



PHYSICAL EDUCATION

0413/13

Paper 1

October/November 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.

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Question	Answer	Marks
1	provides support / shape / provides protection / allows movement / produces blood cells / mineral storage;	1

Question	Answer	Marks
2	maintain health / control weight / less likely to be ill / ensure sufficient energy / more alert / feel better about yourself / to develop and maintain body functions;	1

Question	Answer	Marks
3	fun / enjoyment / interest / to be with peers / social well-being / fashionable / school-influence / family involvement in activity / something to do / reduce stress / improve fitness / learn a new skill;	1

Question	Answer	Marks
4	platelets;	1

Question	Answer	Marks
5	any named sport that requires power / strength, e.g. shot put / weight lifting / long jump / rugby / netball etc.; <i>Accept any valid example.</i>	1

Question	Answer	Marks
6	fast twitch;	1

Question	Answer	Marks
7	<p>to win (a medal / reward); to speed recovery from injury and be able to take part; to aid recovery from heats / rounds; financial rewards / funding; assumption that other competitors are also taking drugs; pressure from coaches / some governing bodies; gain media attention / sponsorship;</p> <p><i>Accept references to specific drug effects as reasons, e.g. to increase muscle mass, to lose weight, to reduce anxiety.</i></p>	2

Question	Answer	Marks
8	<p>teenagers need more energy than younger children; older people generally need less energy; males generally need more energy than females; athletes need more energy than non-athletes; the type of activity that an athlete takes part in; if people have an active life style; sleep differences; differences in metabolism;</p>	2

Question	Answer	Marks
9	<p><i>Allow the features of a fibrous joint even if an incorrect example is given.</i></p> <p><i>example:</i> e.g. skull / cranium;</p> <p><i>features:</i> they do not move; they interlock; they are held by connective tissue / a tough fibre; no joint cavity; usually provide protection;</p>	3

Question	Answer	Marks
10	<p>increases heart rate / blood flow; raises body temperature / warms muscles and joints; loosens muscles / joints; allows the performer to acclimatise to conditions; practice skills / take part in activities similar to the game requirements; to focus / mentally prepare / increase arousal; reduces the risk of an injury;</p>	3

Question	Answer	Marks
11	improve levels of physical health; improve levels of mental health; reduce costs of health care; meet the needs / demands of the population; provide better community cohesion; aids economic growth; allows individuals to reach their potential; provide equality of opportunity; social well-being benefits; allows the country to be promoted internationally through sports / creates a national identity;	4

Question	Answer	Marks
12(a)	age; maturity; level of motivation; level of anxiety; level of arousal; facilities / environment; access to / quality of teaching / coaching; genetics; fitness / illness; time spent training;	2
12(b)(i)	heart beats faster / increase in heart rate;	1

Question	Answer	Marks
12(b)(ii)	<p><i>Accept specific examples.</i></p> <p>redirect glucose / oxygen / energy supply to muscles; able to run faster / further / greater strength; greater awareness / increased concentration / more aware of people in a game situation; increases reaction time / more likely to catch a ball when fielding close to the batsman in cricket; body ready to participate / muscles ready to respond / more likely to be able to respond quickly to a stimulus / less pain when playing; less able to undertake fine motor skills / movements can become disjointed / clumsy; performer unable to participate / performer freezes at a key point / nervous; errors in judgement / performer rushes into situations / makes a bad tackle in football; may become too aggressive;</p>	3
12(c)	flexion; bicep;	2
12(d)	<p><i>Marks awarded for explaining each factor.</i></p> <p>genetics – some people will have naturally better powers of recovery than others; gender – males generally recover more quickly than females / testosterone in males involved in muscle growth and repair; sleep / lack of sleep – sleep allows the body to repair itself; diet – a good diet provides the nutrients required / protein for muscle repair / carbohydrates to replace energy stores / water for rehydration; level of fitness – a performer with a higher level of cardiovascular fitness will be more efficient at removing lactic acid / have less oxygen debt so will recover faster; age – recovery period generally increases with age; intensity of exercise undertaken / train at altitude – more intense exercise / higher altitudes require longer periods of recovery; quality of cool down – lack of cool down may cause muscle soreness reducing ability to perform next time;</p>	3
12(e)(i)	<p>the ability of a muscle or group of muscles to work continuously / for a long time without tiring;</p> <p><i>Accept alternative wording.</i></p>	1
12(e)(ii)	<p><i>Accept examples of any endurance activity.</i></p> <p>e.g. marathon / distance running / rowing / cycling;</p>	1

Question	Answer	Marks
12(e)(iii)	<p><i>Accept any suitable test e.g. Multi-Stage Abdominal Curl Conditioning Test (also known as NCF Abdominal Curl Conditioning test) or press-up test;</i></p> <p><i>Accept any two points as a description.</i></p> <p><i>Multi-Stage Abdominal Curl Conditioning Test:</i> subject performs sit-ups in time with bleeps on a CD; arms are folded across chest with elbows forward, knees are bent. Sit-up to touch knees with elbows; bleeps become progressively quicker each minute; subject performs until they can no longer keep up with the bleeps or technique loses correct form; total number of sit-ups is counted and compared to normative data tables;</p> <p><i>Press-up Test:</i> complete as many 90 degree press-ups as possible; ensure press-ups are done correctly, count press-ups completed; subject assumes a prone position on the mat with hands placed under or slightly wider than the shoulders, fingers stretched out, legs straight and slightly apart, and toes tucked under keeping the legs and back straight; test stops when form is lost; total number of press-ups is counted and compared to normative data tables;</p>	2
12(f)	<p>not able to run for prolonged periods / last the whole game; unable to repeat movements at pace; unable to run down the court on a fast break; difficulty in getting away from an opponent; unable to change direction quickly to mark an opponent; unable to change direction quickly to dribble past a player; unable respond to the movements of an opponent; difficulty jumping to rebound the ball; difficulty jumping to defend a shot;</p> <p><i>Accept alternative examples.</i></p>	4

Question	Answer	Marks
12(g)	<p>alters a person's mood; so can become inconsistent in their response to playing / not smoking can create high levels of anxiety; more prone to respiratory illness / more prone to diseases; which results in being unable to perform; tar blocks alveoli; which reduces gas exchange; causing a reduction in the amount of oxygen available to muscles; so become tired more quickly; nicotine is a stimulant / relaxant; nicotine causes blood vessels to constrict reducing the flow of blood so oxygen will reach muscles more slowly; depresses appetite; so causes the performer may lack energy / muscle development; circulation becomes slower; so extremities are cold and have less feeling so catching a ball becomes more difficult; nicotine is addictive; poor concentration; unable to focus in games that require high levels of concentration for a long period of time;</p>	6

Question	Answer	Marks
13(a)	<p>mixes with other people; feel they have a value in society / club / a role within the club / team; have support; friendship of others;</p>	2
13(b)	<p>have correct clothing / safety equipment / footwear / no jewellery / medical equipment; know how to use and handle equipment; know the safety arrangements / ensure weather appropriate for the activity / check environment is safe; adhere to codes of behaviour / follow rules; have appropriate level of technique / skill / fitness / health;</p>	2

Question	Answer	Marks
13(c)	group are age appropriate / suitable for activity; qualified staff / instruction / group supervised; qualified first-aider / first-aid kit available; check equipment before and during session / equipment securely fixed; ensure there is space for movement between weights equipment / area appropriate for activity; students have correct footwear / clothing / safety equipment; ensure all students are aware of safety rules / ensure spotters available; students have appropriate technique / use appropriate weights; cool down undertaken;	3
13(d)(i)	isometric (contraction);	1
13(d)(ii)	<p><i>Max. 3 marks for either advantages or disadvantages.</i></p> <p><i>advantages:</i> easy to do; little chance of injury; requires little time / quick to complete; minimal damage to muscle / pain / stiffness; no need for expensive equipment; can be done anywhere; improves (static) strength; easy to overload / easy to monitor progress;</p> <p><i>disadvantages:</i> the muscles only gain strength at the angle you use in the exercise; can be boring; during an exercise the blood flow to the muscle stops; blood pressure rises; less blood flows back to the heart; can be dangerous if the performer has a heart problem;</p>	4

Question	Answer	Marks
13(e)(i)	<p><i>Examples could include:</i></p> <p>rugby / football / hockey – changing direction to beat a player; basketball – when faking to change body position to move in a different direction; skiing – slalom movement; tennis – turning to move across the court;</p> <p><i>Allow other examples.</i></p>	1
13(e)(ii)	<p><i>injuries could include:</i></p> <p>ligament damage / cartilage tear / sprain / dislocation / muscle strain / pulled muscle;</p> <p><i>benefits of treatment:</i></p> <p>reduces recovery time / relieves pain / helps stop internal bleeding / reduces swelling / reduces strain on the joint;</p>	2
13(f)	<p>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>diaphragm / intercostal muscles strengthen; deeper and fuller breathing / able to expand further; increase the amount of air taken into the lungs; provides more oxygen to muscles; the performer can work for longer / increased endurance;</p> <p>stronger heart muscle / larger heart muscle / hypertrophy; lower resting heart rate; increased stroke volume and (maximal) cardiac output; reduced risk of heart disease / diabetes / lower cholesterol / lower blood pressure;</p> <p>strengthens bones / increases bone density / increases bone size / increases in bone weight;</p> <p>stronger muscles / better developed slow-twitch fibres;</p>	5

Question	Answer	Marks
14(a)	can be heard in most places / on the move / in a car etc.; commentary can offer more detail; people with sight problems can be provided with a detailed commentary; no need for expensive equipment / subscription; speed in providing results / up-to-date information / news / information is live; encourages participation; increases the popularity of a sport;	2
14(b)	distance from facilities / need to access transport / young people reliant on parental support; limited choice of sports available; specialist sports often not available; team sports limited due to the number of people available; limited number of coaches available / volunteers to run clubs; less funding for sports directed to rural areas as population is lower than in urban areas;	3
14(c)	create good publicity locally; create goodwill within the community / company has a sense of social responsibility; develop brand awareness; support a member of the family / friend etc.; launch a new product / new business in the community / establishing themselves within the community; low-cost advertising; easy to limit the amount spent on sponsoring compared to sponsoring a major team / athlete;	4

Question	Answer	Marks
14(d)	<p>talent identification / create a programme to identify potential elite athletes / identify the physical characteristics required by a performer; (<i>Accept specific examples.</i>)</p> <p>ensure government support / national campaigns to encourage participation at all levels;</p> <p>sports governing bodies to develop long-term high performance programmes / increase funding into a training programme;</p> <p>develop greater links with schools;</p> <p>employ high-quality coaches;</p> <p>increase participation at all levels / provide facilities;</p> <p>increase coaching structures at all levels;</p> <p>provide trips to warm weather areas / altitude training;</p> <p>provide centres of excellence / high-performance camps;</p> <p>development of technology / provide high-quality equipment;</p> <p>use sports science to develop appropriate diet / medical support / most effective training and recovery programmes;</p> <p>provide support to allow athletes to travel and compete against top-quality opposition;</p> <p>central funding provided for elite athletes;</p> <p>host the event to ensure home advantage;</p>	6