
PHYSICAL EDUCATION

0413/12

Paper 1

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MARK SCHEME

Maximum Mark: 80

Published

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This document consists of **22** printed pages.

Question	Answer	Marks
1	intrinsic / extrinsic / rewards / incentives;	1

Question	Answer	Marks
2	all body systems work well / free from injuries and illness / able to carry out everyday tasks; <i>Accept equivalent wording.</i>	1

Question	Answer	Marks
3	easy access / able to watch events from other parts of the world / able to see the detail of the event / expert commentary gives greater understanding / able to view role models / increases viewer's interest in sport / increases participation;	1

Question	Answer	Marks
4	For example elbow / knee;	1

Question	Answer	Marks
5	become fat / over-weight / obesity / weight gain / heart disease / stroke / high blood pressure / diabetes / metabolic syndrome / cancer / osteoarthritis;	1

Question	Answer	Marks
6	open-water swimming / canoeing / hill walking / campcraft / horse riding / orienteering / rock climbing / rowing / sailing / skiing / snowboarding / windsurfing / cross-country running etc.; <i>Accept other valid answers.</i>	1

Question	Answer	Marks
7	A: deltoid; B: pectoral;	2

Question	Answer	Marks
8	<p><i>Treatments must be different. One mark for an appropriate treatment for a given injury.</i></p> <p><i>For example:</i></p> <p>stress fractures – rest / ice / physiotherapy;</p> <p>fractures – immobilise / hospital treatment;</p> <p>bruising – ice;</p> <p>dislocation – immobilise / treatment at a hospital;</p> <p>sprain / tendon injury – rest / ice / compression / elevation;</p> <p>ligament – rest / ice / immobilise / hospital treatment / physiotherapy;</p> <p>pulled muscle / strain – rest / ice / compression / elevation / ice / massage / physiotherapy / hospital treatment;</p> <p>winding – sit learning forward / massage / encourage steady breathing;</p> <p>cuts / grazes – elevate limb / cover / apply pressure to cut;</p> <p>concussion – rest / prevent from sleeping / seek medical advice;</p> <p>blister – rest / keep clean / cool;</p> <p><i>Accept physiotherapy once for a relevant injury type.</i></p> <p><i>Accept soft tissue injuries with a component of RICE.</i></p>	2

Question	Answer	Marks
9	provide base line information; monitor progress / compare to previous results; establish readiness for an event; identify areas for improvement; motivate / set goals / provide changes in routine / add interest; monitor the quality of a training programme;	3

Question	Answer	Marks
10	to decrease the chance of muscle injury; prevents blood pooling / dizziness / feeling faint; gradually / OWTTE reduces heart rate / body temperature / breathing rate; to prevent muscles soreness; shortens recovery time / allows performer to be ready to perform quicker; removes / oxidises lactic acid / repays oxygen debt; provides a time to evaluate performance;	3

Question	Answer	Marks
11	<p><i>Examples must be different.</i></p> <p><i>Examples could include:</i></p> <p>athletics – improve the accuracy of timing and measuring / the rebound quality of tracks has improved to enable sprinters to run faster;</p> <p>tennis – hawk eye / eq. has ensured the accuracy of umpires and line judge calls / tennis rackets have become lighter but generate more power / video analysis now possible;</p> <p>rugby – TMO ensures the accuracy of tries being scored with synchronised camera angles / medical improvements to develop concussion protocols enable players to be protected following head injuries;</p> <p>cycling – use of light weight but stronger materials enables more speed / clothing has become more light weight preventing vibration soreness / compression garments give improved blood flow / advanced clothing controls sweating;</p> <p><i>Accept other valid examples.</i></p>	4

Question	Answer	Marks
12(a)	<p>no environmental factors to consider;</p> <p>opponents cannot influence skill being performed;</p> <p>less to distract a performer;</p> <p>limited range of techniques needed so easier to practice / skill can be broken down into parts;</p> <p>easier to control speed or pace of activity;</p> <p>skill tends to follow set routine;</p>	2

Question	Answer	Marks
12(b)	<p><i>Allow any three descriptions:</i></p> <p><i>over:</i> loss of control; too aggressive; panic / nervous / worry / try too hard / try to play too quickly;</p> <p><i>optimum:</i> motivates to improve performance react / respond quicker; enables greater focus;</p> <p><i>under:</i> poor concentration / easily distracted; lack effort / energy at low level;</p> <p><i>Allow one mark for description of the inverted-U theory.</i></p>	3
12(c)	<p><i>No need to name the sport to gain a mark.</i></p> <p><i>Any skill-related component can be applied to each sport with a reason.</i></p> <p><i>Examples could include:</i></p> <p>picture A – speed of reaction – the performer needs to respond to the movements of the opponent / because they are in close proximity there is little time to respond;</p> <p>picture B – balance – the performer needs to be able to land when catching the ball and not overbalance otherwise cannot pass the ball quickly to a team member;</p> <p>picture C – agility – needs to be able to change direction around objects to control the speed when travelling down the slope;</p>	3

Question	Answer	Marks
12(d)	knee – flexion / extension; shoulder – flexion / extension / abduction / adduction / rotation; <i>Accept circumduction.</i> an appropriate example of a benefit to a performer of the type of movement identified for the shoulder, e.g. abduction / adduction to allow a golf swing;	3
12(e)(i)	exchange of carbon dioxide and oxygen; between the alveoli and the blood / capillaries; gases move from a high to a low concentration;	2
12(e)(ii)	increase in vital capacity / minute ventilation / the maximum volume of air that can be moved in and out of the lungs in one breath increases; increased strength of respiratory muscles / diaphragm / intercostal muscles; capillarisation / more efficient gas exchange; carbon dioxide removed more quickly from the body / oxygen delivered more quickly to the body / increased VO_2 max.;	2

Question	Answer	Marks
12(f)(i)	age; gender; medical condition; weight / current diet; aims of the person / reasons for wanting to get fit; time available; assessment of initial fitness level; previous exercise experience; range of equipment available; plan for rest periods;	2
12(f)(ii)	less tired / able to exercise for longer / increased stamina / muscular endurance; weight loss; reduction in minor illnesses; lower blood pressure; better control of blood sugar levels; reduces cholesterol; feel better / mood improves / reduces stress / more motivated;	2
12(g)(i)	cardio-vascular endurance / stamina;	1

Question	Answer	Marks
12(g)(ii)	<p>increase in oxygen carrying capacity;</p> <p>increase in the number of red blood cells;</p> <p>improved cardio-vascular endurance on return to lower altitudes;</p> <p>VO₂ max. increases;</p> <p>increase in the number of small blood vessels;</p>	2
12(g)(iii)	<p>increase in the number of red blood cells can make blood flow sluggish / thicker blood;</p> <p>extra stress on the heart / body;</p> <p>hard to breathe / reduction in oxygen reaching muscles;</p> <p>loss of muscle mass / weight loss;</p> <p>immune system is negatively affected;</p> <p>whilst acclimatising the performance level drops / get tired quickly / lower cardiovascular endurance / risk of overtraining / amount of training reduces initially;</p> <p>loss of appetite reduces muscle repair;</p> <p>altitude sickness / headache / nausea / vomiting / dizziness / insomnia;</p> <p>family issues / social disruption of being away from home;</p> <p>costs;</p>	3

Question	Answer	Marks
13(a)	reduces stress; learns how to cope with emotions / disappointment / able to re-direct thoughts; develops confidence in their own ability; develops a positive attitude / feel good about yourself; personal challenge;	2
13(b)	do not carry some equipment on your own; do not carry equipment if you feel it is too heavy / damaged; know where the equipment is going to be placed before moving it; make sure there is a clear route when carrying equipment / clear route; make sure you work with people of your own size when moving equipment; use correct lifting technique / keep back straight etc.; move slowly / do not rush; put down carefully / slowly; put all small items of equipment in a safe / secure place;	3

Question	Answer	Marks
13(c)	<p><i>One mark for one difference with an appropriate reason.</i></p> <p><i>For example:</i></p> <p><i>endurance athlete:</i></p> <p>more carbohydrate – because energy is required for a longer period of time;</p> <p>more fat – because may run out of energy from carbohydrates;</p> <p>less protein – used for muscle repair rather than growth;</p> <p>more water – stay hydrated during longer event;</p> <p><i>sprinter:</i></p> <p>sprinters eat higher levels of protein to build muscle;</p> <p>less fat – sprinters will not use fat supply and this increases weight;</p> <p><i>Accept reverse arguments. Accept alternative arguments with correct reasons.</i></p>	2

Question	Answer	Marks
13(d)	warm up and cool down correctly; use the correct equipment / footwear / clothing; (<i>Accept examples</i>) know / follow the rules / regulations; check the surface / facilities are safe to use; does not participate when tired / ill; ensure appropriate supervision / a teacher / adult is present; be fit enough to perform at appropriate level, e.g. not lifting weights that are too heavy; have correct technique; play an appropriate level / age group / weight category;	2
13(e)(i)	fartlek training / circuit training / interval training / continuous training;	1

Question	Answer	Marks
13(e)(ii)	<p><i>Max. 3 marks for advantages or disadvantage alone.</i></p> <p><i>For example for fartlek training:</i></p> <p><i>advantages:</i></p> <p>little or no equipment needed;</p> <p>well matched to activity;</p> <p>can vary speed easily;</p> <p>easy to overload as time progresses;</p> <p>rest / recovery can take place during the training session;</p> <p>changes to activity, terrain, etc. prevent boredom;</p> <p>helps prevent overuse injuries;</p> <p>as athlete progresses anaerobic aspects can be introduced / can develop both aerobic and anaerobic systems;</p> <p>low cost;</p> <p><i>disadvantages:</i></p> <p>difficult to have a training partner so becomes isolated;</p> <p>easy to avoid difficult aspects of training;</p> <p>difficult to measure progress;</p>	4

Question	Answer	Marks
13(e)(ii)	<p><i>For example for continuous training:</i></p> <p><i>advantages:</i></p> <p>well matched to activity;</p> <p>easy to carry out;</p> <p>does not require much equipment;</p> <p>good for aerobic fitness / muscle endurance;</p> <p>easy to overload;</p> <p>burns fat;</p> <p>do not need a coach / supervision;</p> <p>low cost;</p> <p><i>disadvantages:</i></p> <p>no anaerobic development;</p> <p>requires motivation;</p> <p>risk of overuse injuries;</p> <p>can be demotivating initially / hard to get started;</p> <p>can be boring;</p>	

Question	Answer	Marks
13(e)(ii)	<p><i>For example for circuit training:</i></p> <p><i>advantages:</i></p> <p>varied so does not become boring;</p> <p>easily adapted;</p> <p>easy to made social / performed with others;</p> <p>can be performed indoors or outdoors;</p> <p>low cost;</p> <p><i>disadvantages:</i></p> <p>requires a lot of equipment;</p> <p>requires time to setup;</p> <p>difficult to make stations different;</p>	

Question	Answer	Marks
13(e)(ii)	<p><i>For example for interval training:</i></p> <p><i>advantages:</i></p> <p>well matched to activity;</p> <p>can vary speed easily;</p> <p>easy to overload as time progresses;</p> <p>rest / recovery can take place during the training session;</p> <p>helps prevent overuse injuries;</p> <p>as athlete progresses anaerobic aspects can be introduced / can develop both aerobic and anaerobic systems;</p> <p>easier for coach supervision;</p> <p>low cost;</p> <p><i>disadvantages:</i></p> <p>can become boring;</p> <p>can be slower to improve;</p> <p><i>Accept other valid answers.</i></p>	
13(f)(i)	<p>isometric;</p> <p>isotonic;</p> <p><i>(Accept concentric; eccentric; isokinetic;)</i></p>	2

Question	Answer	Marks
13(f)(ii)	<p data-bbox="322 220 1697 252"><i>One mark for each advantage that must match the type of contraction. No mark for the type of contraction.</i></p> <p data-bbox="322 288 450 316"><i>isometric:</i></p> <p data-bbox="322 357 465 384">easy to do;</p> <p data-bbox="322 426 808 453">requires little time / quick to complete;</p> <p data-bbox="322 494 882 521">minimal damage to muscle / pain / stiffness;</p> <p data-bbox="322 563 763 590">no need for expensive equipment;</p> <p data-bbox="322 632 629 659">can be done anywhere;</p> <p data-bbox="322 700 658 727">improves (static) strength;</p> <p data-bbox="322 769 434 796"><i>isotonic:</i></p> <p data-bbox="322 837 645 865">builds a range of motion;</p> <p data-bbox="322 906 1413 933">strengthens muscle through a full range of movement / improves (dynamic) strength;</p> <p data-bbox="322 975 577 1002">increases flexibility;</p> <p data-bbox="322 1043 712 1070">can be applied to most sports;</p> <p data-bbox="322 1112 640 1139">wide variety of activities;</p> <p data-bbox="322 1181 792 1208">may not need expensive equipment;</p>	2

Question	Answer	Marks
13(f)(iii)	<p><i>One mark for each example.</i></p> <p><i>Examples could include:</i></p> <p><i>isometric:</i></p> <p><i>in gymnastics:</i></p> <p>when holding a position on the rings;</p> <p><i>in rugby:</i></p> <p>when avoiding being pushed back in a scrum;</p> <p><i>isotonic:</i></p> <p><i>in gymnastics:</i></p> <p>when running in the lead up to a vault;</p> <p><i>in rugby:</i></p> <p>when throwing a pass;</p>	2

Question	Answer	Marks
14(a)	attracts more sponsorship; improvement to facilities; increase in participation levels; improvements in equipment; improvement in training / standards; sport can increase in popularity; fewer people go to live game; sports with little TV coverage become less popular; seeing the same sport / team on TV reduces interest / becomes boring;	2

Question	Answer	Marks
14(b)	<p>meet the needs of a local community;</p> <p>low costs / free access to equipment / facilities;</p> <p>easy to access as locally based;</p> <p>develops greater community cohesion / interact with others;</p> <p>some sports would not take place without voluntary organisations;</p> <p>provide a safe and structured environment for young people to take part in sports / provide coaching opportunities;</p> <p>provide opportunities for inner-city groups to participate in activities in rural areas;</p> <p>provide opportunities for young people to be introduced to different sports / access competitions;</p> <p>provide opportunities for young people to be involved in coaching / admin / officiating, etc.;</p> <p>provide qualified staff for instruction of activities / to improve skills;</p> <p>can be a long-term member;</p>	3

Question	Answer	Marks
14(c)	they live near the sea / lake etc.; school introduces the sport to them; family sail and influence them / family tradition; peer influence to participate; motivated by media / recent event such as the Olympic Games; campaign by local sailing club to encourage participation; costs reduced for young participants / access the boats free, etc.; popular activity in the area they live so becomes a social activity; looks fun / exciting / for enjoyment / for interest; may be physical less demanding than other activities; less interested in team activities;	4

Question	Answer	Marks
14(d)	<p>helps maintain fitness;</p> <p>helps understand the need for a healthy lifestyle;</p> <p>adds to the enjoyment of being at school / gives a sense of identity;</p> <p>allows students to develop basic physical skills;</p> <p>allows students to develop advanced physical skills and play at a higher level / provides more time for activities;</p> <p>introduces students to new activities they might not have the opportunity to play normally;</p> <p>allows students to develop a career path / provide qualifications;</p> <p>adds to the development of confidence and self-esteem;</p> <p>teaches students self-discipline / to accept winning and losing;</p> <p>develops social skills / teamwork;</p> <p>prepares students for life after school;</p> <p>helps reduce stress / break from academic lessons;</p> <p>provides access to facilities / equipment / coaching;</p> <p>develop a positive attitude to academic studies / school work;</p>	6