



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

PHYSICAL EDUCATION

0413/13

Paper 1

May/June 2016

MARK SCHEME

Maximum Mark: 80

Published

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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2016 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

Question	Answer	Marks
1	the movements are always the same / predictable; the skill is not affected by the environment / opponents;	1
2	allows the body to work more efficiently / boosts endurance / body systems work more efficiently; provides opportunities to socialise; prevents illness / disease; reduces stress and increases happiness / sources of fun; enables a person to maintain a stable body weight; maintains fitness;	1
3	youth clubs / scouts / girl guides; churches; national charities, e.g. YHA; community organisations;	1
4	production of adrenaline; increased heart rate; increased breathing rate; muscle readiness for action / become tense; alertness; sweaty; butterflies / sickness;	1

Question	Answer	Marks
5	it clears the gut; prevents constipation / bowel cancer; makes you feel full, so you eat less / adds bulk to food;	1
6	earlier identification of injury / quicker treatment; quicker recovery / access to physiotherapy; greater awareness of health factors / more publicity; improved links between health professionals and sports centres to introduce low-impact activities for older participants;	1
7	flexion; extension; lateral extension; rotation;	2
8	plan the route / where to move the equipment to; environment is safe; ensure a good hold position on the equipment; do not bend the back when lifting / do not twist when lifting / lift from squatting position / bend the knees when lifting; ensure equipment is not too heavy / students are strong enough / area is stable; ensure supervision during activity; appropriate number of students; make sure equipment is in good condition to be moved;	2

Question	Answer	Marks								
9	increase the amount of participation in sports; increase the level of understanding of a sport / physiology etc.; access to external coaches; access to high-quality facilities and equipment; opportunities to play new / different sports to the basic curriculum; motivates students to participate more in sport; gives students opportunities to pursue a career in sport / gain a scholarship to go to university;	3								
10	<i>cause:</i> overstretching / overuse / lack of flexibility / twisting movement at a joint; <i>treatment:</i> (short-term) rest; ice; compression; elevation; (long-term) hospital treatment; physiotherapy; steroid injections; heat treatment; surgery;	3								
11	<table border="1"> <tbody> <tr> <td data-bbox="322 890 510 954">Pectorals</td> <td data-bbox="510 890 1912 954">Raise the arm at the shoulder. Draw the arm across the chest / adduction;</td> </tr> <tr> <td data-bbox="322 954 510 1018">Trapezius</td> <td data-bbox="510 954 1912 1018">Holds and rotates the shoulder. Moves the head back and sideways / abducts at the shoulder;</td> </tr> <tr> <td data-bbox="322 1018 510 1082">Gluteals</td> <td data-bbox="510 1018 1912 1082">Pulls the leg back at the hip. Raises the leg sideways at the hip;</td> </tr> <tr> <td data-bbox="322 1082 510 1129">Deltoid(s);</td> <td data-bbox="510 1082 1912 1129">Raise your arm forwards, backwards and sideways at the shoulder</td> </tr> </tbody> </table>	Pectorals	Raise the arm at the shoulder. Draw the arm across the chest / adduction;	Trapezius	Holds and rotates the shoulder. Moves the head back and sideways / abducts at the shoulder;	Gluteals	Pulls the leg back at the hip. Raises the leg sideways at the hip;	Deltoid(s);	Raise your arm forwards, backwards and sideways at the shoulder	4
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Question	Answer	Marks
12(a)	boosts confidence; reduces stress / relax; helps obtain an appropriate level of arousal / remain calm; allows the performer to concentrate on the task ahead / better focus; allows a performer to go through routines which will improve the performance / reminds the performer of goals;	2
12(b)	blood production – ribs and femur contain red bone marrow which makes blood cells / white blood cells / platelets; protection – the skull protects the brain / the ribs protect the heart and lungs; movement – muscles pull on bones to create movements, such as bicep pulling on the radius to bend the elbow; support and shape – gives the body shape and support for organs, such as the vertebrae keeping the body upright;	3
12(c)	<i>Award examples of sports that demonstrate problems if a performer:</i> lacks mobility / speed / balance; lacks flexibility; lacks endurance; puts on weight easily / activities with weight categories that are difficult to maintain;	3

Question	Answer	Marks
12(d)	<p>affects co-ordination – less able to catch;</p> <p>balance – affects the ability to run, strike a ball etc. effectively;</p> <p>unable to work for as long – cannot complete a match;</p> <p>loss / reduction in cardio-vascular fitness;</p> <p>loss of the drive to train and play sport;</p> <p>affects the speed of reaction – unable to respond to catch a ball when fielding close to the bat in cricket, difficult to dodge punches when boxing;</p> <p>poor decision-making;</p> <p>lack of focus / concentration;</p>	3
12(e)	<p><i>Award marks only for the features of the test. Candidates may use alternative recognised tests.</i></p> <p>agility – Illinois Agility Test, complete the course as fast as possible / run around a course of cones / run to a cone then zigzag through four cones / run straight to the last cone / times are converted to scores;</p> <p>balance – Standing Stork Test, subject blind folded / stands on one foot with toes of raised foot placed against standing leg / time from the point when the candidate is stable / when the candidate wobbles stop timing;</p> <p>co-ordination – Wall Toss Test, mark line 2 m from a wall / candidate stand behind line / ball is thrown underarm against the wall / caught in the other hand / thrown back against the wall and caught with the original hand / count the number caught in 30 seconds;</p> <p>speed of reaction – Ruler Drop Test, hold a 30 cm ruler so that it falls between thumb and first finger / ruler is dropped / candidate catches the ruler at its highest point / repeat the test and take the average distance the ruler drops;</p>	4

Question	Answer	Marks
12(f)	<p>resting heart rate will be lower – training increases the size and strength of the heart so it increases the amount of blood pumped to the muscles;</p> <p>increase of the working heart rate will be slower – as the blood supply will meet the demands quicker, the increase in stroke volume results in more oxygen being delivered to the muscles;</p> <p>working heart rate would be lower – more blood is pumped in each beat / cardiac output maintains the oxygen demanded by the muscles;</p> <p>recovery rate would be quicker – there would be a greater volume of blood supplied to the muscles carrying more oxygen, so lactic acid would be cleared more quickly;</p>	4
12(g)	<p><i>Award a max. of 4 marks for the application of the FITT principles / SPOR / SMARTER.</i></p> <p>find out about the person / age / injuries / health / reasons for getting fitter / current level of fitness / likes and dislikes regarding exercises / fitness testing;</p> <p>agree what aspects of fitness needs improving;</p> <p>ensure that rest is included, in the early stages there needs to be substantial recovery times;</p> <p><i>application of the FITT principles:</i></p> <p>Frequency – how often the person is going to exercise;</p> <p>Intensity – intensity of training needs to reflect the level of fitness of the performer, the increase in the intensity of training should reflect progress being made;</p> <p>Time – the amount of time that the performer is going to be able to commit to a training programme;</p> <p>Training activity – depending on the type of activities that suit the performer / most performers wanting to get fit would use a variety of activities to make training enjoyable and avoid boredom / opportunities for alternative exercise if unable to train;</p> <p>access to facilities / equipment needs to meet the demands of the programme;</p> <p>how progress will be monitored / feedback given;</p>	6

Question	Answer	Marks
13(a)	have essential human needs food, clothing and shelter; have friendship and support; have some value in society; have a social life; have little stress / be able to cope with stress; have good communication;	2
13(b)	<i>benefit:</i> helps in the transport of oxygen by red blood cells; <i>food source:</i> liver / beans / lentils / vegetables / added to bread;	2
13(c)	prepare the athlete mentally / better focus; increases heart rate and blood flow; warms muscles and increases flexibility; warms and loosens joints; practise some of the skills that are key to the activity; become use to the conditions;	3

Question	Answer	Marks
13(d)	<p>wet surfaces around the pool causing slippery surfaces / running down the side of the pool, people slip; <i>(Accept concerns over weather – 1 mark max.)</i></p> <p>entering the pool without permission / how and when people enter the water / supervisors not knowing who or how many people are in the water;</p> <p>ensuring swimmers do not get out of their depth / possible drowning;</p> <p>ensure pool is clear of items, e.g. floats etc. – can cause obstructions to swimmers;</p> <p>hygiene factors / pH levels are appropriate;</p> <p>diving boards should not be used when the pool is in use – prevent divers landing on swimmers below;</p> <p>using swimming aids should only be done under supervision – weaker swimmers should always be under supervision in the water to reduce chances of swimmers getting into danger / using aids incorrectly;</p>	4
13(e)(i)	<p><i>resistance training:</i> training that causes muscles to work against an external resistance;</p> <p><i>benefit:</i> builds muscle size / strength / power / slows down the aging process / slows down the loss of bone density / raises metabolic rate which helps maintain body weight;</p>	2
13(e)(ii)	<p><i>No mark awarded for naming a training principle. Examples must relate to the named activity.</i></p> <p>Specificity – an example of resistance training related to the named activity;</p> <p>Overload – examples of how a method of resistance training can be overloaded;</p> <p>Progression – examples of a programme that plans to bring about improvements;</p> <p>Reversibility – example of the variety that can be added to a programme to prevent boredom, reduce possibility of injury;</p>	2

Question	Answer	Marks
13(f)	<p>adrenaline is produced benefit – increases the heart rate;</p> <p>heart beats stronger and faster / stroke volume increases / cardiac output increases benefit – increases the speed that oxygen is delivered to muscles / provides greater energy / more blood is pumped in each beat;</p> <p>breathing rate increases / tidal volume increases / minute volume increases benefit – increases the amount of oxygen reaching the muscles and removes more carbon dioxide, which slows the onset of lactic acid / allows to perform for longer;</p> <p>blood gets shunted benefit – blood is provided to the muscles that need it the most;</p> <p>start to sweat benefit – allows the temperature to be maintained and the body is cooled;</p> <p>arteries widen benefit – blood pressure is prevented from increasing too much;</p> <p>muscles become warmer benefit – greater flexibility, reduces chances of muscle injury;</p> <p>increase muscles contraction benefit – puts pressure on veins to squirt blood faster back to the heart which increases the speed that blood circulates;</p>	5
14(a)	<p>opportunities to play sport to a higher standard;</p> <p>receive a higher level of coaching;</p> <p>opportunities to participate in competitive sports / variety of sports;</p> <p>able to socialise with friends;</p> <p>improve fitness;</p> <p>raises confidence / self-esteem / reduces stress / easy access / free to play;</p>	2

Question	Answer	Marks
14(b)	<p>limited range of skills required to take part / not as good as the natural environment;</p> <p>repetition of skills / difficult to progress skills;</p> <p>facilities are often crowded;</p> <p>facilities are limited in number;</p> <p>participants get bored quickly;</p> <p>lacks the beauty of the natural environment;</p> <p>techniques may differ / not have the skills when in the natural environment to deal with weather changes etc.;</p> <p>often attract less-skilled performers which results in more accidents;</p>	3
14(c)	<p>technology has improved to allow sports to be televised live from anywhere in the world;</p> <p>more channels available to show sports / sports-only channels / more televisions / replay of events / colour televisions;</p> <p>more formats to televise sports;</p> <p>increase in the amount of sport played being played throughout the world / more international sport played;</p> <p>greater demand from the public for sports to be shown;</p> <p>sport has become more popular / more fashionable to play sports;</p> <p>more female sports shown;</p> <p>sports stars create a great deal of interest and publicity so people want to see them play;</p> <p>television companies want to increase viewing figures by showing sports programmes of high interest;</p> <p>branding of sports has increased sponsorship opportunities;</p> <p>television encouraged sports to be played outside of the normal environment (shown worldwide), e.g. NFL matches played in England / Germany;</p> <p>greater financial rewards for television coverage / increase in sponsorship;</p>	4

Question	Answer	Marks
14(d)	<p>greater media coverage of disability sport;</p> <p>more competitions for performers with disabilities / more international competition;</p> <p>legislation to ensure equal opportunities, e.g. access to facilities, braille signs etc.;</p> <p>disability sports have been part of major events, e.g. Commonwealth Games 2014;</p> <p>ex-performers become part of television / media presentation;</p> <p>development of specific equipment, e.g. sports wheelchairs;</p> <p>introduction of new sports, e.g. goalball, wheelchair rugby;</p> <p>sports clubs having specialist coaches to support performers with disabilities;</p> <p>greater government funding for elite performers;</p> <p>more disability performers able to access sponsorship so they can train full time / become professional;</p> <p>greater awareness of the benefits of sport for disabled performers;</p> <p>more role models;</p> <p>greater acceptance / awareness of disabilities / improvements in technology;</p>	6