
PHYSICAL EDUCATION

9396/11

Paper 1

October/November 2017

MARK SCHEME

Maximum Mark: 90

Published

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This document consists of **9** printed pages.

| Question | Answer | Marks |
|------------------|---|----------|
| Section A | | |
| 1(a) | <p>4 marks for 4 of:</p> <p>(sub-max. 2)</p> <p>1 movement created when one muscle contracts AND another muscle relaxes;</p> <p>2 movements at elbow are flexion AND extension;</p> <p>(sub-max. 2)</p> <p><i>during flexion:</i></p> <p>3 biceps brachii acts as <u>agonist</u> / <u>prime mover</u>;</p> <p>4 (agonist) muscle shortens (under tension);</p> <p>5 joint angle is reduced / concentric;</p> <p>6 triceps brachii acts as <u>antagonist</u>;</p> <p><i>during extension:</i></p> <p>7 triceps brachii as <u>agonist</u> / <u>prime mover</u>;</p> <p>8 (agonist) muscle shortens (under tension);</p> <p>9 joint angle is increased / eccentric;</p> <p>10 biceps brachii is <u>antagonist</u>;</p> | 4 |
| 1(b)(i) | <p>1 mark for:</p> <p>1 isokinetic: movement AND isometric: no movement;</p> | 1 |
| 1(b)(ii) | <p>1 mark for:</p> <p>1 concentric: muscle shortens AND eccentric: muscle lengthens;</p> | 1 |
| 1(c) | <p>5 marks for:</p> <p>1 concentric / isotonic;</p> <p>2 flexion;</p> <p>3 iliopsoas / sartorius / rectus femoris;</p> <p>4 extension;</p> <p>5 latissimus dorsi / supraspinatus / subscapularis / infraspinatus / teres minor / pectoralis major / rotator cuff muscles / (posterior) deltoid;</p> | 5 |
| 1(d)(i) | <p>3 marks for:</p> <p>1 cardiac output: volume of blood leaving the heart / left ventricle <u>per minute</u>;</p> <p>2 stroke volume: volume of blood leaving the heart / left ventricle <u>per beat</u>;</p> <p>3 cardiac output = stroke volume x heart rate / $Q = SV \cdot HR$;</p> | 3 |
| 1(d)(ii) | <p>2 marks for:</p> <p>1 cardiac output: same / unchanged;</p> <p>2 stroke volume: increases / larger;</p> | 2 |

| Question | Answer | Marks |
|-----------|--|----------|
| 1(d)(iii) | 4 marks for any 4 of: 1 during exercise – increased venous return; 2 increased diastolic filling / preload; 3 increased stretch of cardiac muscle / elastic; 4 increased the force of contraction / stronger / more powerful; 5 known as Starling’s law; 6 higher percentage of blood ejected from heart per beat / increased ejection fraction; 7 end systolic volume lower than at rest; | 4 |
| 1(e) | 3 marks for 3 of: (sub-max. 2 marks) <i>oxygen:</i> 1 combines with haemoglobin / forms oxyhaemoglobin; 2 dissolved / eq. in blood plasma; (sub-max. 2 marks) <i>carbon dioxide:</i> 3 as bicarbonate / hydrogen carbonate ions / carbonic acid; 4 dissolved / eq. in blood plasma; 5 combined / eq. with plasma proteins / haemoglobin / as carbaminohaemoglobin; | 3 |
| 1(f)(i) | 3 marks for any 3 of: (<i>during exercise</i>) 1 rate / depth of breathing increases; 2 additional muscles are used; <i>inspiration:</i> 3 increases size / volume of the thorax / chest cavity / lungs; 4 helped by sternocleidomastoid / scalenes / pectoralis minor; <i>expiration:</i> 5 pull ribcage quickly / powerfully downwards; 6 helped by internal intercostal muscles / rectus abdominus / abdominals; | 3 |

| Question | Answer | Marks |
|----------|---|----------|
| 1(f)(ii) | 4 marks for any 4 of: 1 cardiac hypertrophy; 2 bradycardia; 3 less oxygen used by heart – more available to muscles; 4 increased capillary density / more capillaries at alveoli and / or muscle; 5 increased blood flow to lungs / greater pulmonary diffusion gradient; 6 increased number / size / density of mitochondria; 7 increased myoglobin content; 8 increased oxidative enzyme activity; 9 increased glycogen / triglyceride stores; 10 increased maximal minute ventilation; 11 increased arterio-venous oxygen difference / VO_2 max.; 12 increased blood volume / more red blood cells / erythrocytes / haemoglobin; 13 delayed lactate threshold / OBLA; | 4 |

| Question | Answer | Marks |
|------------------|---|----------|
| Section B | | |
| 2(a) | <p>4 marks for:</p> <p><i>Max. 3 marks if no examples.</i></p> <ol style="list-style-type: none"> 1 open – affected by the environment / needs adapting / closed-loop control / many decisions, e.g. pass in football / netball / basketball / tennis stroke; 2 serial – skill made up of two or more discrete elements / sub-routines readily separated / separate skills involved in whole movement, e.g. a triple jump / a gymnastics routine; 3 complex – many stimuli / lots of information to process / many decisions to make / more feedback / skill with more or many subroutines, e.g. basketball dribble / tennis serve / receiving / delivering a pass in a game; 4 high organisation – sub-routines difficult to separate from whole movement / practised as part of whole movement / large amounts of information to be processed / many decisions to be made quickly, e.g. pole vault / complex gymnastic moves / diving / trampolining skill / discus / hammer throw; | 4 |
| 2(b)(i) | <p>1 mark for:</p> <ol style="list-style-type: none"> 1 innate / born with / heredity / genetic predisposition to certain activities / skills / tasks; | 1 |
| 2(b)(ii) | <p>2 marks for:</p> <ol style="list-style-type: none"> 1 (gross motor ability) strength / speed / stamina / agility / power / eq; 2 (psychomotor ability) balance / hand-eye co-ordination / spatial awareness / reaction time / eq.; | 2 |
| 2(c) | <p>4 marks for 4 of:</p> <p>(sub-max. 1 mark)</p> <ol style="list-style-type: none"> 1 example, high jump made-up of run-up, take-off, flight and landing / eq.; <p>(sub-max. 3 marks)</p> <ol style="list-style-type: none"> 2 series of sub-routines / set of neural commands; 3 completed in the correct sequence / order; 4 stored in long-term memory; 5 run from short-term memory; 6 effector mechanism / nervous system transfers EMP to muscles; 7 well learnt sub-routines become sub-conscious / relegated for new skill to be developed; | 4 |

| Question | Answer | Marks |
|----------|--|----------|
| 2(d) | <p>6 marks for any 6 of:</p> <ol style="list-style-type: none"> 1 information stored in long-term memory; 2 generalised series of motor programmes; 3 recall schema; 4 errors in practice are used to learn what not to do; 5 coach manipulates environment so learner experiences variety of situations / varied practice; 6 initial conditions – learner takes into account the environment; 7 response specifications – learner decides what to do / how to perform skill; 8 recognition schema controls the movement; 9 sensory consequences – kinaesthetic / intrinsic feedback / feelings – to judge whether to modify movement / check whether it feels right; 10 response outcomes – use knowledge of results to check whether outcome is effective; | 6 |
| 2(e) | <p>6 marks for 6 of:</p> <p>(sub-max. 2 marks)</p> <ol style="list-style-type: none"> 1 perceptual mechanisms – interprets / judges / identifies information; 2 perceptual mechanisms involves DCR process; 3 selective attention occurs; <p>(sub-max. 2 marks)</p> <ol style="list-style-type: none"> 4 translatory mechanisms (decision-making) – chooses / decides action to take; 5 translatory mechanisms (decision-making) – involves STM / LTM; <p>(sub-max. 2 marks)</p> <ol style="list-style-type: none"> 6 effector mechanisms – selects motor programme; 7 effector mechanisms – stored in LTM / run via STM; 8 effector mechanisms – programs response / relays decisions to muscular system; | 6 |
| 2(f)(i) | <p>3 marks for any 3 of:</p> <ol style="list-style-type: none"> 1 identify errors; 2 correct / improve / adapt; 3 motivate / encourage / confidence; 4 reinforce effective movements / ensure repetition; 5 control stress / arousal / anxiety; 6 set goals for improvement; | 3 |

| Question | Answer | Marks |
|----------|--|----------|
| 2(f)(ii) | 4 marks for: <i>Max. 2 marks without examples.</i> 1 knowledge of performance: getting (intrinsic / extrinsic) feedback about an action / movement; 2 e.g. tennis serve technique OR getting information about whether a strategy worked in basketball; 3 knowledge of results: getting feedback from official / coach / crowd about outcome; 4 e.g. points awarded for floor routine OR points scored in basketball; | 4 |

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|------------------|---|----------|
| Section C | | |
| 3(a)(i) | <p>4 marks for 4 of:</p> <p>(sub-max. 2 marks for active leisure:)</p> <ol style="list-style-type: none"> 1 activity done in free time / time away from obligations; 2 for fitness / health benefits; 3 taking part in outdoor activity as a life-time activity; <p>(sub-max. 2 marks for adventure and risk:)</p> <ol style="list-style-type: none"> 4 outside of comfort zone / unpredictability of natural environment / feelings of challenge / fear of unknown; 5 presence of danger / hazards / perceived or real; 6 beginner – avoid (perceived) risk by careful planning / safety codes / equipment / risk assessments / subjective danger; 7 expert – more risk / objective danger / takes on real risk; | 4 |
| 3(a)(ii) | <p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> 1 adapted equipment / facilities / developments in technology / inventions; 2 equal opportunities / legislation / inclusion / social acceptance; 3 increased funding; 4 organisations / agencies / campaigns to help disabled; 5 more specialised coaches / helpers / support for disabled; 6 more disabled role models / media coverage of disabled performers; 7 increased understanding / awareness of benefits of activity for the disabled; 8 greater understanding of capabilities of the disabled; | 4 |
| 3(b)(i) | <p>2 marks for any 2 of:</p> <ol style="list-style-type: none"> 1 refers to performers who have reached excellence; 2 this relates to national and international standards; 3 top of the performance pyramid / few achieve this level; 4 mostly professional / includes able-bodied or disabled; | 2 |
| 3(b)(ii) | <p>5 marks for any 5 of:</p> <ol style="list-style-type: none"> 1 talent-identification programme / talent spotting / regional scouts; 2 attract funding / sponsorship / media income / TV deals / athlete personal award; 3 high-quality facilities / centres of excellence; 4 support, e.g. sport science / medical / psychological support / physiotherapy / nutritional advice / biomechanics; 5 structured levels of competition; 6 coaching structure / high-quality coaching; 7 structured progression route / development squads / training camps; 8 co-ordinated approach from sporting authorities / whole sport plans; 9 holistic approach / education and career support / athlete career education; | 5 |

| Question | Answer | Marks |
|----------|--|----------|
| 3(c) | <p>6 marks for any 6 of:</p> <ol style="list-style-type: none"> 1 raise awareness through advertising / publicity / development officers / taster / promotional days; 2 reduce costs for use / make affordable / accessible; 3 develop existing / build facilities in inner city / deprived / rural areas; 4 use sport ambassadors / personalities / role models; 5 more scouts / coaches; 6 focus / target groups; 7 award schemes / extrinsic motivation; 8 modified / adapted sports; 9 improve links within schools / school-club links; 10 follow government guidelines, e.g. best value / equity policies; 11 change attitudes (prejudice / discrimination etc.) within the sport; 12 change structural barriers, e.g. membership restrictions / more clubs / leagues; | 6 |
| 3(d)(i) | <p>5 marks for any 5 of:</p> <ol style="list-style-type: none"> 1 importance of occasion / match / need to win / win-at-all-costs attitude; 2 media hype / local derby / importance of game; 3 incitement by crowds / opposition / retaliation / coach; 4 referee's decisions; 5 over-arousal of players / use of drugs / high adrenaline / stress; 6 frustration / losing / unable to play well; 7 type of activity – physical contact makes violence more prevalent; 8 use of weapons / cues – (ice) hockey sticks; 9 dehumanisation of players – helmets; | 5 |
| 3(d)(ii) | <p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> 1 campaigns to promote sportsmanship / fair play awards / educate; 2 better officiating / citing after game / use of technology to help officials / fourth official; 3 rules changed to promote fair play / no tackling from behind / late / high tackles; 4 (on the field) penalties / sin bins / bookings; 5 (off the field) fines / bans; 6 punish the club – deduct points / matches behind closed doors; 7 positive role models / name and shame bad role models; 8 codes of conduct for players / spectators; 9 drug testing; 10 encourage respect for officials / captains only allowed to question decisions; | 4 |