

## **Cambridge International Examinations**

Cambridge International Advanced Subsidiary and Advanced Level

PHYSICAL EDUCATION 9396/12

Paper 1 October/November 2016

MARK SCHEME
Maximum Mark: 90



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Page 2	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
Section A		
1(a)	4 types for 2 marks, 2 or 3 types for 1 mark:  1. flexion; 2. extension; 3. adduction; 4. abduction; 5. rotation; 6. circumduction;	2
1(b)	<ol> <li>concentric/isotonic;</li> <li>rectus femoris;</li> <li>vastus lateralis/vastus medialis/vastus intermedius;         (2 and 3 in any order)</li> <li>extension;</li> <li>gluteus maximus;</li> </ol>	5
1(c)(i)	<ol> <li>4 marks for any 4 of:</li> <li>blood enters atria during (atrial) diastole;</li> <li>because ventricular pressure is lower than atrial pressure (ventricular diastole);</li> <li>atrioventricular/tricuspid/bicuspid valves are open;</li> <li>atria contract/(atrial) systole and blood flows from atria to ventricles;</li> <li>ventricles contract (ventricular) systole;</li> <li>(interventricular) pressure increases;</li> <li>atrioventricular/tricuspid/bicuspid valves close/semilunar valves open;</li> <li>blood leaves heart into the aorta/pulmonary artery;</li> <li>semilunar valves close;</li> </ol>	4
1(c)(ii)	2 marks for any 2 of:  1. diastolic phase shortens; 2. less time for blood to fill atria; 3. ventricular filling becomes active process; 4. atrial systole is stronger;	2

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Question	Answer	Marks
1(d)	4 marks for 4 of:	4
	<ul> <li>(sub-max. 2 marks)</li> <li>1. the skeletal/muscle/pump mechanism;</li> <li>2. contraction of skeletal muscles compresses vein walls helping to force blood back to the heart;</li> </ul>	
	<ul> <li>(sub-max. 2 marks)</li> <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> </ul>	
	<ul><li>(sub-max. 2 marks)</li><li>5. venous tone;</li><li>6. partial contraction of smooth muscle in the vein wall helps to force blood back to the heart;</li></ul>	
	(sub-max. 2 marks) 7. gravity; 8. blood in veins above the heart helps force blood back to the heart;	
1(e)	4 marks for any 4 of:	4
	<ol> <li>vasomotor control centre/in the medulla;</li> <li>sympathetic nervous system;</li> <li>action of smooth muscle/pre-capillary sphincters;</li> <li>vasodilation/widening of arterioles leads to more blood going to working muscles;</li> <li>vasoconstriction/narrowing of arterioles;</li> <li>decreasing the amount of blood going to non-essential organs/e.g. gut/kidneys/inactive muscles;</li> </ol>	
1(f)(i)	4 marks for any 4 of:	4
	<ol> <li>large cross-sectional area;</li> <li>allow for passage of oxygen/carbon dioxide/air;</li> </ol>	
	<ol> <li>muscular walls/smooth muscle;</li> <li>dilate/constrict airways;</li> </ol>	
	<ul><li>5. ciliated epithelial cells/goblet cells/secrete mucus;</li><li>6. remove dust/particles/pathogens/eq.;</li></ul>	
	7. rings of cartilage; 8. maintain passage / prevent collapse of bronchi;	

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Question	Answer	Marks
1(f)(ii)	5 marks for any 5 of:	5
	<ol> <li>detect increases in blood carbon dioxide/acidity/lactic acid levels/decrease in pH/role of chemoreceptors;</li> <li>detect changes in temperature/role of thermoreceptors;</li> <li>detect decreases in blood pressure/role of baroreceptors;</li> <li>detect movement in muscles and need for more oxygen/role of mechanoreceptors/proprioceptors;</li> <li>detect inflation of the lungs/role of stretch receptors;</li> <li>prevent overstretching of lungs (this point linked to point 5)/Hering-Breuer reflex;</li> <li>adrenaline release increases respiration rate;</li> <li>information sent to the Respiratory Control Centre/medulla;</li> </ol>	

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Question	Answer	Marks
Section B		
2(a)	4 marks for any 4 of:	4
	<ul> <li>simple skill –</li> <li>one or few stimuli to process/limited information to process/one or few decisions to make/skill with few subroutines/limited cognitive demand/limited perceptual requirements/less feedback/limited decision making/one movement;</li> <li>e.g. running/sprinting/sprint start/throwing/kicking/jumping;</li> </ul>	
	<ul> <li>complex skill –</li> <li>3. many stimuli to process/lots of information to process/many decisions to make/ increased perceptual requirements/more feedback/skill with more/many subroutines/several movements;</li> <li>4. e.g. batting or bowling in cricket/basketball dribble/tennis serve/hitting a ball/gymnastics routine/somersault/high jump/triple jump/golf swing/receiving a ball in a game/delivering a pass in a game;</li> </ul>	
2(b)(i)	4 marks for 4 of:	4
	(max. 2 marks if no example)	
	<ol> <li>(negative reinforcement) when the stimulus is withdrawn when the desired response occurs;</li> <li>e.g. removal of criticism from coach when player is successful/eq.;</li> <li>(punishment) – giving a stimulus to prevent a response reoccurring/eq.;</li> <li>being shouted at/press ups/sin bin/cards/eq.;</li> </ol>	
2(b)(ii)	3 marks for any 3 of:	3
	<ol> <li>praise from the coach;</li> <li>use of rewards/man of the match/other suitable example;</li> <li>increases the probability of a desired response/strengthens the S-R bond;</li> <li>success at the skill/self-satisfaction;</li> </ol>	
2(b)(iii)	3 marks for any 3 of:	3
	<ol> <li>trial and error learning;</li> <li>learning depends on consequences of action;</li> <li>manipulation of the environment to get the desired action;</li> <li>shaping;</li> <li>appropriate example, e.g. target areas/lower baskets/eq.;</li> </ol>	

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Question	Answer	Marks
2(c)	4 marks for 4 of:  (max. 3 marks if no example)  1. suitable example of skill that has time for adjustments to be made;  (sub-max. 3 marks)  2. involves/time for feedback (accept diagrams);  3. movements initiated by a memory trace;  4. this control is internal/involves proprioceptors/kinesthesis;  5. information used to detect errors;  6. perceptual trace;  7. compared to memory trace;  8. if traces match – movement continues;  9. if traces different – adjustments made to movement/corrections;	4
2(d)	<ol> <li>(schema) – a set of relationships involving joint actions and muscular contractions which can be adapted to produce a movement;</li> <li>recall schema includes knowledge of initial conditions and knowledge of response specifications;</li> <li>learner takes into account the environment/display;</li> <li>learner decides what to do, e.g. I need to use both hands to dribble round the defender;</li> <li>recognition schema includes sensory consequences and movement outcomes;</li> <li>using kinaesthetic feedback/feelings/knowledge of performance to judge whether to modify the movement or to check whether it feels right;</li> <li>the player uses knowledge of results to check whether the outcome is effective;</li> </ol>	5
2(e)	<ol> <li>3 marks for any 3 of:         <ul> <li>(Allow relevant practical examples.)</li> </ul> </li> <li>perception interprets or judges information;</li> <li>perception filters/selects information/enables focus/selective attention/concentration/detection of appropriate stimuli;</li> <li>perception codes information/makes sense of it to the individual;</li> <li>Detection Comparison Recognition/DCR process;</li> <li>perception includes use of the memory/experiences;</li> <li>perception uses motor programmes from LTM/recognition of appropriate movement patterns/stimuli;</li> <li>perception uses schema to refine/inform processing/makes performance effective;</li> </ol>	3

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2(f)	<ol> <li>movement time – the time taken from the initiation of response to end of response / time from start to completion of the movement;</li> <li>e.g. swimming – executing the dive from blocks to entry into water; sprinting – pushing off blocks and starting/completing race;</li> <li>reaction time – time from gun/go signal to initiation of response/time to decide a response to a given stimulus/time taken from the onset of the stimulus to the beginning of the movement;</li> <li>e.g. hearing the command/go to making the first movement/eq.;</li> </ol>	4

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Question	An	swer	Marks
Section C			
3(a)	<ol> <li>4 marks for any 4 of:</li> <li>improve health/fitness;</li> <li>cathartic/fun/enjoyment;</li> <li>motor skill development;</li> <li>personal skill development/fulfilment/self-esteem/well-being/self-awareness/knowing strengths and weaknesses/personal limits;</li> <li>socialising/with others/friends;</li> <li>learning values/norms;</li> <li>lifelong learning/career/qualifications;</li> <li>appreciation of natural environment;</li> <li>appreciation of risk/adrenaline rush;</li> </ol>		
3(b)	sport  1. competitive/winners and losers/extrinsic rewards  2. not necessarily  3. elitist/selected  4. choice/voluntary/free-time  5. aims to develop specific skills/fitness  6. serious/commitment  7. not necessarily	physical education not necessarily  educational/in schools/lessons for all/everybody compulsory aims to develop motor skills/health/release stress/increase participation non-serious/fun develop understanding/learning/morals/ethics/fair play	4
3(c)(i)	<ol> <li>4 marks for any 4 of:</li> <li>high standard of performance/highly skilled;</li> <li>few performers reach this level;</li> <li>many are full-time performers/professional;</li> <li>large spectator appeal/TV coverage/media interest;</li> <li>high expectations from spectators/nation;</li> <li>funding required to reach this level;</li> <li>support structures required;</li> <li>multi-organisational approach to develop elite performers/facilities;</li> </ol>		4

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3(c)(ii)	<ol> <li>4 marks for 4 of:</li> <li>(foundation) – introduction to sport/learning basic movement skills/experiencing a variety of activities/grass-roots level/school PE programme;</li> <li>(participation) – regular participation/choosing certain activities/recreational level/extra-curricular involvement;</li> <li>(performance) – commitment to training/improving performance/performing as well as possible;</li> <li>(excellence) – outstanding performance/national/international/elite level/professional approach/regional/representative level;</li> </ol>	4
3(c)(iii)	<ol> <li>high skill/ability levels;</li> <li>fitness/eq. component;</li> <li>dedication to training/motivation/psychological eq.;</li> <li>high/specialist levels of coaching;</li> <li>specialist sport science support – e.g. medical/nutrition/biomechanical/psychological;</li> <li>high-quality facilities/specialist space/best equipment;</li> <li>funding/sponsorship;</li> <li>suitable/high-quality events/competitions;</li> <li>development pathway/world-class performance programme/good organisation/structure;</li> </ol>	5
3(d)	<ol> <li>stereotyping/labelling by society/looked down on;</li> <li>discrimination;</li> <li>lack of access/transport;</li> <li>poor self-image;</li> <li>lack of personal/disposable income/lack of funding from external sources;</li> <li>safety concerns;</li> <li>lack of specialist coaches;</li> <li>lack of specialist facilities within venue;</li> <li>fewer competitions;</li> <li>lack of role models;</li> </ol>	5
3(e)	<ol> <li>4 marks for any 4 of:</li> <li>pressure from media/win-at-all-costs attitude;</li> <li>high expectation of supporters/coaches/family;</li> <li>financial rewards depend on result;</li> <li>fear of losing contract/hire and fire culture;</li> <li>officials decisions/frustration;</li> <li>retaliation due to foul play;</li> <li>incitement from crowd/own players;</li> <li>use of drugs;</li> <li>psychological inadequacies;</li> </ol>	4