

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International Advanced Subsidiary and Advanced Level

MARK SCHEME for the May/June 2015 series

0413 PHYSICAL EDUCATION

0413/12

Paper 1 (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.

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Mark schemes will use these abbreviations:

;	separates marking points
/	alternatives
()	contents of brackets are not required but should be implied
R	reject
A	accept (for answers correctly cued by the question, or guidance for examiners)
Ig	ignore (for incorrect but irrelevant responses)
AW	alternative wording (where responses vary more than usual)
AVP	alternative valid point (where a greater than usual variety of responses is expected)
ORA	or reverse argument
<u>underline</u>	actual word underlined must be used by candidate (grammatical variants excepted)
max	indicates the maximum number of marks that can be given
+	statements on both sides of the + are needed for that mark

Question	Expected answers	Additional guidance	Marks
1	<p>younger performers make frequent mistakes due to lack of experience / understanding ;</p> <p>younger performers are usually slower / only retain certain amounts of information ;</p> <p>not physically capable of performing certain tasks / young people can lack concentration ;</p> <p>skill is not broken down into small enough components ;</p>		[1]
2	<p>done in a person's free time ;</p> <p>may not require financial payment ;</p> <p>provides enjoyment and satisfaction / done for fun ;</p>		[1]
3	carbohydrates / sugars ;		[1]
4	<p>cartilage ;</p> <p>synovial fluid ;</p> <p>synovial membrane ;</p>		[1]
5	<p>theme parks ;</p> <p>holiday activities ;</p> <p>hotel / spas ;</p> <p>corporate events ;</p>		[1]

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Question	Expected answers	Additional guidance	Marks
6	fractures / broken bones ; deep cuts ; dislocation ; bruises ; concussion ; winding ;		[1]
7	breathe slowly or deeply / meditation ; relax different muscle groups / massage ; mentally rehearse the activity / game plan ; visualise the positive outcome of the event / self-talk ; listen to music to distract from thinking about the event ; listen to the coach ;		[max 2]
8	enforce the rules of the game / ensure players play fairly ; gives player guidance regarding playing the game within the rules ; ensure the safety of the players / playing area safe ; ensure the safety of the spectators ; apply sanctions when needed ; judge the winner of the game, e.g. boxing ; ensure players have the correct or appropriate clothing, footwear or equipment ;		[max 2]

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Question	Expected answers	Additional guidance	Marks
9	<p>try to attract the biggest TV audience ;</p> <p>attract sponsors for prime time audiences ;</p> <p>bring greater money into the sport ;</p> <p>be able to attract an international audience / allow for time differences ;</p> <p>fits into the viewing schedule for other events they might be showing ;</p>		[max 3]
10	<p>hamstring ;</p> <p>quadriceps ;</p> <p>extension and flexion at the knee ;</p> <p>OR</p> <p>shins ;</p> <p>calves ;</p> <p>extension and flexion at the ankle ;</p> <p>OR</p> <p>pectorals ;</p> <p>latissimus dorsi ;</p> <p>abduction and adduction at the shoulder ;</p>		[3]
11	<p>glucose + oxygen → energy + carbon dioxide + water ;</p> <p>glucose → energy + lactic acid ;</p> <p>during digestion carbohydrates are broken down into glucose by enzymes ;</p> <p>glucose passes through the gut wall into the blood stream and is carried around the body ;</p>	<p>A energy is obtained from the reaction of glucose or fats with oxygen ;</p>	[4]
			[Total 20]

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Question	Expected answers	Additional guidance	Marks
B1 (a)	<p>effort is not wasted doing unrelated training / more likely to achieve goals set ;</p> <p>performers can be motivated as goals are relevant ;</p> <p>specific to an area identified as needing to improve / able to measure progress ;</p> <p>reduces anxiety ;</p>		[max 2]
(b)	<p>too much information can cause confusion or overload / too much information results in it being easily forgotten / makes learning skills easier ;</p> <p>complex skills need to be broken down into small parts before being brought back together ;</p> <p>difficult for new performer to be able to ignore irrelevant information ;</p> <p>information takes time to move from the short term memory into the long term memory ;</p> <p>if similar skills are taught close together, information becomes confused ;</p> <p>the detail of a skill can be learnt more effectively ;</p> <p>skills can be learnt more quickly when instructions are kept simple ;</p> <p>instructions should provide motivation for the performer to continue trying ;</p>		[max 3]

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Question	Expected answers	Additional guidance	Marks
(c)	<p>blood is withdrawn from the athlete several weeks before the event ;</p> <p>the performer naturally replaces blood ;</p> <p>the plasma and red blood cells are separated ;</p> <p>the plasma is re-injected ;</p> <p>red blood cells are refrigerated ;</p> <p>red blood cells are injected back into the body one week before the event ;</p> <p><i>benefit:</i> by increasing the amount of red blood cells it will increase the oxygen carrying capacity enabling the athlete to train for longer ;</p>		[max 3]
(d)	<p><i>white blood cells:</i> when a performer cuts or grazes themselves the white cells fight infections ensuring faster recovery and less time out of the sport ;</p> <p><i>platelets:</i> clot the blood so if a performer gets cut the blood loss will be slowed and stopped so the player can continue to play ;</p> <p><i>plasma:</i> the main carrier of hormones, nutrients, oxygen, carbon dioxide, etc. enabling performer able to play for longer ;</p>		[3]
(e) (i)	<p>highlight strengths and weaknesses ;</p> <p>identify areas to target or improve / motivate ;</p> <p>calculate the potential for progress ;</p> <p>compare test data with other similar performers ;</p> <p>compare data with individual's previous results ;</p>		[max 2]

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Question	Expected answers	Additional guidance	Marks
(ii)	<p>flexibility – sit and reach test ;</p> <p>muscular strength – vertical jump test ;</p> <p>muscular endurance – push up test ;</p> <p>cardiovascular endurance – multi stage fitness test / bleep test ;</p> <p>speed – sprint tests ;</p> <p>body composition – skinfold tests ;</p>		[max 2]
(f)	<p><i>long distance runner:</i></p> <p>runs at a steady pace for most of the race / muscles contract over a long period of time ;</p> <p>works aerobically for most of the race / reduces the onset of lactic acid ;</p> <p>energy demands can be met by the oxygen inhaled / energy is released slowly ;</p> <p>likely to have mainly slow twitch muscle fibres ;</p> <p>slow twitch fibres are very efficient and have a good oxygen supply so the activity can last a long time ;</p> <p><i>games player:</i></p> <p>will need to use short bursts of speed, e.g. to chase the ball ;</p> <p>will use both aerobic and anaerobic energy systems ;</p> <p>anaerobic respiration can only take place for short periods of time ;</p> <p>have mainly fast twitch muscle fibres ;</p> <p>will have periods of rest to allow for recovery from small amounts of oxygen debt, e.g. slowly taking up a position when the ball is at the other end of the pitch ;</p>		[max 5]

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Question	Expected answers	Additional guidance	Marks
(g) (i)	<p><i>between A – B:</i> arousal levels are low ;</p> <p>performer is feeling tired or bored ;</p> <p>performance will be below expected levels ;</p> <p><i>between B – C:</i> the performer is in the zone of optimal arousal ;</p> <p>the performer will perform at their best ;</p> <p><i>between C – D:</i> arousal levels are too high / over aroused ;</p> <p>performance is poor because performer is anxious ;</p>		[max 3]
(ii)	<p>the prize / reward ;</p> <p>the crowd / who is watching / media involvement / bright lights / crowd noise ;</p> <p>the coach psyching a player up before the game ;</p> <p>the nature of the game / cup final, etc. ;</p> <p>for a professional player trying to attract a sponsor ;</p> <p>the change of playing environment – playing on centre court at Wimbledon will create a different level of arousal than playing on an outside court ;</p> <p>opposition ;</p>		[max 2]
[Total 25]			

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Question	Expected answers	Additional guidance	Marks
B2 (a)	<p>the state of complete physical ;</p> <p>mental ;</p> <p>social ;</p> <p>+ well-being</p>		[max 2]
(b)	<p>extra warm clothing / gloves ;</p> <p>maintain energy levels – food and water (high energy food bars) ;</p> <p>if weather conditions become too dangerous – bivvy bag ;</p> <p>to attract help – whistle / torch / mobile phone ;</p> <p>make sure everyone knows where they are – each group has a map ;</p> <p>make sure each group knows the route – groups have a route plan and escape route to lower levels ;</p> <p>make sure people know where you are – route and details of journey left with base members ;</p> <p>experience of walkers ;</p>		[max 2]
(c)	<p><i>cause:</i></p> <p>sudden twisting of the ankle / overstretching of the ligament ;</p> <p>sudden change of direction ;</p> <p><i>prevention:</i></p> <p>strengthen the area ;</p> <p>ensure surface being played on is even and safe ;</p> <p>footwear has good grip / appropriate strapping on ankle / support the ankle ;</p>		[max 3]

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Question	Expected answers	Additional guidance	Marks
(d)	<p>the respiratory and circulatory systems combine to deliver an increase in oxygen and nutrients to tissues ;</p> <p>oxygen is breathed into the lungs and alveoli ;</p> <p>gas exchange takes place in the alveoli when oxygen is transferred into the bloodstream ;</p> <p>carbon dioxide is removed from the bloodstream and breathed out ;</p> <p>an efficient respiratory system will increase the amount of oxygen transferred into the bloodstream which will allow a performer to exercise for longer ;</p> <p>an efficient circulatory system ensures the maximum amount of oxygen gets pumped to the muscles ;</p>		[max 4]
(e) (i)	if the person stops training fitness is lost ;		[1]
(ii)	<p><i>performer stops training due to illness preventing training ;</i></p> <p>injury / overtraining ;</p> <p>becoming bored with the activity / lack of motivation to train ;</p> <p>training not being progressive ;</p>		[max 3]

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Question	Expected answers	Additional guidance	Marks
(f) (i)	<p>reason for doing the training ;</p> <p>time available to train ;</p> <p>type of training needed – aerobic or anaerobic ;</p> <p>which areas of the body are to be exercised ;</p> <p>physical fitness / health factors relating to the individual ;</p> <p>age / experience of participants ;</p> <p>safety considerations / establish a starting point so training that does not cause the participant to overstrain ;</p>		[max 2]
(ii)	<p><i>free weights:</i></p> <p>more weights can easily be added to the lifting bar ;</p> <p>free weights provide a wide range of exercises ;</p> <p>easier to target specific muscle groups / easier to adapt ;</p> <p><i>weight machines:</i></p> <p>safer to use ;</p> <p>able to work on your own (no spotters needed) ;</p> <p>designed to move in the appropriate way / little technique needed ;</p> <p>ideal for beginning to work with weights ;</p>		[max 3]
			[Total 20]

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Question	Expected answers	Additional guidance	Marks
B3 (a)	fun and enjoyment ; job / profession / rewards ; at school / part of curriculum / extra – curricular activities ; health / medical reasons ; keep fit ; social ;		[max 2]
(b)	<i>global event:</i> Olympic Games / Commonwealth Games / (football / rugby / athletics) World Cup / Tour de France ; <i>reasons for hosting the event:</i> increase interest in sport ; develop facilities ; improve coaching structure ; provide opportunities for minority sports to develop ; gain automatic qualification ; try to provide success that the host nation usually experience ; give the economy a boost / increase in employment/ increase in tourism / urban regeneration ; raise the profile of the country internationally ; use the event to establish trade links ;	max 2 marks for reasons	[max 3]

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Question	Expected answers	Additional guidance	Marks
(c)	<p><i>example:</i> Kenya / Ethiopia - long distance running / cross country ;</p> <p>Brazil – football ;</p> <p>Nordic countries – skiing ;</p> <p>Fiji – Rugby sevens ;</p> <p>New Zealand – rugby ;</p> <p>Japan – Sumo wrestling ;</p> <p>Cuba – boxing ;</p> <p><i>reasons:</i> cheap and requires little equipment ;</p> <p>climate allows people to be outside for most of the year ;</p> <p>few other sports to compete with the interest of the population ;</p> <p>traditional activity in the country ;</p> <p>huge population so big player pool / opportunity for children to play from an early age ;</p> <p>sport provides opportunities in a country with little industry ;</p> <p>opportunities to play on a variety of surfaces, e.g. grass, sand, concrete, develops different skills ;</p> <p>national obsession with sport ;</p> <p>extensive coaching opportunities throughout the country ;</p> <p>early success created high national expectation / high number of role models to encourage younger players ;</p>	<p>max 4 for reasons</p>	[max 5]

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Question	Expected answers	Additional guidance	Marks
(d)	<p>legislation to provide equal opportunities ;</p> <p>ensure access to facilities / provision of ramps, etc. ;</p> <p>greater adaptation of sports / wider number of sports taught in school ;</p> <p>increase in the number of coaches available ;</p> <p>adaptation of equipment / improvement in technology regarding equipment development ;</p> <p>greater media coverage / greater general understanding of disability sports / role models / athletes with disabilities developing roles within the media ;</p> <p>greater social acceptance / understanding of disabilities ;</p> <p>inclusion in able-bodied events, e.g. World Championships in Athletics / more international events ;</p> <p>improvements in technology have enabled prosthetic limbs to be developed ;</p> <p>campaigns to encourage greater participation aimed at children with disabilities ;</p> <p>improved funding / better funding ;</p>		[max 5]
			[Total 15]