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**PHYSICAL EDUCATION**

**9396/13**

Paper 1

**October/November 2017**

MARK SCHEME

Maximum Mark: 90

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**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
<b>Section A</b>		
1(a)(i)	4 marks for 4 of:  (sub-max. 2 marks) 1 pivot joint; 2 rotation;  (sub-max. 2 marks) 3 cartilaginous / semi-moveable joint / slightly movable; 4 flexion / extension / rotation;  (sub-max. 2 marks) 5 gliding joint; 6 flexion / extension / rotation / circumduction;	<b>4</b>
1(a)(ii)	4 marks for:  (external obliques) 1 cause trunk rotation / twisting; 2 an example of an activity using this type of movement;  (erector spinae) 3 cause extension / hyperextension of the spine; 4 an example of an activity using this type of movement;	<b>4</b>
1(b)	5 marks for:  1 concentric / isotonic; 2 extension; 3 gluteus maximus / biceps femoris / semimembranosus / semitendinosus; 4 (horizontal) adduction / extension; 5 trapezius / latissimus dorsi / deltoid / rotator cuff / infraspinatus / teres minor;	<b>5</b>
1(c)(i)	2 marks for any 2 of:  1 during exercise – increased venous return; 2 increased diastolic filling / preload / increased stretch of cardiac muscle / elastic; 3 increased the force of contraction / stronger / powerful; 4 known as Starling's law; 5 higher percentage of blood ejected from heart per beat / increased ejection fraction / end systolic volume lower than at rest;	<b>2</b>

Question	Answer	Marks
1(c)(ii)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 intrinsic / myogenic / heart controls own rate;</li> <li>2 sinoatrial (SA) node / pacemaker sets (sinus) rhythm / heart rate / nervous impulses;</li> <li>3 (sinoatrial (SA) node) impulses spread through (cardiac tissue in) atria, causes contraction / systole (of atria);</li> <li>4 impulses picked up by atrioventricular (AV) node (delays impulse);</li> <li>5 impulses to ventricle through bundle of His / AV bundle;</li> <li>6 Purkyne / Purkinje fibres spread out impulses (ventricles contract / systole);</li> </ol>	<b>4</b>
1(d)	<p>4 marks for 4 of:</p> <p><i>First two mechanisms offered marked.</i></p> <p>(sub-max. 2 marks)</p> <ol style="list-style-type: none"> <li>1 the skeletal pump / muscle pump mechanism;</li> <li>2 contraction of skeletal muscles compresses vein walls helping to force blood back to the heart;</li> </ol> <p>(sub-max. 2 marks)</p> <ol style="list-style-type: none"> <li>3 the respiratory pump mechanism;</li> <li>4 changes in pressure in the thoracic / chest cavity put pressure on the (abdominal) veins helping to force blood back to the heart;</li> </ol> <p>(sub-max. 2 marks)</p> <ol style="list-style-type: none"> <li>5 venous tone / smooth muscle;</li> <li>6 partial contraction of smooth muscle in the vein walls helps to force blood back to the heart;</li> </ol> <p>(sub-max. 2 marks)</p> <ol style="list-style-type: none"> <li>7 gravity;</li> <li>8 blood in veins above the heart helps force blood back to the heart;</li> </ol> <p>(sub-max. 2 marks)</p> <ol style="list-style-type: none"> <li>9 suction pressure / pumping action of the heart;</li> <li>10 pressure changes in atria causes reduced pressure in large veins which leads to blood being sucked into heart;</li> </ol>	<b>4</b>

Question	Answer	Marks
1(e)	<p>3 marks for 3 of:</p> <p>(sub-max. 2 marks)</p> <ol style="list-style-type: none"> <li>1 in blood oxygen combines with haemoglobin / forms oxyhaemoglobin;</li> <li>2 haemoglobin can carry up to four molecules of oxygen when fully saturated;</li> <li>3 oxygen diffuses into the muscle cell because of the diffusion gradient / diffusion from high to low concentration / pressure;</li> </ol> <p>(sub-max. 2 marks)</p> <ol style="list-style-type: none"> <li>4 myoglobin has higher affinity for oxygen than haemoglobin / haemoglobin has a lower affinity;</li> <li>5 myoglobin acts as a temporary store / transporter of oxygen to the mitochondria / site of aerobic respiration;</li> </ol>	<b>3</b>
1(f)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 lots of alveoli – increased surface area for diffusion;</li> <li>2 layer of moisture in the alveoli – dissolves oxygen and aids diffusion;</li> <li>3 thin / semi-permeable / one-cell thick walls of alveoli – increasing diffusion rate;</li> <li>4 capillaries surround the alveoli – large contact area for diffusion of gases into blood stream;</li> <li>5 surfactant within the alveoli – reduces the tendency of alveoli / lungs to collapse;</li> <li>6 elastic fibres in alveolar walls – lungs can recoil (to change volume / aid ventilation);</li> <li>7 small diameter of capillaries – slow transit time / compression of red blood cells;</li> </ol>	<b>4</b>

Question	Answer	Marks
<b>Section B</b>		
2(a)	<p>4 marks for:</p> <p><i>Accept alternate classifications if justified.</i></p> <ol style="list-style-type: none"> <li>1 closed, e.g. – unchanging / stable environment / few decisions;</li> <li>2 internally-paced – performer decides when to start / how fast to perform;</li> <li>3 discrete – clear beginning and end;</li> <li>4 high organisation – difficult to separate sub-routines / practice as whole skill / lots of information to process / many decisions to be made;</li> </ol>	<b>4</b>
2(b)	<p>4 marks for any 4 of:</p> <p><i>Max. 3 marks if no example.</i></p> <ol style="list-style-type: none"> <li>1 motor ability named, e.g. strength / speed / OR stated that abilities are innate / genetic;</li> <li>2 needed as foundation / basis to build skill learning / building block, e.g. you need co-ordination before learning a catch in cricket;</li> <li>3 fundamental motor skill named, e.g. running / catching / throwing / kicking;</li> <li>4 an example of the skill being developed from the fundamental form, e.g. the push to the flick in hockey / kicking ball to passing in football / simple catch to complex skill;</li> <li>5 needs practice / repetition / reinforcement of movement to help learning;</li> <li>6 this gets refined / adapted / more complex through teaching / coaching;</li> </ol>	<b>4</b>
2(c)	<p>5 marks for 5 of:</p> <p>(sub-max. 4 marks)</p> <ol style="list-style-type: none"> <li>1 Gestaltist approach / insight learning;</li> <li>2 skill is treated holistically / wholeness;</li> <li>3 learner develops an understanding / requirements of skill;</li> <li>4 learner takes into consideration aspects of the environment / display / perception before deciding appropriate response;</li> </ol> <p><i>benefits:</i></p> <ol style="list-style-type: none"> <li>5 adaptable / able to be modified;</li> <li>6 encourages problem solving / discovery / finding out / independent learners;</li> <li>7 increases motivation;</li> <li>8 learn at own pace;</li> </ol>	<b>5</b>

Question	Answer	Marks
2(d)	<p>5 marks for any 5 of:</p> <ol style="list-style-type: none"> <li>1 (involves) short-term sensory store / STSS, short-term memory / STM and long-term memory / LTM – all three parts named for credit;</li> <li>2 STSS receives information from the display / environment;</li> <li>3 STSS – selective attention happens / important information is filtered in / irrelevant information is filtered out / information to STM;</li> <li>4 STM – ‘working memory’ / organises or chunks information / limited capacity;</li> <li>5 STM – encodes / sends information to LTM;</li> <li>6 STM runs motor programmes;</li> <li>7 LTM – stores or remembers information or patterns of movement / motor programmes indefinitely / unlimited capacity;</li> <li>8 LTM decodes / sends information (to STM);</li> <li>9 LTM involved in DCR process;</li> <li>10 memory process affects or influences perception / helps judge or interpret what needs to be done (to perform or learn the movement);</li> </ol> <p><i>Accept annotated diagrams.</i></p>	<b>5</b>
2(e)	<p>3 marks for any 3 of:</p> <ol style="list-style-type: none"> <li>1 positive reinforcement is praise / encouragement / rewards / self-satisfaction;</li> <li>2 use of suitable specific example of positive reinforcement, e.g. encouragement from a coach;</li> <li>3 negative is the removal of criticism / unpleasant stimulus;</li> <li>4 use of suitable specific example of negative reinforcement, e.g. coach stops shouting;</li> </ol>	<b>3</b>
2(f)	<p>3 marks for any 3 of:</p> <ol style="list-style-type: none"> <li>1 information overload / too much to take in;</li> <li>2 poor selective attention;</li> <li>3 focus on inappropriate stimuli / signal / cue;</li> <li>4 unable to focus on correct / appropriate cue / signal;</li> <li>5 unable to look at both defender and support player;</li> <li>6 loss of concentration;</li> </ol>	<b>3</b>

Question	Answer	Marks
2(g)	6 marks for 6 of:  1 performers have drive / need / motivation / desire to achieve / solve a problem / to win / learn; 2 practice / rehearsal / performance takes place (to satisfy this need or drive); 3 if skill is performed successfully then learning is reinforced; 4 drive is reduced when success (perceived) is experienced / goals are met; 5 therefore motivation to do more decreases; 6 too much practice leads to drive reduction / reactive inhibition; 7 new tasks / goals / motivation may be needed to remove this reduction in drive; 8 therefore need for more motivation; 9 therefore need to rest / take breaks / use distributed practice;	<b>6</b>

Question	Answer	Marks
<b>Section C</b>		
3(a)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 develops health / fitness;</li> <li>2 physical education programmes offer a variety / range of sporting activities in programme / create teams;</li> <li>3 teaches basic (sports) skills to give confidence;</li> <li>4 encourages a positive attitude to activity;</li> <li>5 programme is fun / enjoyable to encourage participation;</li> <li>6 develops ethics / value of activities / sportsmanship / fair play / respect;</li> <li>7 has after school / extra-curricular activities;</li> <li>8 publicised participation opportunities / school-club links;</li> <li>9 compulsory;</li> <li>10 employs specialist well-qualified teachers / staff / specialist facilities / coaches;</li> </ol>	<b>4</b>
3(b)	<p>4 marks for any 4 of:</p> <p><i>real risk:</i></p> <ol style="list-style-type: none"> <li>1 risk / danger from activity / injury, e.g. fall from the rock face / capsize;</li> <li>2 risk / danger from environment, e.g. rock fall / flooding / weather / tides / currents / rapids;</li> <li>3 planned for, e.g. weather forecast / route planning / observation;</li> </ol> <p><i>perceived risk:</i></p> <ol style="list-style-type: none"> <li>4 think of the risk – e.g. may fall / scared of heights / weak swimmer;</li> <li>5 risk can be controlled / limited, e.g. harness for rock climbing / wearing life jacket;</li> <li>6 causes excitement / adrenaline / used as a learning experience through planning;</li> </ol>	<b>4</b>
3(c)(i)	<p>4 marks for:</p> <p><i>Needs correct name and explanation of each level for each mark.</i></p> <ol style="list-style-type: none"> <li>1 foundation: introduction to sport / learning basic movement skills / experiencing a variety of activities / grass-roots level / school PE programme;</li> <li>2 participation: choosing certain activities / recreational level / extra-curricular involvement;</li> <li>3 performance – commitment to training / improving performance / performing as well as possible;</li> <li>4 elite: excellent performance / representative / national / international level / professional;</li> </ol>	<b>4</b>



Question	Answer	Marks
3(c)(ii)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 provision for funding / grants / sponsorship / scholarships;</li> <li>2 provision of facilities – local / regional / national / equipment / technology;</li> <li>3 provision / education of coaches;</li> <li>4 provision of centres of excellence / sports schools / universities / academies;</li> <li>5 provision of support – medical / sport science;</li> <li>6 description of government policies / initiatives / schemes / relating to talent ID and talent development;</li> <li>7 description of pathways / progression in place to maintain excellence / organisation of sport;</li> <li>8 description of policies showing attitudes for excellence;</li> </ol>	<b>4</b>
3(d)(i)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 physical health and fitness;</li> <li>2 mental health / personal challenge / satisfaction of success / strive to achieve high standards / improve self-esteem;</li> <li>3 enjoyment / intrinsic rewards;</li> <li>4 become skilful / knowledgeable;</li> <li>5 social health / socialising / part of a team / life skills, e.g. leadership;</li> <li>6 possibility of employment / professional performer / coach;</li> <li>7 fame / praise / medals / status;</li> <li>8 keep out of trouble / hobby;</li> <li>9 learning cultural values, e.g. ethics / losing / winning;</li> </ol>	<b>4</b>
3(d)(ii)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 lack of motivation / lazy;</li> <li>2 lack of opportunity / few facilities / poor infrastructure;</li> <li>3 lack of time / money / transport / resources / other commitments;</li> <li>4 illness / disability / injury / fear of not being good enough / lack of confidence;</li> <li>5 lack of initial training / family support / peer pressure;</li> <li>6 fear of discrimination / prejudice / stereotyping;</li> <li>7 sport having a low status within social group / cultural limitations;</li> <li>8 lack of ability / fitness / obesity;</li> <li>9 lack of education / knowledge about benefits of involvement;</li> </ol>	<b>4</b>

Question	Answer	Marks
3(e)	<p>6 marks for 6 of:</p> <p>(sub-max. of 4 marks per section)</p> <p><i>positives:</i></p> <ol style="list-style-type: none"> <li>1 increased access to watch sport / live coverage;</li> <li>2 higher standards of performance;</li> <li>3 high-quality stadia / facilities;</li> <li>4 enhanced viewing experience / interactive technology;</li> <li>5 greater awareness / knowledge of the sport / creates role models;</li> <li>6 rules changed to become more exciting spectacle;</li> <li>7 influenced elimination of negative aspects of sport, e.g. hooliganism / responsible reporting;</li> </ol> <p><i>negatives:</i></p> <ol style="list-style-type: none"> <li>8 events moved and scheduled depending on prime time / highest viewing figures;</li> <li>9 reduced attendance / crowds due to media output / lack of atmosphere;</li> <li>10 event interrupted to accommodate adverts / commercial breaks;</li> <li>11 traditional nature of the game may have to alter / rule changes / time-outs / clothing;</li> <li>12 increased cost / ticket prices / pay-to-view / satellite TV;</li> <li>13 merchandise expensive / replica kit frequently changed;</li> <li>14 irresponsible reporting can lead to spectator violence / deviant behaviour;</li> </ol>	<b>6</b>