

CAMBRIDGE
INTERNATIONAL EXAMINATIONS

June 2003

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 80

SYLLABUS/COMPONENT: 0413/01

PHYSICAL EDUCATION
Paper 1

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Section A

- 1 The free time that a person has when not working or sleeping, the time devoted to sporting and recreational activities.
Free time. 1
- 2 Fitness is the ability to meet the demands of the environment, the state a person is in when they are free from worry and illness. 1
- 3 Historically - amateurs were gentlemen who could afford to play sport for pleasure.
An amateur cannot be paid directly.
A person who plays for enjoyment and receives no financial rewards. 1
- 4 Endomorph (no other answer accepted). 1
- 5 Increase in the amount of leisure time, sport/leisure has become fashionable, increased publicity increases awareness, greater money available to people, transport available, more role models, demands of younger people due to increase in activities in school, people living longer. 1
- 6 Body composition, physique, fatigue, illness and injury, diet, drugs, levels of fitness, environment, levels of arousal (both elements for 1 mark). 1
- 7 Make sure you have good technique, wear correct kit, use appropriate equipment, follow heavy training days with light ones, allow for periods of rest, allow enough time for full recovery before events, ensure full recovery from injury/regain full fitness. 2
- 8 VO_2 max - maximal oxygen uptake – must include 'maximum' and 'oxygen' in description.
Measures the efficiency of lungs, heart, blood, the efficiency of the circulatory and respiratory systems. 2
- 9 Sweat and evaporation on the skin, blood vessels under the skin widen, vasodilation, skin reddens, veins move closer to the skin's surface. Temperature controlled by the hypothalamus centre in the brain. 2
- 10 Health related - body composition, flexibility, muscular endurance, speed and stamina, strength.
Skill related - agility, balance, co ordination, power, speed, reaction time. 2
- 11 Carbohydrates - energy (short term).
Protein - builds and repairs cells and tissues.
Fats - energy source (long term), keep warm.
Vitamins and minerals - build teeth, bones, healing process.
Water - maintains tissue, prevents dehydration.

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Roughage/fibre - maintains health and prevents bowel disease.
(element and effect = 1 mark) 3

12 Answers must relate to physical effects.
Dry mouth, increase in breathing rate, heart rate increases, sick feeling in stomach, sweaty palms, nervous shaky feeling.
Adrenalin is produced, blood vessels can increase blood flow to prepare muscles. 3

Total 20 marks

Section B

Factors Affecting Performance

- 1(a) Avoid confusion, too much information causes overload, allow practice to take place to allow information to go into the long-term memory. 1
- (b) Name a fine skill such as archery, table tennis serve, etc.
Gross skill running, jumping, throwing, skills relating to individual activities such as cycling. 2
- (c) Activity must be broken down into parts, learn components separately, concentrate on the most important parts, simple demonstration, simple instructions, bring components together, use of feedback. 2
- (d) The sportsperson may:
(i) become nervous, anxiety due to lack of confidence, over psyched by coach/crowd/media, playing in front of a large crowd, new environment, adrenalin rush,
(ii) relaxation, slow deep breaths, visualization of event, mental rehearsal of activity (examples accepted). 1/2
2/1
- (e) (i) Diuretics
Used to reduce weight
Quickly flush traces of substances out of the system
Boxing, horse racing
- Stimulants
Increase in energy
Explosive activities
- Tranquillisers/Beta blockers
Reduce anxiety
Activities that require a steady hand – shooting

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Analgesics
Reduce pain
Contact sports

Accept named substances
1 mark awarded for effect and type of activity 4

(ii) Testing - blood, urine, out of season testing, random testing, testing at events. 1

(f) FITT
Frequency - how often a person exercises
Intensity - how hard a person will exercise
Time - how long a person will exercise for
Training - the type of exercise that a person uses to achieve their goal 2

The six-week programme for these two people should show clear differentiation of their needs giving reference to activities that relate to long distance running and a general programme for fitness.

(i) Male aged 40 programme should show:

Frequency

- Starting with one or two sessions per week and increasing only slightly during the programme, plan sessions so that there are rest periods, do not train on consecutive days, needs to be convenient to do.

Intensity

- Programme should be progressive using sub-maximal weights, low impact aerobic exercises, programme should start at an easy level to ensure the individual does not become demotivated, both repetitions and exercise periods should slowly increase, ensure rest period to avoid distress.

Time

- In the early stages sessions should last about 30/ 40 minutes but increase as the programme develops.

Training activity

- Identify the training need of the individual, areas to improve, in the early stages 20mins of aerobic activity and 15mins muscle training - increasing, ensure variety of exercise, include activities such as swimming, walking to ensure generalized conditioning.

(ii) The Runner

Frequency

- 3/4 sessions per week, decrease if approaching a race, possible use of back to back training sessions.

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Intensity

- Training could have a hard session followed by easy sessions, sessions must contain period when athlete is working at maximum effort.

Time

- Sessions should last about an hour, increasing during the period of six weeks but becoming shorter as races approach.

Training Activity

- Endurance based in preparation for distance running technical work, interval training, activities must be specific for the activity, limited use of muscle development – weights.

Marks should be awarded for examples of training.

To gain full marks candidates must apply FITT to both programmes. 2/3
3/2

Total 20 marks

Health, Safety and Training

- 2(a)** All body systems free from injury and illness, able to carry out everyday physical tasks. 1
- (b)** Rules must reflect the activity - no mark should be given for naming the activity, e.g. throwing the javelin - throw must be from a specific point and in a specific direction. Rules specific to the named game/activity can be accepted if they relate to safety, e.g. football – players must wear shin pads. 2
- (c)** The body has stronger muscles throughout the range of movement, muscles increase in size, increased speed of muscle contraction, reduces/increases flexibility/suppleness, improves cardiovascular efficiency, improves posture, develops muscular endurance, general improvement in health, improves balance, increase in body weight due to muscle density. 2
- (d)**
- (i)** R rest - to prevent blood from leaking stay still
I ice - place an ice pack for 20/30mins
C compression - firmly use crepe bandage
E elevation - support limb in an elevated position to reduce blood flow
(all components for 1 mark) 1
- (ii)** RICE should be used for minor strains and sprains, bruising from collisions or falls. It must NOT be used for fractures or dislocations. 2

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(e) *Fartlek*

- (i) It is a type of interval training.
- (ii) It allows periods of recovery during the activity, it allows training to take place over a greater distance than his/her competition distance, the athlete should work within himself, can be adapted to suit a variety of activities, it can be easily adjusted to suit levels of fitness.
- (iii) Difficult to know how hard people are working, needs to have a great deal of time to be effective, participants need to be determined, it is easy to skip the hard activities, can lack variety.

Continuous

- (i) Training without rest.
- (ii) Ideal for aerobic fitness, no need for specialist equipment, easy to overload, good for burning body fat, trains the body to use body fat rather than carbohydrates, ideal for people who are out of shape can work sub-maximally.
- (iii) Can be boring, does not improve sport speed, can become stressful when aerobic threshold is increased.

Aerobics

- (i) You exercise every part of the body.
- (ii) Usually a fun activity, has social appeal, appeals to people with low levels of fitness, no specific skills are needed, can be either low or high impact.
- (iii) Jumping and stamping can cause damage to joints, often taught in classes which makes it difficult to train when you want, classes can have a range of fitness levels which can make it difficult for the less fit. 1-2-2

(f) The answer must relate to Aerobic - Anaerobic - Oxygen debt.

During the first part of the race respiration will be aerobic.
Breathing will be shallow.
Breathing will be under control.
The system allows stored fats to be used rather than carbohydrates.
Energy will be produced by oxygen combining with glucose.
Energy is used in muscle contraction and turned into heat.
Carbon dioxide is carried away by blood.
Waste is excreted through lungs.

The second part of the race the athlete starts to work with maximum effort.

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Anaerobic system is used - the body needs energy and it cannot reach the muscles quickly enough, glucose produces energy although less energy is produced it is done so much quicker.

Breathing becomes deeper.

Some of the energy is turned into heat.

Lactic acid is produced which makes the muscles tired and is removed by breathing in more oxygen.

The final part and after the event extra oxygen is needed to remove the lactic acid. Oxygen debt.

Oxygen is gulped into the lungs.

Lactic acid is turned into carbon dioxide and water.

7

Total 20 marks

Reasons and Opportunities for Participation

- 3 (a)** Scholarship, Trust funds, Sponsorships. 1
- (b)** Advertising on a large scale.
Image.
Tax deductible finances.
Use the opportunities as a PR exercise.
Promote a product that has advertising restrictions.
Create worldwide markets. 2
- (c)** Inherent factors, i.e. body type, etc.
Quality of coaching.
Access to facilities.
Structure (lack of) in the relevant sport.
Access to equipment.
Medical support.
Personal support/level of motivation. 2
- (d)** Use of replays puts the decision under scrutiny.
Some sports use replays at the games to make/confirm decisions.
Video replays can cause a lack of confidence in officials.
Technology not always available at lower levels.
Players less able to cheat.
Players can be held to account even if officials miss misconduct.
Ensure consistency in giving decisions.
Speed of games has increased/officials are unable to keep pace. 3
- (e)** *Advantages* - high quality of facilities, gives choice, provision must reflect public interest, not directly subjected to local government changes, easier access.
- Disadvantages* - usually situated in areas of high population, tends not to support minor sports, reduces local authority need to provide facilities, private companies unable to use dual

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use/community based facilities, rarely supports disadvantaged groups. 1/4/1

- (f) (i) Traditional values - woman's place is in the house, look after the family, physical activities were seen as unfeminine, lack of time and opportunity, lack of money, society's attitude towards women, lack of sponsorship, lack of media support for women based activities, lack of child care, transport difficulties, fewer coaches, lack of structure within many sports that promote women's activities. Health - too strenuous activities, women were not strong enough. 3
- (ii) Increase in the number of role models, increase in the range of activities available, society's view of fitness has changed, increase in the range of opportunities available, women have greater earning opportunities, specific activities for women, schemes to encourage women to participate, equal opportunities legislation, increase in activities covered in girls' PE programmes in school, increase in media coverage of women's sports, recognition that events are not too difficult/demanding for women. 4

Total 20 marks

Grade thresholds taken for Syllabus 0413 (Physical Education) in the June 2003 examination.

	maximum mark available	minimum mark required for grade:			
		A	C	E	F
Component 1	80	60	42	24	15

The threshold (minimum mark) for B is set halfway between those for Grades A and C.
The threshold (minimum mark) for D is set halfway between those for Grades C and E.
The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.

Grade A* does not exist at the level of an individual component.