



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**PHYSICAL EDUCATION**

**0413/13**

Paper 1

**May/June 2017**

MARK SCHEME

Maximum Mark: 80

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**Published**

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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>	<b>1</b>

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>	<b>1</b>

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>	<b>1</b>

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;	<b>1</b>

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;	<b>1</b>

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	<b>A</b> (shape and) support / movement; <b>B</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 VO<sub>2</sub> 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>	<b>4</b>

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;	<b>2</b>
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;	<b>3</b>



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;	<b>3</b>

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>	<b>4</b>

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>	<b>3</b>
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>	<b>2</b>

<b>Question</b>	<b>Answer</b>	<b>Marks</b>
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>	<b>4</b>

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>	<b>2</b>
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>	<b>2</b>

Question	Answer	Marks
13(c)	<p><i>Examples may include:</i></p> <p>have food to ensure energy to participate;</p> <p>have friendships that might encourage participation / positive peer pressure;</p> <p>feel supported by others to train and participate;</p> <p>have confidence to be able to mix with others / join a club or team;</p> <p>feel able to contribute to a team or club / take responsibilities within the team or club;</p> <p>essential human needs are met to allow a focus on participation / to afford sport after these needs are met;</p> <p>has friends and play sport together / improves teamwork / communication;</p> <p><i>Accept negative examples.</i></p>	<b>3</b>
13(d)(i)	<p><b>A</b> isometric contraction;</p> <p><b>B</b> isotonic contraction / concentric;</p>	<b>2</b>
13(d)(ii)	<p>improves explosive strength in legs, which would aid drive from the blocks;</p> <p>improves arm strength, which would aid speed of arm movement;</p> <p>improve muscle strength to maintain leg speed / maintain max. speed for longer;</p> <p>improves muscular endurance so less reduction in speed;</p> <p>athletes in 200 m / 400 m will have a better final kick;</p> <p>weight training is very effective at maintaining an ideal body weight;</p>	<b>2</b>

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



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

<b>Question</b>	<b>Answer</b>	<b>Marks</b>
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;	<b>2</b>

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

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>	<b>4</b>
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>	<b>1</b>

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>	<b>5</b>

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>	