



PHYSICAL EDUCATION

0413/13

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 **23** printed pages.

Question	Answer	Marks
1	<p><i>Examples may include:</i></p> <p>tennis serve / volleyball spike / overhead kick in football / headspring in gymnastics / smash in badminton / jump shot in basketball;</p> <p><i>Accept any complex skill.</i></p>	1

Question	Answer	Marks
2	<p>overweight / obesity / underweight / poor growth / diabetes / weakness of bones / rickets / lack of energy / cholesterol / heart problems / malnutrition / deficiency disease / named deficiency disease;</p>	1

Question	Answer	Marks
3	<p>people see more activities; (<i>Accept examples.</i>)</p> <p>makes sports more fashionable;</p> <p>people more aware of health issues / benefits of exercise;</p> <p>promotion of role models;</p> <p>promotion / advertising of events / sports;</p> <p>increases awareness of / interest in physical activities;</p>	1

Question	Answer	Marks
4	increase in heart rate; more oxygen / glucose pumped to the muscles; increase blood flow to muscles; muscles become tense; muscles may shiver; pupils dilate; increase in blood pressure;	1

Question	Answer	Marks
5	<i>Accept a positive or a negative effect.</i> become fitter as more time to exercise; less fit as less money to pay for activities; lose motivation; depression / boredom (can lead to smoking / drinking / drugs); lack of confidence to try new things;	1

Question	Answer	Marks
6	fixtures secretary; membership secretary; treasurer; chairperson; vice chairperson; coach / team manager; <i>Accept secretary alone.</i> <i>Accept other valid examples.</i>	2

Question	Answer	Marks
7	A (shape and) support / movement; B protection / blood production;	2

Question	Answer	Marks
8	soreness and joint pain when training / muscle cramp / minor injuries / longer recovery from injury; tiredness / loss of energy before / after performance; short-tempered / irritable; frequent colds; loss of appetite / losing weight; drop in performance / lack of concentration / lack of focus; (<i>Accept examples.</i>) lack of motivation;	2

Question	Answer	Marks
9	parents act as a coach / educator; parents provide a model for children to follow; parents provide transport; parents provide funding / equipment; parents encourage participation through support / watching games / provide small rewards / help find a suitable activity; parents may make choices about physical activities for their child; send child to specialist sports school; <i>Negative responses accepted, e.g. parents do not encourage participation / funding etc.;</i> <i>Accept other examples.</i>	2

Question	Answer	Marks
10	<p><i>Max. two marks for an explanation of how smoking affects the amount of oxygen.</i></p> <p><i>Max. two marks for the effects on performance.</i></p> <p><i>how smoking affects the amount of oxygen:</i></p> <p>red blood cells take up carbon monoxide rather than oxygen in the lungs;</p> <p>less oxygen in blood;</p> <p>tar collects in the lungs blocking alveoli;</p> <p>mucus causes congestion in the lungs;</p> <p>decrease in the surface area of the lungs that can absorb oxygen / reduced surface for gas exchange / reduced efficiency of gas exchange / reduces lung capacity;</p> <p><i>effects on performance:</i></p> <p>reduces cardio-vascular endurance / fitness;</p> <p>reduces VO₂ max.;</p> <p>becomes fatigued quicker;</p> <p>irritation / coughing reduces performance;</p>	3

Question	Answer	Marks
11	<p>wear appropriate clothing / tight-fitting clothing (to ensure it does not catch on equipment);</p> <p>remove jewellery / tie long hair back;</p> <p>check equipment is appropriate for use / ensure floor is clean / not slippery / clear of equipment / ensure matting is in correct place;</p> <p>wear safety grips / straps / use chalk / appropriate footwear;</p> <p>do not try moves that have not been practised / learn correct techniques;</p> <p>do not participate unless fit / healthy;</p> <p>ensure supervision / spotters are in place (for difficult movements) / listen to coach / instructor;</p> <p>know the rules of the competition / follow the rules;</p> <p>be aware of competition areas so competitors do not collide;</p> <p>do not continue if injured;</p> <p>before the event make sure you are prepared / eat / drink / sleep appropriately;</p> <p>performing at an appropriate level, e.g. age groups, weight categories;</p>	4

Question	Answer	Marks
12(a)	movement; create force; support / posture / muscle tone / provide stability (for joints); heat production; protection of organs / bones; aid digestion; cardiac muscle / arteries pump blood; store glycogen;	2
12(b)	<i>examples may include:</i> trophies / medals / certificates; prize money / items of equipment / vouchers; scholarship / bursaries; involvement in sport reward schemes; house / class points / competitions / credits; recognition of success by providing badges to be worn with uniform / items of clothing; celebration / awards evenings; examination courses; visiting speakers / celebrities / coaches;	3

Question	Answer	Marks
12(c)	performer happy with the level of their performance; group / team opposed to taking drugs / playing in a culture opposed to taking drugs / positive peer pressure; an individual is morally opposed to taking drugs / not prepared to cheat; activity would not benefit from taking drugs; drugs not available / too expensive; not prepared to take medical risks / dangerous to health / fear of becoming addicted; not prepared to risk being banned / caught / against the law / get a bad reputation / let others down;	3

Question	Answer	Marks
12(d)	<p><i>An explanation of each factor is required, for example:</i></p> <p>age – maximum fitness is generally highest in the twenties and reduced after this point;</p> <p>gender – after the age of around 11 males grow taller and stronger but females are usually more flexible;</p> <p>body type – may be more suited for certain sports;</p> <p>diet – to meet energy needs;</p> <p>exercises – type and regularity of exercise;</p> <p>environmental / climate / altitude – living in areas of pollution can affect health;</p> <p>illness / injury / fatigue – need rest and time to recover / sleep;</p> <p>stress – lowers fitness as it harms health;</p> <p>physical disability – limited movement can restrict type of activities;</p> <p>drug taking – lowers fitness and damages health including socially accepted drugs;</p> <p>motivation – affects willingness to train;</p> <p>lifestyle – people who have physically demanding jobs are more likely to be fitter;</p>	4

Question	Answer	Marks
12(e)	<p>all information goes into the short-term memory / all information in short-term memory for a few minutes;</p> <p>limited channel capacity so can only process some information;</p> <p>information can only be retained for a few minutes / can be forgotten;</p> <p>execution of skills needs cues to be able to perform well;</p> <p>skills must be practised to allow them to be moved to the long-term memory;</p> <p>when skills can be done consistently they are established in the long-term memory;</p> <p>the long-term memory will link and adapt skills to a game situation / skills are retrieved from the long-term memory;</p>	3
12(f)(i)	<p>skill-related fitness is usually specific to a particular sport and needs to be practised in a specific setting / practised over time / specific equipment needed;</p> <p>skill-related fitness may need to be coach-led;</p> <p>skill-related fitness involves the more technical aspects of a sport;</p> <p>health-related fitness aspects can be improved in most environments / by everyday activities;</p> <p>health-related fitness does not need to be specific to a sport / need specialist equipment;</p> <p>some skill-related components are partly genetic and cannot be improved;</p>	2

Question	Answer	Marks
12(f)(ii)	<p><i>Examples can be taken from any sport.</i></p> <p>For example in rugby:</p> <p>agility – the ability to side step an opponent;</p> <p>balance – being able to run without falling when contact is made;</p> <p>co-ordination – being able to catch a ball and pass in a single movement;</p> <p>speed of reaction – diving onto a loose ball to secure possession;</p> <p>timing – a hooker striking for the ball when it is put in the scrum;</p>	4

Question	Answer	Marks
12(g)	<p>junior athletes may have been physically well developed for their age and others catch them up at a later stage;</p> <p>physically unable to cope with the extra demands / competition becomes harder (due to more athletes involved) / loss of interest;</p> <p>early success makes an athlete complacent;</p> <p>high profile can cause media interest that is intrusive (and distract from training) / increased expectations / pressure;</p> <p>loss of motivation (to continue with the demands of training);</p> <p>unable to find a suitable coach / training group to move to a higher level;</p> <p>unable to access centre of excellence / high-quality facilities;</p> <p>unable to find the level of funding needed without moving area / unable to attract sponsorship to be able to train full time;</p> <p>unable to access international competition and training;</p> <p>stress / overuse injuries increase as the athlete's body develops;</p> <p>athlete becomes physically and mentally burnt out from too much training / competition as a junior;</p> <p>other interests take over / work / going to university / social life;</p>	4

Question	Answer	Marks
13(a)	<p>improvements in health, e.g. less likely to suffer from heart disease / stroke / diabetes / live longer;</p> <p>improve fitness, e.g. able to sustain exercise for longer / being stronger – accept examples;</p> <p>improvements in mental health, e.g. more able to cope with stress / higher self-esteem;</p> <p>improvements in performance, e.g. lift heavier weights / kick a ball harder;</p> <p><i>Accept other examples.</i></p>	2
13(b)	<p>unsteady on feet / dizzy / poor balance / headache;</p> <p>collapse / unable to continue / cramp;</p> <p>weakness / exhaustion / tires quickly / lack of energy;</p> <p>poor co-ordination / increased reaction time;</p> <p>feeling sick;</p> <p>heart rate increases / thicker blood / less blood to muscles;</p> <p>lack of concentration / focus / poor decision making;</p> <p>overheat / stop sweating / unable to cool body / risk of heatstroke;</p>	2

Question	Answer	Marks
13(c)	<p><i>Examples may include:</i></p> <ul style="list-style-type: none"> have food to ensure energy to participate; have friendships that might encourage participation / positive peer pressure; feel supported by others to train and participate; have confidence to be able to mix with others / join a club or team; feel able to contribute to a team or club / take responsibilities within the team or club; essential human needs are met to allow a focus on participation / to afford sport after these needs are met; has friends and play sport together / improves teamwork / communication; <p><i>Accept negative examples.</i></p>	3
13(d)(i)	<p>A isometric contraction;</p> <p>B isotonic contraction / concentric;</p>	2
13(d)(ii)	<ul style="list-style-type: none"> improves explosive strength in legs, which would aid drive from the blocks; improves arm strength, which would aid speed of arm movement; improve muscle strength to maintain leg speed / maintain max. speed for longer; improves muscular endurance so less reduction in speed; athletes in 200 m / 400 m will have a better final kick; weight training is very effective at maintaining an ideal body weight; 	2

Question	Answer	Marks
13(e)(i)	<p>pain / soreness / stiffness;</p> <p>restricted movement;</p> <p>swelling;</p> <p>inflammation;</p> <p>discolouring / bruising;</p>	2
13(e)(ii)	<p><i>immediate:</i> rest / ice / compression / elevation;</p> <p><i>longer-term:</i> massage / heat / physiotherapy / protein-rich diet;</p>	2
13(f)(i)	<p><i>Accept any example of a sport that requires power.</i></p> <p>e.g. most track and field events / hurdling / sprints / jump events / throwing;</p> <p><i>Also accept team games.</i></p> <p>e.g. rugby / football / racket sports / martial arts / basketball / volleyball;</p>	1

Question	Answer	Marks
13(f)(ii)	<p><i>An exercise with a relevant explanation is needed for one mark.</i></p> <p><i>Exercises may include: (Any two of):</i></p> <p>two-footed jumps;</p> <p>hopping;</p> <p>bounds;</p> <p>steps;</p> <p>side steps;</p> <p>jumping over barriers;</p> <p>jumping onto boxes;</p> <p>jumping from static positions;</p> <p>clap press-ups;</p> <p>medicine ball throw;</p> <p><i>benefits may include:</i></p> <p>able to jump higher;</p> <p>increased leg power / explosive power;</p> <p>increased arm strength;</p> <p><i>Accept sport-specific benefits.</i></p>	2

Question	Answer	Marks
13(f)(iii)	age of performer; level of intensity / start with low-level equipment; exercise for short periods of time; warm up / cool down; ensure recovery time after each activity; landing areas safe and energy absorbent / equipment safe for use / surfaces are flat / footwear that can absorb impact / extra support for joints; have a good level of core strength; develop good technique before increasing intensity; equipment stable and suitable for activity; progress slowly / avoid muscle injury; appropriate supervision;	2

Question	Answer	Marks
14(a)	poor access to / lack of facilities / changing areas / pool etc.; lack of confidence; lack of media coverage of disability sports / fewer role models; lack of adaption of the sport to enable participation; lack of coaches with specialist knowledge; lack of specialist equipment / prosthetic limbs for sport and adapted wheelchairs etc. are expensive; no commitment from organisation to provide disability sports; severity of disability; lack of role models;	2

Question	Answer	Marks
14(b)	reduces the risk of serious illness – accept examples; reduce the risk of social isolation / make friends; maintain joint mobility / keeps muscles working; maintain good mental health / keeps people alert; reduce joint pain; maintain levels of strength / stamina / suppleness / fitness; maintain good posture; reduce the possibility of injury, maintain bone density; ensure people can maintain their independence for longer; improvements in cardio-vascular / respiratory health / the heart; maintain weight / prevent becoming overweight;	3

Question	Answer	Marks
14(c)	<p>high levels of self-belief / confidence / pride in performance;</p> <p>able to deal with pressure / control emotions / copes with stress of competition;</p> <p>intrinsically motivated;</p> <p>maintain high levels of focus / concentration / arousal;</p> <p>willing to take risks / makes good decisions under pressure;</p> <p>mental strength / single-minded / competitive;</p> <p>goal motivated;</p> <p>enjoyment in performance / enjoyment in training;</p> <p>cope with failure;</p> <p>able to identify positive aspects of performance / perseverance / expects to do well;</p>	4
14(d)(i)	<p>sports have become more popular / greater interest in sport;</p> <p>greater interest in sports personalities;</p> <p>now able to broadcast instantaneous sporting action;</p> <p>generally cheaper to broadcast than most other programmes;</p> <p>technology has made sports presented more interesting;</p> <p>more channels / more events / more sports;</p> <p>people want to watch sports from around the world;</p>	1

Question	Answer	Marks
14(d)(ii)	<p><i>Examples may include:</i></p> <p><i>fee-paying channels increase more because:</i></p> <p>minority sports are shown / greater range of sports shown;</p> <p>there are more fee-paying channels than free-to-view channels to meet demands of viewers / more people may watch fee-paying channels;</p> <p>events that last a whole day can be shown without disrupting schedules as the channel only shows sports;</p> <p>fee-paying companies have greater funds to gain exclusive coverage of sport / make profits to enable increased coverage;</p> <p>fee-paying companies are able to offer exclusive games / sports that creates interest and are more profitable / sponsor events / create new events;</p> <p>fee-paying companies are able to cover sports from around the world on a regular basis;</p> <p>high-profile sports clubs have their own fee-paying channel;</p> <p>fee-paying channels have dictated when sports are played / created new and different competitions;</p> <p>fee-paying channels make profit from coverage;</p> <p>fee-paying channels may offer better quality coverage;</p> <p>fee-paying channels may provide live games cheaper than attending the game;</p> <p>more people than before may be able to afford fee-paying channels;</p> <p>people who have paid a fee may want to watch more sport to make the most of the payment / willing to pay to watch sport;</p>	5

Question	Answer	Marks
	<p><i>free-to-view channels increase less because:</i></p> <p>free-to-view channels can be restricted by legislation about the amount of sport covered;</p> <p>free-to-view channels do not have as much funding available to bid for coverage of sports events;</p> <p>free-to-view channels may not be able to afford the most expensive equipment;</p> <p><i>Accept reverse arguments.</i></p> <p><i>Accept alternative valid suggestions.</i></p>	