

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME for the May/June 2010 question paper**  
**for the guidance of teachers**

**0413 PHYSICAL EDUCATION**

**0413/13**

Paper 13, maximum raw mark 80

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### Section A

- 1 Provides:
- Shape and support;
  - Movement;
  - Protection;
  - Blood production;
- [1]
- 2 Answers must relate to performance i.e. cope with stress will not be given credit as it does not relate to the effect on performance.
- Able to cope with the stress of losing and failure;
  - Can control his/her emotions so they are not distracted from performing/better focus on the game;
  - Feels positive about performing;
  - Enjoys taking part regardless of the outcome;
  - Confident when playing/relaxed;
- [1]
- 3 Candidates need to give at least one aspect of the definition to gain a mark.  
The free time a person has when not working or sleeping.
- [1]
- 4 Answers should state: prop forward – given credit, whereas rugby should not be given credit.
- [1]
- 5 Protein;
- [1]
- 6
- Ease of access/increase in participation;
  - Usually cheaper than commercial facilities;
  - Usually recognises the needs of the local community;
  - Increase the range of sports available;
- [1]
- 7 The examples of the skilled performer must relate to the activity, i.e. tennis.
- Accuracy – most serves are accurate;
  - Anticipation – seems to be able to move across the court to return shots easily;
  - Seems to select the most appropriate shot, knows when to play a backhand or forehand;
  - Can adapt shots and still be effective, when he chases a ball out of court;
  - The performer can perform a shot quickly – volley near to the net;
- [2]
- 8
- Warm up and cool down (if both are given award only 1 mark);
  - Use correct equipment;
  - Know the rules and regulations;
  - Check surfaces/equipment and facilities are safe to use;
  - Does not participate when already injured/ill/tired;
  - Ensure coach/teacher is present;
  - Being fit for the activity/play at an appropriate level;
- [2]

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- 9 One mark given for the example – the reason must relate to the example given. Kenya produces many long/middle distance athletes.
- Reason – many athletes live at altitude which helps performance when returning to sea level to compete;
  - Reason – Kenya has produced a number of Olympic champions since 1960 and as a result it has become traditional for athletes to want to compete in this type of event; [2]
- 10
- Red cells – carry oxygen, the more red cells the more oxygen can be delivered to muscles, therefore, the performer can participate longer;
  - White cells – defence against infection and disease;
  - Platelets – help with blood clotting, in contact sports cuts are quite common so it prevents significant blood loss;
  - Plasma – allows blood to flow, it carries adrenaline which is important for a performer. Carbon dioxide is also carried in plasma;
  - Haemoglobin is part of the red blood cells and carries oxygen; [2]
- 11 (i)
- Pale grey clammy skin;
  - Weak, rapid pulse;
  - Feeling weak and dizzy/faint/blurred vision;
  - Cramp and headaches;
- (ii)
- Lie the casualty down in a cool, shady place;
  - Raise legs;
  - Give frequent sips of a weak solution of salt in water;
  - Cool the body by spraying water or fanning;
  - Call a doctor; [3]
- 12
- Pride in representing their country- irrespective of any financial reward;
  - The Olympic Games represents a unique experience/only happens every 4 years;
  - To win a gold medal would raise the profile of the individual/chance to win a medal could be a once only opportunity;
  - The history of the games encourages a player to be involved;
  - Winning the Olympics in any sport is seen as the pinnacle of achievement/compete at the highest level;
  - Enhance reputation/gain more opportunities to gain sponsorship/greater recognition; [3]

[Total: 20]

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## Section B

### Factors Affecting Performance

- B1 (a)**
- Too much information can cause confusion/causes overload/makes it difficult to remember information;
  - Break down complex skills into small parts and learn them separately before putting them back together;
  - It becomes possible to focus on the most important aspects of the skill;
  - Easier to identify weaknesses;
- [1]

- (b)** To gain a mark candidates should give an example of an activity and how results provide feedback.  
Examples such as athletics – time/distance;  
swimming – time;  
gymnastics – judges scores;
- [1]

- (c)**
- Specificity – as the event would require endurance the exercises would target either the main muscle groups – legs or the need to improve endurance;
  - Overload – make the body work harder it will then adapt to the increased demands (if the candidate gives an example from FIT they should be given credit – Frequency, intensity, time);
  - Progression – the body must adapt gradually. It cannot do so overnight;

Candidates can gain marks for giving an example once they have named the principle. [2]  
1 mark for the training principle and 1 mark for the application.

- (d)**
- Fixed/immoveable/fibrous joints  
Example between the plates in the cranium;
  - Slightly moveable/cartilaginous joint  
Example Between two vertebrae  
Ribs and sterum  
Pelvis;
- [2]

- (e)**
- Help the performer to remain calm/relaxed;
  - Allows the level of arousal to be controlled;
  - Allows the performer to mentally rehearse their performance/greater focus;
  - Increases awareness;
  - Allows the performer to go through a game plan/plan moves;
  - Motivates by allowing the performer to imagine the outcome/gives confidence;
- [2]

- (f)**
- Lungs start to breathe faster/deeper;
  - Oxygen is taken into the body quicker;
  - Carbon dioxide is removed quicker/gas exchange is quicker;
  - Increase in respiratory rate/tidal volume/minute volume;
  - The intercostal muscles relax and contract quicker;
  - The diaphragm contracts and relaxes to change the space in the chest area;
  - The amount of oxygen taken to the muscles increases;
- [3]

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- (g) (i)
- Agility – the ability to change direction quickly which would be of use in gymnastics routines;
  - Balance – being able to hold a position without wobbling on the bars;
  - Co ordination – being able to link two or more movements;
  - Explosive strength – strength and speed is needed when vaulting;
  - Timing – being able to adjust and land a somersault;
- [4]

Candidates can use any example from gymnastics to illustrate the component.

- (ii)
- Agility – Illinois Agility Test (give credit if the candidate draws a diagram to illustrate their answer);
  - The performer must complete the course as quickly as possible;
  - Cones are used to mark out a course;
  - The performer must avoid the cones by weaving in and out of the cones;
  - Time is taken over two attempts and the fastest recorded;

Balance – Stork Stand Test.

- Place hands on hips;
- Place the toes of one leg against the knee of the supporting leg;
- Time starts when the performer is steady and stops when they wobble;

Co ordination – Alternate hand wall test.

- Stand 2 metres from a wall;
- Throw a ball underarm;
- Catch with the other hand;
- Repeat for 30 seconds and record;

Explosive strength – standing broad jump.

- Take off and landing mats must be on the same level and firmly fixed on the floor;
  - A calibrated mat should be used;
  - Stand with both feet behind the start line;
  - Jump as far as possible landing on both feet;
  - Measure the distance;
- [3]

- (h) (i)
- Voluntary muscles are in our control/works without thinking;
  - Voluntary muscles allow movement/contract;
  - Voluntary muscles are attached to bones;
  - Contains muscle fibre;
- [2]
- (ii)
- Candidates must name correctly the pair of muscle creating the movement – only correct naming should gain marks.

Candidates can gain a max of 3 marks if they fail to name an appropriate muscle pair.

- Muscles can only pull;
  - Muscles are attached to the bone by tendons/points of origin and insertion;
  - When one muscle contracts the other muscle relaxes;
  - The muscle that contracts to produce movement is called the prime mover;
  - The muscle tendon at the point of insertion is pulled towards the point of origin;
- [4]

If an explanation is given of muscle contraction/relaxes give 2 marks.

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- (iii) • A muscle which contracts in order to assist the prime mover;  
 • Helps the agonist to work smoothly;  
 • Stabilises the joint;

[Total: 25]

### Health, Safety and Training

- B2 (a) • Soreness and joint pain/stress related injuries;  
 • Frequent colds/flu;  
 • Tired;  
 • Loss of appetite; [1]

- (b) (i) Answers should be any occasion in a game that requires power.  
 Examples such as hurdling, vertical jumping in basketball, volleyball, jumping phase in long jump, triple jump, jumping to head a ball in football. [1]

- (ii) • Repeated jumping;  
 • Squat thrusts;  
 • Repeating standing long jump;  
 • Bounding;  
 • Repeating Jumping onto a box; [1]

- (iii) • Increases muscle tone;  
 • Improves muscle response time;  
 • Improves balance/posture;  
 • Improves flexibility/reduces the possibility of injury;  
 • Improves muscle performance;  
 • Improves co ordination; [1]

- (c) (i)

<u>Nutrient</u>	<u>Benefit</u>
Protein	Helps repair of cells
Carbohydrates	• Main source of energy
• Fibre	It clears out the gut

[2]

- (ii) The answer should relate to the benefits that would result from a change in diet i.e. extra/additional carbohydrates would benefit endurance athletes by providing more energy.  
 High protein for muscle building useful in strength activities such as weight lifting, rugby, etc.

Maintaining a balanced diet can help a performer maintain body shape/stay within weight categories. [2]

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- (d) (i) • An activity that is largely endurance – answers that include team games should be given credit;
- Long distance running – marathon;
  - Long distance swimming ( just swimming no credit);
  - Triathlon;
- [1]
- (ii) • The heart grows larger/more efficient/contracts stronger;
- The walls of the heart grow a little thicker/more muscular chambers;
  - Volume of blood held in the heart increases;
  - The body makes more blood cells which increases the number of red blood cells;
  - More oxygen can be carried to the working muscles/faster removal of lactic acid;
  - Arteries grow larger and increase in elasticity;
  - Blood pressure reduces;
  - The resting heart rate falls;
  - Recovery time after exercise reduces;
  - Stroke volume increases;
- [4]
- (e) (i) • Increases strength/muscle mass;
- Increases strength endurance;
  - Enables the body to adapt to stress/demands;
  - Increase in speed;
  - Increase in agility;
  - Increase in flexibility;
  - Increase in power;
  - Increase in confidence/motivates;
- [3]
- (ii) Advantages
- Can work on specific areas of muscle strength;
  - Training can be made specific to a sport;
  - Improves fitness;
  - Easy to monitor progress;
  - Easy to do regardless of weather/season;
  - Easy to increase and increases can be small/individualised;
  - Most sports can benefit from some aspect of weight training;
- [2]
- Disadvantages
- Boring/de-motivating/intimidating;
  - Easy to get injured/strain;
  - Can cause too much muscular bulk and reduce speed/agility etc. which may be more important in a particular sport;
  - Can be difficult to access/need to join a gym/need specialist equipment/expensive;
  - Need good technique to prevent injury;
  - Not enough cardio vascular work involved;
  - Needs considerable training time to gain any improvement;
- [2]

**[Total: 20]**

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### Reasons and opportunities for participation in physical activity.

- B3 (a)**
- It may prove difficult to access specialist facilities;
  - The performer may be dependent on others to provide transport;
  - There may be difficulty linking up with elite training groups;
  - Depending on the sport, centres of excellence may be based in urban areas; [1]
- (b)**
- Able to develop skills further/to a higher standard/play in school/area/district/national teams;
  - Able to compete in sports/more time to play sport;
  - Opportunities to socialise/keep off the streets/provide constructive activities/fun;
  - Provides opportunities for people to try sports that may not be part of the curriculum;
  - Provides opportunities for adventurous outdoor activities such as camping, climbing etc. which would not be easily available;
  - Provides opportunities for gaining qualifications that are not part of the curriculum i.e. coaching awards, D of E;
  - Performers are encouraged regardless of ability;
  - Activities are easily accessible/free of charge; [2]
- (c)**
- Edited highlights contain only exciting material;
  - Showing edited highlights prevents boredom because the entire game might be too long for a young person to maintain interest;
  - Edited highlights can prevent children seeing negative aspects of a sport;
  - Use of a high profile presenter/former player to present the programme/create or use role models;
  - Programme presented using contemporary music;
  - The timing of events could mean younger children may be able to watch;
  - The frequency of screening will affect levels of interest;
  - Analysis of activities develops understanding of rules/skills; [2]
- Positive and negative responses can be accepted but not reversal of the same point.
- (d)**
- Are there building restrictions?;
  - Space available – car parking etc.;
  - Accessibility i.e. public transport;
  - Accessibility in terms of road network in the area;
  - Location in relation to the population;
  - The use of the natural environment;
  - Cost – what can be included will depend on the budget available;
  - Planning permission – if the site creates an increase in traffic, noise etc. the local residents may object to the building taking place; [3]
- (e) (i)**
- National campaigns targeting specific groups;
  - Targeted financial support for groups; [1]



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- (ii)
- physical disability (wheel chair) use of ramps and wide doorways, changing rooms – bigger cubicles, etc.;
  - Additional disabilities such as sight/hearing loss – Braille, sound loops, etc.;
  - Mums with young children, mum and children sessions, crèche facilities;
  - Religious/cultural minority groups – relaxation of rules to allow women to wear loose fitting clothing, women only sessions/introduction of activities that are specific to a particular group;
  - People with learning difficulties – a high level of adult support, adaptation to rules so access is improved;
  - The elderly – offering less physically demanding activities, offering a range of low impact fitness activities, putting on sessions during the day;
  - Schools – link with schools to use facilities during the day as part of the curriculum;
  - Health related – people with specific health related difficulties such as heart problems, obesity etc.;
  - Young people – providing extreme sports/adventurous activities;

One mark can be given for naming a group, the second mark can only be given if the reason is specific to the named group. The reason cannot be repeated for another group. [6]

[Total: 15]