart rate between 60% and 80% of its maximum
- exercise for a minimum of 12 minutes to begin increasing to 40 minutes as fitness improves
- take part in a variety of training types; circuit, interval continuous
- have an appropriate diet
- ensure rest periods to aid recovery from training
- apply training principles (1 mark max) [3]

[Total: 25]

Section B

Health safety and training

B2 (a)
- have essential human needs, food, clothing, shelter
- friendship and support / family
- a value in society
- ability to mix / socialise with others

(b)
- provides energy in order for muscles to perform at their peak
- repair, food contains basic materials needed for repair following injury
- growth, of bones and tissue
- good health, a balanced diet will ensure the body receives the nutrients it needs [2]

(c) Assessment and corrective measure must reflect the activity given.
Example Rugby. Collision with rugby posts / ensures protectors are used. [2]

(d)
- **isotonic training**; where the amount of weight moved or lifted remains constant throughout the movement. This is important as it relates to the way muscles contract when they are exercised. Isotonic training principle is that the weight is kept constant on both eccentric and concentric contraction for example during bicep curls. This type of training is used to improve strength, power and endurance
- **isokinetic training**; this is where specialist equipment is needed as a result of the need to use weights to vary the effort as you work at a constant speed. Variable resistance machines provide such training. Isokinetic training can duplicate movements such as throwing and kicking
- **isometric training**; this is where a contraction is held at a particular point. This can be useful for activities such as gymnastics where you need to hold a position for a period of time. In training you would hold the muscle in the required position for several seconds and repeat, here the length of the muscle stays the same while contracting [3]

(e) (regular indicates that the question is refers to the long-term effects of exercise)
- more red blood cells are produced
- arteries get bigger and blood pressure decreases
- more capillaries form around muscles
- heart gets bigger, its walls thicken and blood is pumped more efficiently [3]

(f) (no marks awarded for naming principle. At least two vali component in order to gain full marks) 1 mark for examples c

- specificity: each performer should have a different pro Train correct areas of the body, no point a weightlifter r Train at the right level / intensity
- progression: steadily increase the amount of training th the body has adapted to previous demands / allows the a specific sport.
- overload: work body harder than you normally would. P frequency / intensity / time.
- reversibility; fitness level will improve with exercise but will go down when training stops. It takes longer to gain than to lose fitness
- tedium avoidance: use different methods of training to give variety, interest and prevent boredom [4]

(g) many and varied and feasible answers should be accepted.

- impact with ground
- impact with surroundings
- impact with another person
- impact with ball / equipment
- sudden or twisting movements

- environmental factors heat / cold wet / dry) – must relate to an injury – dehydration not accepted
- lack of preparation (warm up / cool down) / poor technique / lack of focus / mental preparation
- inadequate clothing / equipment / footwear
- not following rules / instructions
- over use injury [5]

[Total: 20]

Unit 3

Reasons and opportunities for participation in physical activity

B3 (a)
- FIFA World cup
- Olympic games
- Commonwealth games
- Rugby / athletics world cup / championships
- Tour de France

(b)
- sports are more competitive. They have rules, the aim is to win. Organised events and competitions / can have financial rewards.
- physical recreation is not as serious. Competing with / against yourself so you can set your own rules / boundaries / can be socially based. [1]

(c)
- indoor climbing walls
- artificial / real snow ski slopes
- park "trim-trails"
- canal basins, water sports, canoeing [2]

(d)
- some sports are still considered predominantly male only / women's sports are seen as less important
- women are often not allowed to compete with men even in sports where physical strength has no relevance
- poorer media coverage
- fewer spectators / following
- less sponsorship
- less prize money awarded
- fewer role models as a result of
- less media support
- fewer women participate in sport / credit can be given if a reason for lower levels of participation [4]

(e) reasons include:
- geographical. terrain (skiing / climbing). coastal (sailing / surfing). altitude (running)
- climatic: snow (skiing).
- financial: cost of equipment (polo / motor racing)
- traditional: number of population taking part in nation's event. (skills pyramid)
- cultural: traditional cultural sports, cricket in the commonwealth / tradition within communities
- personal factors age / level of interest [3]

(f)
- greater audience can see, hear and read about sport
- promotes sport
- creates sports stars which can have a positive effect on of the sport
- can inform and entertain
- if seen on television sports can attract sponsorship whic stadia, training, coaches, players etc. / raise standards
- increase participation