



PHYSICAL EDUCATION

0413/11

Paper 1

May/June 2017

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 2017 series for most Cambridge IGCSE[®], Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

© IGCSE is a registered trademark.

This document consists of **20** printed pages.

Question	Answer	Marks
1	running / jumping / throwing / skipping / hopping etc.; <i>Accept sport-specific examples, e.g. kicking a football.</i>	1

Question	Answer	Marks
2	friendship and support; have value in society; able to mix with others; have essential needs met, e.g. food / clothing / shelter;	1

Question	Answer	Marks
3	providing physical education in the curriculum / offer a range of activities / how the curriculum supports physical education in other subjects; after-school clubs / school-club links / extra-curricular clubs for enjoyment; competitions / fixtures / school teams; trips to sports events; examination courses; access to award schemes / trophies / scholarships etc.; provide facilities / equipment; making activities more fun / less competitive / use of (outside) coaches / sports personalities; promotion of events / celebrations;	1

Question	Answer	Marks
4	the form / size of the body / body structure / body shape / body type / body composition / mix of muscle and fat in the body;	1

Question	Answer	Marks
5	vegetables / fruits / nuts / pulses / wholemeal bread / pasta / wholegrain cereals; <i>Accept valid specific fruits and vegetables.</i>	1

Question	Answer	Marks
6	scout and youth groups; places of worship, e.g. churches; national charities; (local) sports clubs; YHA;	2

Question	Answer	Marks
7	connect muscle to bone; transmits force from muscles to bones / pull on bones; tendons have a degree of flexibility; absorb shock; limits damage to muscles; stores energy;	2

Question	Answer	Marks
8	the volume of oxygen consumed during recovery from exercise; in excess of that would normally be consumed in the same period; needed to remove lactic acid; muscles work with too little oxygen / anaerobic respiration; increase lactic acid in the muscles; Excess Post-exercise Oxygen Consumption;	2

Question	Answer	Marks
9	<p><i>Award marks for reasons with relevant countries and sports.</i></p> <p>For example:</p> <p>Fiji and rugby sevens climate;</p> <p>national sport / played from a young age / traditional;</p> <p>environmental factors;</p> <p>lack of population makes it hard to develop playing numbers in other sports;</p> <p>little choice of other sports;</p> <p>role models / media promote a particular sport;</p> <p>high level of national interest / popularity of a specific sport;</p>	2

Question	Answer	Marks
10	<p>players becomes demotivated if rewards are not achieved;</p> <p>if unable to gain rewards a player may give up;</p> <p>performers may focus on the reward rather than the game / sport;</p> <p>rewards need to get bigger over time to maintain interest;</p> <p>undervalue their performance / reduce confidence if they fail to achieve rewards / lowers self-esteem;</p> <p>false sense of the quality of performances if rewards are overused;</p> <p>only wanting to perform if a reward is available;</p> <p>cannot be maintained over time;</p> <p>may cause a performer to cheat / use drugs to achieve the reward / win-at-all-costs attitude;</p>	3

Question	Answer	Marks
11	<p><i>severe cut</i> cause: impact / collision with sharp object / clash of head; treatment: apply pressure / stitches / raise above heart if possible / bandage;</p> <p><i>winding</i> cause: collision / impact / heavy tackle on chest / stomach area / falling on back; treatment: lean forward / steady slow breathing;</p>	4

Question	Answer	Marks
12(a)	<p>it should be given as soon as possible;</p> <p>it should be clear and to the point / not contain too much information;</p> <p>it should enable the performer to know what to do next;</p> <p>it should give time for the performer to think / process / evaluate before next attempt;</p> <p>it should have a positive focus / look to motivate a performer to continue;</p> <p>current level of performance / experience of performer;</p> <p>be able to identify strengths / weaknesses of the performance;</p> <p>decide the most suitable method of giving feedback (verbal / visual / physical etc.);</p>	2
12(b)	<p><i>One mark for the activity and up to two marks for explanations.</i></p> <p>example: long-distance runner;</p> <p>ectomorph is lighter – easier to run as carrying less weight;</p> <p>ectomorph has a longer limbs – has a greater stride length;</p> <p>ectomorph generally has more slow-twitch fibres – able to run for longer;</p>	3

Question	Answer	Marks
12(c)	<p><i>Examples need to relate to a physical activity.</i></p> <p>extension – back swing when bowling in rounders;</p> <p>flexion – raising the arm above the head when shooting in basketball;</p> <p>adduction – using the butterfly arm action in swimming;</p> <p>abduction – the forehand stroke in tennis;</p> <p><i>Appropriate ref. to circumduction accepted.</i></p>	3
12(d)	<p>lungs – diaphragm and intercostal muscles strengthen to allow deeper and fuller breathing; able to expand further / increase tidal volume / increase the amount of air taken into the lungs; provides more oxygen to muscles / the performer can work for longer / increased endurance;</p> <p>alveoli – increase the number of alveoli used; more efficient gas exchange; <i>(Award once.)</i></p> <p>capillaries – increase in number around the alveoli; more efficient gas exchange; <i>(Award once.)</i></p> <p>stronger heart muscle / larger heart muscle / hypertrophy; lower resting heart rate; increased stroke volume and (maximal) cardiac output;</p>	3

Question	Answer	Marks
12(e)	<p><i>Accept examples applied to a sport. Allow alternative descriptions of characteristics.</i></p> <p>For example in hockey:</p> <p>controlled – when shooting at goal and being physically pressured is still able to maintain good position and technique;</p> <p>smooth / fluent – able to dribble the ball and shoot without needing to slow or stop;</p> <p>confident – tries to dribble around a player rather than always pass the ball;</p> <p>aesthetically pleasing – when striking the ball the body position always looks good;</p> <p>efficient – does not use a lot of energy / late in a game they are still able to run and maintain a high level of skill / make it look effortless;</p> <p>successful / few errors / consistent – able to stop the ball without it running away most times regardless of the environment;</p> <p>able to adapt – if the ball comes to them at a difficult height they can adjust their technique to bring the ball under control;</p> <p>timing / co-ordinated – co-ordination of body parts to hit a moving ball;</p> <p>anticipation – moves into areas of the pitch to be in position to receive the ball;</p> <p>accurate – able to complete a high level of passes to other players;</p> <p>level of technical skill – able to perform a hit on the reverse;</p> <p>determination – persistence to try and win the ball / goal-directed to achieve the win;</p>	4
12(f)(i)	slow-twitch fibre / type I;	1

Question	Answer	Marks
12(f)(ii)	<p><i>Allow ECF if wrong muscle type in (i).</i></p> <p>red in colour / has a good blood supply;</p> <p>efficient use of oxygen;</p> <p>smaller fibres than fast-twitch muscle fibres;</p> <p>releases energy slowly;</p> <p>fatigues slowly / lasts longer / maintains efficiency longer;</p> <p>main muscle type that affects posture;</p> <p>high aerobic capacity / aerobic respiration;</p> <p>low level of force output;</p> <p>muscles contract slower;</p>	3
12(g)(i)	<p>Example might be basketball:</p> <p>agility – be able to change direction to dribble past an opponent;</p> <p>balance – to be able to stop without overbalancing and travelling;</p> <p>co-ordination – changing hands when dribbling;</p> <p>speed of reaction – intercept a pass;</p> <p>timing – jumping and being able to shoot at the highest point in a jump shot;</p>	3

Question	Answer	Marks
12(g)(ii)	<p><i>Example for agility:</i></p> <p>Illinois agility run;</p> <p>length of court 10 m × 5 m;</p> <p>four cones mark the start and finish and turning point, central line of cones 3.5 m apart;</p> <p>subject lies on the floor with their head on the start line;</p> <p>on the word go start stop watch, run around the cones, do not touch the cones, timer stopped when crossing the line;</p> <p>time taken when crossing the line recorded;</p> <p><i>Example for balance:</i></p> <p>stork stand test;</p> <p>subject blindfolded;</p> <p>stands on both feet with hands on hips, lifts either leg and places the toes of that leg against the knee of the standing leg;</p> <p>timing starts when the subject raises up onto toes of standing leg and ends when they are unable to control the wobbling / foot comes off knee;</p> <p><i>Example for co-ordination:</i></p> <p>alternate hand wall toss test / eq.;</p> <p>subject stands 1 to 2 m from a wall facing the wall;</p> <p>the ball is thrown from one hand with an under arm action against the wall, attempt to catch with the opposite hand, the ball is thrown back against the wall and caught with the initial hand;</p> <p>count the number of catches made in 30 seconds;</p>	3

Question	Answer	Marks
12(g)(ii)	<p><i>Example for speed of reaction:</i></p> <p>ruler drop test;</p> <p>subject sits or stands near the edge of a table, rests their elbow on the table, the assessor holds the ruler vertically in the air with the thumb and index finger of the subject close not touching;</p> <p>align the zero on the ruler with subjects fingers when ready;</p> <p>without warning drop the ruler;</p> <p>the ruler must be caught as quickly as possible;</p> <p>take the reading from the ruler at top of thumb / finger;</p> <p>find the average of a number of attempts;</p> <p><i>Allow any three key points for each test.</i></p> <p><i>Credit diagrams.</i></p>	

Question	Answer	Marks
13(a)	carbo-loading on the days before the event; eat / drink small amounts throughout the day; drink water to stay hydrated / do not drink large amounts of water in one go; drink protein shakes to replace energy stores; eat carbohydrates between matches to replace energy stores / 5 games in a day will create high energy need; eat / drink simple sugars to provide immediate energy; eat protein to begin muscle repair; eat small amounts of soluble fats to replenish long-term energy stores; avoid large amounts of fats as difficult to absorb;	2
13(b)	access to areas that allow exercise means more likely to exercise; <i>(Accept examples.)</i> less environmental pollution; provides quiet areas that allow a reduction in stress; provides an area for social gatherings;	2

Question	Answer	Marks
13(c)	<p><i>Examples exercises could include:</i></p> <p>walking / jogging / striding / sprint drills / stretching / mobility exercises / rehearsal of skills, e.g. sprint starts; <i>(Accept specific examples.)</i></p> <p><i>benefits (must be appropriate for the exercise):</i></p> <p>increase muscle temperature;</p> <p>increase demand for oxygen, preparing the body;</p> <p>increase flexibility / joint flexibility / synovial fluid benefits;</p> <p>increase blood supply to muscles;</p> <p>reduce the possibility of injury;</p> <p>triggers muscle memory;</p> <p>provides mental focus;</p> <p>raise pulse / heart rate;</p>	3

Question	Answer	Marks
13(d)	<p><i>One mark for the type of injury. Up to two marks for the benefit.</i></p> <p><i>injury:</i></p> <p>strain / sprain / soft tissue injury / bruise;</p> <p><i>benefits:</i></p> <p>reduces internal bleeding;</p> <p>reduces swelling;</p> <p>reduces pain;</p>	3
13(e)	<p><i>energy system:</i> anaerobic (system);</p> <p><i>explanation:</i></p> <p>maximum / all out effort required / explosive / power;</p> <p>the time taken is very short / energy needs to be provided quickly;</p> <p>cardio-vascular / aerobic system does not have time to supply oxygen to the muscle;</p> <p>energy is supplied by ATP and CP systems;</p> <p>glucose is used without oxygen;</p>	3
13(f)	<p>games players need to use aerobic and anaerobic systems;</p> <p>games players have periods of rest during the activity to recover from all out effort / pace changes during the game;</p> <p>aerobic energy system is used during the majority of the game when the player moves into position / recovers position;</p> <p>anaerobic energy system is needed for sort bursts of energy / to sprint for the ball / when jumping / striking the ball;</p>	2

Question	Answer	Marks
13(g)(i)	<p>can be made to replicate the demands of any game;</p> <p>provides variety / avoids tedium;</p> <p>easy to adapt to differing conditions;</p> <p>little equipment needed so low cost;</p> <p>easy to plan / can do on own or as part of a group;</p> <p>improves both aerobic and anaerobic systems;</p> <p>decreases resting heart rate;</p> <p>VO₂ max increases;</p> <p>lower resting heart rate;</p> <p>increased muscular endurance;</p> <p>increased cardio-vascular endurance;</p> <p>rest periods can be adjusted to the needs of the performer / changes to intensity are easy to manage;</p>	3
13(g)(ii)	<i>The examples used should demonstrate changes of activity / terrain / time / distance / speed / intensity.</i>	2

Question	Answer	Marks
14(a)	<p>performers might be paid for playing a sport / could be employment;</p> <p>a sport must be organised / structured / have rules;</p> <p>a sport must active;</p> <p>a sport must be competitive;</p> <p>a recreational activity is done when not working or sleeping;</p> <p>a recreational activity is done for fun;</p> <p>in a recreational activity rules can be adapted / changed;</p> <p>recreational activities do not have to be physical / sports always have a physical element;</p> <p><i>Accept reverse arguments.</i></p>	3
14(b)	<p>major companies may not be interested because of a lack of media exposure / minority sports;</p> <p>small shops / companies may not provide enough funding;</p> <p>athlete may not meet the profile wanted by the sponsor;</p> <p>only certain sponsorship deals will benefit the performer, e.g. need specialist equipment;</p> <p>future sponsorship may be harder to obtain if the athlete is not successful;</p> <p>limited resources of a sponsor may go to a more established athlete;</p> <p>high number of athletes trying to get sponsorship;</p> <p>small number of potential sponsors / limited connections to potential sponsors;</p> <p>an athlete's lack of experience may not make them attractive to a sponsor;</p>	2

Question	Answer	Marks
14(c)	<p>becomes more popular and increases participation;</p> <p>people become more aware / have greater understanding of the sport / promote certain sports;</p> <p>greater funding from media coverage;</p> <p>increased sponsorship / investment;</p> <p>people become bored because of overexposure;</p> <p>attendance at live events becomes reduced as games can be watched at home;</p> <p>extra pressure on performers / limited private life / changes attitudes and behaviours towards performing;</p> <p>media make changes to make coverage more interesting for viewers / more appealing to sponsors;</p> <p>create role models;</p> <p>pressure on coaches / managers / officials;</p> <p>motivates a performer to play well;</p> <p>influences decisions / team selections;</p>	4

Question	Answer	Marks
14(d)	<p><i>factors:</i></p> <p>too many sports do not meet the needs of girls / too much focus on team sports;</p> <p>development of other interests;</p> <p>fewer opportunities for girls than boys;</p> <p>still not seen as socially acceptable by some;</p> <p>sport can be seen as unfeminine / girls might not be expected to play sports;</p> <p>religious factors can prevent participation;</p> <p>poor quality experience when playing sport at a younger age;</p> <p>limited number of female coaches / have to be coached by male coaches;</p> <p>girls feel body image is always under scrutiny which can lower self esteem for many / physical development can cause girls to feel uncomfortable;</p> <p>the competitive nature of sport can be less appealing as girls grow older;</p> <p>too much focus on male sports and achievements;</p> <p>girls may feel a level of discrimination;</p> <p>girls are more likely to be influenced by peer pressure;</p> <p>some girls lack confidence / made to feel their sport has less value;</p>	6

Question	Answer	Marks
14(d)	<p><i>strategies:</i></p> <p>schools could offer different activities on the curriculum / less competitive activities;</p> <p>change to the type of traditional extra-curricular activities / mixed activities;</p> <p>more female sports shown on the media;</p> <p>increase the number of female coaches;</p> <p>more sporting opportunities post-16 for girls;</p> <p>use of role models;</p> <p>targeted campaigns – national and local;</p> <p>organisations being more flexible about the type of clothing being worn;</p> <p>provide equal reward for male and female performers;</p>	