



Mark Scheme (Results)

Summer 2019

Pearson Edexcel GCE
In Physical Education (9PE0)
Paper 01: Scientific Principles of Physical
Education

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Section A

Question Number	Answer	Additional Guidance	Mark
1a	Muscle primarily responsible for a given movement.	Accept main muscle or prime mover	(1)

Question Number	Answer	Additional Guidance	Mark
1b	A muscle that opposes an agonist for a given movement (and prevents overstretching of the agonist)	An example on its own would not be awarded a mark. However an example can clarify the definition. The answer must refer to a pair of muscles i.e opposite to the agonist.	(1)

Question Number	Answer	Additional Guidance	Mark
2	<ul style="list-style-type: none"> • An increase in the velocity of the moving object is directly proportional to the force applied and inversely proportional to the object's mass / The object will accelerate in the direction of the external force / $F=Ma$ • Any suitable Applied example. • E.g. If you throw a larger object with the same force the net force is less and it will not accelerate as much and not go as far. E.g. a bowling a heavier ball. 	<p>1 mark for the law and 1 mark for application</p> <p>In summarising the law, $F=Ma$ would have to be substantiated</p>	(2)

Question Number	Answer	Additional Guidance	Mark
3	<ul style="list-style-type: none"> • Stage 1/eccentric – stretch the muscles to preload/store energy • Stage 2/amortisation – the delay between stages 1 and 3 • Stage 3/concentric – the contraction gained as a result of stages 1 and 2. 	<p>No marks for naming only</p> <p>Summary can be used without naming the contraction type</p> <p>The stages must be in the correct order</p>	(3)

Question Number	Indicative Content		Additional Guidance	Mark
4	Anatomical Structure	Function	Answers are restricted	
	Nasal Cavity	Warms, filters, moistens air /Allows air to be inhaled	to the respiratory system,	
	Larynx	Houses vocal cords and manipulates pitch and volume	which extends	
	Pharynx	Receives food from mouth/moisten air	from the nasal cavity	
	Trachea	Provides air flow to bronchi	to the alveoli, and	
	Bronchus	Passageways to Lungs	not	
	Bronchiole	Passageways to alveoli	ventilation, therefore	
	Alveoli	Gas exchange (of carbon dioxide and oxygen)	do not include	
	Pulmonary Capillary	Allows gas exchange	diaphragm and intercostals	(3)

Question Number	Answer	Additional Guidance	Mark
5a	<ul style="list-style-type: none"> • Partial pressure is the individual pressure that a gas exerts in a mixture of gases. • The pressure that would be exerted by one of the gases in a mixture if it occupied the same volume on its own. 	We will not accept amount of gas within a mixture of gases.	(1)

Question Number	Answer	Additional Guidance	Mark
5b	<ul style="list-style-type: none"> • Air moves from areas of high pressure to areas of low pressure • Pressure gradients allow air from outside of the body to rush into respiratory tract during inspiration • The diaphragm contracts, which reduces the pressure inside the lung / thoracic cavity • The reduced pressure creates a pressure gradient allowing the air to enter the lung • Diaphragm relaxes increasing pressure inside the lung/thoracic cavity • The increased pressure inside the lung/thoracic cavity forces the air out • Reduced barometric pressure reduces pressure gradient e.g. at altitude 	<p>Linked points</p> <p>Ventilation is the movement of the air from the environment to inside the lung, but it does not include gas exchange</p>	(4)

Question Number	Answer	Additional Guidance	Mark
6	<ul style="list-style-type: none"> • High mitochondrial density allows better energy production from aerobic system • A high myoglobin content allows better oxygen carrying capacity • A high capillary density allows better exchange of gases • High oxidative enzyme activity allows more energy to be produced from the aerobic system • Smaller fibre diameter allows faster gas exchange due to smaller diffusion distance 	<p>Linked points</p> <p>Points must relate only to suitability for endurance activities</p>	<p>(4)</p>

Question Number	Answer	Additional Guidance	Mark
7	Structural Adaptation	Functional Response	<p>Structural must be linked to functional.</p> <p>One mark for structural and one mark for functional if correctly linked.</p>
	Cardiac hypertrophy/ thickness of myocardium	Increased SV or cardiac output	
	Increased vascularisation/ capillarisation of the heart	Increased gas exchange	
	Increased chamber size	Increased SV/Q	
	Increased haemoglobin content/ red blood cells	Carries more oxygen	
	Increased capillaries/ vascularisation within the muscle	Increased blood flow to the muscle	
			(6)

Question Number	Answer	Additional Guidance	Mark
8	<ul style="list-style-type: none"> • Enzyme activity increases to aid glycolysis • Glycogen begins to breakdown to glucose to give faster energy • Cardiac output/ heart rate increases more rapidly to provide more oxygen to the muscles • Pyruvic acid begins to be broken down to aid transition to the aerobic system • Faster increase in $\dot{V}O_2$ at start of exercise will decrease anaerobic requirement • More capillaries are open/ vasodilation/vascular shunt which allows greater blood flow to the muscles • Thermoregulation-faster sweat production to prevent overheating • Increase temperature/allows increased force production 		(6)

Question Number	Indicative Content	Mark
9	<p>AO1 = 4 marks, AO3 = 4 marks Students who only show achievement against AO1 will not be able to gain marks beyond Level 1. Reward acceptable answers. Responses may include, but are not limited to the following.</p> <ul style="list-style-type: none"> • The nervous system sends the signal to the muscular system to contract. This would cover a series of events, including: <ul style="list-style-type: none"> ○ Electrical impulse from central nervous system ○ Transmitted to muscles via spinal cord ○ Nerve cells called motor neurones transmit the message ○ When the impulse arrives at the motor end plate it triggers acetyl choline and the spread of the impulse across the synaptic cleft • The muscular system produces the force that produces movement. • The neuromuscular system is the interaction between the nervous system and the muscular system to regulate and control movement. This can be achieved by: <ul style="list-style-type: none"> ○ One motor neurone cannot stimulate the whole muscle ○ A motor neurone and the fibres it stimulates are motor units ○ The number of fibres innervated by a motor unit varies ○ The precision of the movement required determines fibres innervated ○ Recruitment is based on response time or speed of contraction ○ If the impulse is a suitable strength the muscle fibre is innervated at the neuromuscular junction ○ An action potential is reached or not – all or none law determines if the motor unit contracts ○ Wave summation and gradation of contraction <p>The indicative content is a guide to the responses candidate may give. Other valid responses which answer the question correctly can be credited as appropriate.</p> <p>The candidate's response must be read in conjunction with the level</p>	(8)

	descriptor below in order to give the appropriate mark. For example, a response that is firmly in the level would receive the middle mark in the level, a response that is just into the level would receive the bottom mark in the level, a response which nearly reaches the next level would receive the top mark in the level preceding it.	
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Level	Mark	Level descriptor
0	0	<ul style="list-style-type: none"> No rewardable content
1	1 - 2	<ul style="list-style-type: none"> Some accurate and relevant knowledge (AO1). Simple or generalised statements supported by limited evidence (AO1). Limited balancing of ideas against each other (AO3). Limited evaluative statement (AO3).
2	3 - 5	<ul style="list-style-type: none"> A good level of accurate and relevant knowledge (AO1). A line of reasoning is presented and supported by some evidence (AO1). Examines a wide range of ideas, balancing ideas against each other (AO3). An evaluative statement which is relevant (AO3).
3	6 - 8	<ul style="list-style-type: none"> A high level of accurate and relevant knowledge (AO1). Articulates a clear viewpoint with clarity and precision which is well substantiated (AO1). Critically examines a wide range of issues balancing ideas against each other (AO3). Clear evaluative statement which is thorough and focussed (AO3).

Question Number	Indicative Content	Mark
10	<p>AO1 = 4 marks, AO3 = 4 marks</p> <p>Students who only show achievement against AO1 will not be able to gain marks beyond Level 1.</p> <p>Reward acceptable answers. Responses may include, but are not limited to the following.</p> <ul style="list-style-type: none"> Reduce intensity of exercise for 1-2 days following intense exercise Include appropriate rest sessions Target subsequent exercise to less affected body parts to allow most affected muscle groups to recover Eccentric or new activities to be introduced progressively/gradually over a couple of weeks Repeat bout effect can protect against muscle damage (single bout of 	(8)

	<p>eccentric exercise can help protect against damage from subsequent eccentric bouts)</p> <p>The indicative content is a guide to the responses candidate may give. Other valid responses which answer the question correctly can be credited as appropriate.</p> <p>The candidate's response must be read in conjunction with the level descriptor below in order to give the appropriate mark. For example, a response that is firmly in the level would receive the middle mark in the level, a response that is just into the level would receive the bottom mark in the level, a response which nearly reaches the next level would receive the top mark in the level preceding it.</p>	
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Level	Mark	Level descriptor
0	0	<ul style="list-style-type: none"> • No rewardable content
1	1 - 2	<ul style="list-style-type: none"> • Some accurate and relevant knowledge (AO1). • Simple or generalised statements supported by limited evidence (AO1). • Limited balancing of ideas against each other (AO3). • Limited evaluative statement (AO3).
2	3 - 5	<ul style="list-style-type: none"> • A good level of accurate and relevant knowledge (AO1). • A line of reasoning is presented and supported by some evidence (AO1). • Examines a wide range of ideas, balancing ideas against each other (AO3). • An evaluative statement which is relevant (AO3).
3	6 - 8	<ul style="list-style-type: none"> • A high level of accurate and relevant knowledge (AO1). • Articulates a clear viewpoint with clarity and precision which is well substantiated (AO1). • Critically examines a wide range of issues balancing ideas against each other (AO3). • Clear evaluative statement which is thorough and focussed (AO3).

Question Number	Indicative Content	Mark																	
11	<p>AO1 = 4 marks, AO3 = 4 marks Students who only show achievement against AO1 will not be able to gain marks beyond Level 1. Reward acceptable answers. Responses may include, but are not limited to the following.</p> <p>This table shows the content in the specification that candidates can draw from:</p> <table border="1" data-bbox="296 645 1066 965"> <thead> <tr> <th data-bbox="296 645 491 685">Region/Joint</th> <th data-bbox="491 645 783 685">Muscles</th> <th data-bbox="783 645 1066 685">Movement</th> </tr> </thead> <tbody> <tr> <td data-bbox="296 685 491 965" rowspan="6">Shoulder</td> <td data-bbox="491 685 783 725">Trapezium</td> <td data-bbox="783 685 1066 725">Horizontal Flexion</td> </tr> <tr> <td data-bbox="491 725 783 766">Posterior deltoids</td> <td data-bbox="783 725 1066 766">Horizontal</td> </tr> <tr> <td data-bbox="491 766 783 806">Anterior deltoids</td> <td data-bbox="783 766 1066 806">Extension</td> </tr> <tr> <td data-bbox="491 806 783 846">Pectoralis</td> <td data-bbox="783 806 1066 846">Abduction</td> </tr> <tr> <td data-bbox="491 846 783 887">Latissimus Dorsi</td> <td data-bbox="783 846 1066 887">Adduction</td> </tr> <tr> <td data-bbox="491 887 783 965"></td> <td data-bbox="783 887 1066 965"></td> <td data-bbox="783 887 1066 965">Rotation Circumduction</td> </tr> </tbody> </table> <ul data-bbox="296 1055 1331 1525" style="list-style-type: none"> • Horizontal flexion at the shoulder would be created by the muscles Anterior Deltoid and Pectoralis. Sporting example e.g. wrapping the arms in for a tuck (or any other suitable example) • Horizontal extension at the shoulder would be created by Posterior Deltoid and Latissimus Dorsi. Sporting example is moving arms wide for preparation for a dive (or other suitable example) • Adduction would be created by Latissimus Dorsi, Trapezium and Pectoralis (or other suitable example) • Abduction would be created by the Deltoid e.g. preparation for a tennis serve (or any other suitable example) • Rotation e.g. tennis top spin • Circumduction e.g. arms action of the butterfly <p>The indicative content is a guide to the responses candidate may give. Other valid responses which answer the question correctly can be credited as appropriate.</p> <p>The candidate's response must be read in conjunction with the level descriptor below in order to give the appropriate mark. For example, a response that is firmly in the level would receive the middle mark in the level, a response that is just into the level would receive the bottom mark in the level, a response which nearly reaches the next level would receive the top mark in the level preceding it.</p>	Region/Joint	Muscles	Movement	Shoulder	Trapezium	Horizontal Flexion	Posterior deltoids	Horizontal	Anterior deltoids	Extension	Pectoralis	Abduction	Latissimus Dorsi	Adduction			Rotation Circumduction	(8)
Region/Joint	Muscles	Movement																	
Shoulder	Trapezium	Horizontal Flexion																	
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	Pectoralis	Abduction																	
	Latissimus Dorsi	Adduction																	
			Rotation Circumduction																

Level	Mark	Level descriptor
0	0	<ul style="list-style-type: none"> • No rewardable content
1	1 - 2	<ul style="list-style-type: none"> • Some accurate and relevant knowledge (AO1). • Simple or generalised statements supported by limited evidence (AO1). • Limited balancing of ideas against each other (AO3). • Limited evaluative statement (AO3).
2	3 - 5	<ul style="list-style-type: none"> • A good level of accurate and relevant knowledge (AO1). • A line of reasoning is presented and supported by some evidence (AO1). • Examines a wide range of ideas, balancing ideas against each other (AO3). • An evaluative statement which is relevant (AO3).
3	6 - 8	<ul style="list-style-type: none"> • A high level of accurate and relevant knowledge (AO1). • Articulates a clear viewpoint with clarity and precision which is well substantiated (AO1). • Critically examines a wide range of issues balancing ideas against each other (AO3). • Clear evaluative statement which is thorough and focussed (AO3).

Question Number	Indicative Content	Mark
12	<p>AO1 = 5 AO3 =10</p> <p>Students who only show achievement against AO1 will not be able to gain marks beyond Level 1.</p> <p>Students who only draw their answer from one area of study will not be able to gain marks beyond Level 4.</p> <p>Reward acceptable answers. Responses may include, but are not limited to the following.</p> <ul style="list-style-type: none"> • Energy depletion • Waste products build up • Dehydration • Diet • Intermittent nature of some sports e.g. periods of high and low intensity • Ensuring that your training prepares you optimally for performance at varying intensities • Pacing strategy • Tactical strategies e.g. drafting in cycling • Environmental factors • Psychological factors <p>The indicative content is a guide to the responses candidate may give. Other valid responses which answer the question correctly can be credited as appropriate.</p> <p>The candidate's response must be read in conjunction with the level descriptor below in order to give the appropriate mark. For example, a response that is firmly in the level would receive the middle mark in the level, a response that is just into the level would receive the bottom mark in the level, a response which nearly reaches the next level would receive the top mark in the level preceding it.</p>	(15)

Level	Mark	Level descriptor
0	0	<ul style="list-style-type: none"> • No rewardable content
1	1 – 3	<ul style="list-style-type: none"> • Limited understanding of the factors that underpin performance and involvement in physical activity and sport. This is communicated in a basic way with simple or generalised statements (AO1). • Limited analysis of the factors that underpin performance and involvement in physical activity and sport (AO3).

		<ul style="list-style-type: none"> • Little analysis of performance due to limited application of relevant skills and techniques in physical activity and sport (AO3). • Analysis is not used to make a judgement (AO3).
2	4-6	<ul style="list-style-type: none"> • Attempts some understanding of the factors that underpin performance and involvement in physical activity and sport and organises or expresses ideas with some clarity (AO1). • Attempts some analysis of the factors that underpin performance and involvement in physical activity and sport (AO3). • Attempts to apply relevant skills and techniques in physical activity and sport to analyse performance (AO3). • Analysis may not be used to make a clear judgement (AO3).
3	7-9	<ul style="list-style-type: none"> • Evidence of some basic understanding of the factors that underpin performance and involvement in physical activity and sport and offers a logical clear writing structure (AO1). • Evidence of some analysis of the factors that underpin performance and involvement in physical activity and sport (AO3). • Some application of relevant skills and techniques in physical activity and sport to analyse performance (AO3). • A judgement may be given but with limited substantiation (AO3).
4	10-12	<ul style="list-style-type: none"> • Key issues are explored, but not all viewpoints may be addressed. The answer is generally well organised, communicated with clarity but may lack precision (AO1). • Analyses the factors that underpin performance and involvement in physical activity and sport (AO3). • Application of relevant skills and techniques in physical activity and sport to analyse performance (AO3). • Uses analysis to make a clear judgement and supports this with examples (AO3).
5	13 -15	<ul style="list-style-type: none"> • Excellent knowledge and understanding of factors that underpin performance and involvement in physical activity and sport. Communicated in a coherent writing structure with clarity and precision (AO1). • Sophisticated analysis of the factors that underpin performance and involvement in physical activity and sport (AO3). • Uses analysis to make a fully informed judgement and supports this with examples (AO3).

Section B

Question Number	Answer	Additional Guidance	Mark
13	<ul style="list-style-type: none">• Maximum volume/amount of oxygen that can be utilised in one minute.• Maximum rate at which oxygen can be used.	Where candidates say volume or amount, there must be a timeframe. If they do not use the word maximum, no marks are awarded.	(1)

Question Number	Answer	Additional Guidance	Mark
14	<p>Duration</p> <ul style="list-style-type: none"> • Sub-maximal is during prolonged exercise • Maximal can only be maintained for a short duration (less than 10 mins) <p>Intensity</p> <ul style="list-style-type: none"> • Sub-maximal is usually performed at steady state • Maximal is performed at 100% of the VO₂ max/ heart rate max • Maximal aerobic exercise is not steady state <p>Energy systems</p> <ul style="list-style-type: none"> • Sub-maximal has little anaerobic contribution • To perform maximal aerobic exercise there will also be some use of the anaerobic system <p>Fuel/Energy used</p> <ul style="list-style-type: none"> • Sub-maximal exercise will use fat for some of the energy production • Maximal exercise will use carbohydrate <p>Psychology</p> <ul style="list-style-type: none"> • Sub-maximal exercise requires little motivation • Maximal exercise may require a high level of motivation to work at this level 	<p>Submax of three mark for one element</p> <p>This should not refer to fitness tests</p>	(4)

Question Number	Answer	Additional Guidance	Mark
15	<p>Advantages:</p> <ul style="list-style-type: none"> • Parachutes provide a resistance (through drag) thereby stressing the body • This resistance means athlete has to work harder similar to running on a windy day • Increases strength in working muscles • Portable/ accessible • Inexpensive • Variety to training/enjoyment <p>Disadvantages:</p> <ul style="list-style-type: none"> • Parachutes take time to inflate • May alter sprint technique/ restrict movement • Can get tangled • Could take practice to get used to technique 	<p>Submax 2 for advantages, submax 2 for disadvantages</p> <p>Marks are not awarded for ease of use, because it is subjective</p>	(4)

Question Number	Answer	Additional Guidance	Mark
16	<ul style="list-style-type: none"> • Can be used to set training intensities (planning of future training) • Reviewing / monitoring / quantifying a training session (analysis of completed training) • Substitutions can be managed based on game data • Players can be objectively compared/ can monitor the whole team at once • Identification of players at risk of injury • Monitoring fitness of players • Management of tactics • Information provided very quickly • Identification of strengths and weaknesses 	<p>Mark awarded for why technology is used, not what it is</p> <p>No mark for just saying monitoring work rate as repeat of question</p>	(4)

Question Number	Answer	Additional Guidance	Mark
17	<ul style="list-style-type: none"> • Percentage of functional intensity • Percentage of one repetition maximum (RM) • Rate of Perceived Exertion (RPE) (Borg), • Percentage of functional threshold • Use of target HR/ Karvonen • Use of power meters • Measurement of blood lactate • Measure distance/ speed/ acceleration/ deceleration e.g. GPS 	<p>This question looks for the methods by which it can be measured</p> <p>We will award a bod TRIMP, % V'O2 max (not in the spec)</p>	(5)

Question Number	Answer	Additional Guidance	Mark
18	<ul style="list-style-type: none"> • The assistant weighs the athlete (kg) • The athlete warms up • The assistant calculates and records the flywheel resistance (75g/kg) required • The assistant gives the command "GO" and starts the stopwatch and the athlete pedals as fast as possible with no flywheel resistance • (After 3 seconds the assistant applies the calculated flywheel resistance) The athlete continues to pedal as fast as possible until 30 seconds has elapsed • After 30 seconds the athlete stops pedalling and the assistant records the flywheel revolutions for each 5 second interval of the test (or 1 second if on software) • Pedal against low resistance in cool down 		(5)

Question Number	Answer	Additional Guidance	Mark	
19	Any three from:	Linked responses		
	Physiological Determinant			Sporting Example
	Submaximal aerobic fitness (aerobic capacity): the ability to maintain a high percentage of $\dot{V}O_2$ max for a prolonged period of time.			This is essential for long duration aerobic activity, for example long distance running.
	Maximal aerobic fitness (aerobic power): the maximum volume of oxygen that can be utilized in one minute. This is the upper limit of the aerobic system (the person's $\dot{V}O_2$ max).			Middle distance race
	Exercise economy: energy required to maintain a constant velocity of movement. This is the ability to transfer energy into movement.			For example, if two people running at the same speed, one of them could be using less energy than the other because they are more economic.
Anaerobic capacity: the amount of energy obtained from anaerobic sources (creatine phosphate breakdown and anaerobic glycolysis) in a single bout of exercise. This is the greatest amount of energy that can be released from the anaerobic system. There is only a limited amount of energy that can be produced anaerobically, when it is used up the athlete must slow down however it can be (partially) replenished during rest intervals or low-intensity periods of a match.	Short exertion sprint		(6)	

	<p>Anaerobic power: the rate at which energy is produced. This is the fastest rate at which energy (ATP) can be produced anaerobically during an activity.</p>	<p>If two athletes are equal in terms of movement economy then the athlete with greatest anaerobic power will be the fastest. It is an important factor in sprint speed but not the only factor.</p>		
	<p>Maximum speed: time taken to move a body (part or whole) through a movement over a pre-determined distance OR speed (distance divided by time). This is the fastest sprint speed attainable. It is determined not only by the rate of ATP production but also by fast twitch fibre recruitment and force production</p>	<p>Running at your fastest speed in a match down the wing</p>		
	<p>Body composition: the amount of weight you have to carry will affect running performance</p>	<p>Long distance runners have low percentage body fat</p>		

Question Number	Indicative Content	Additional guidance											
20	<p>(a)</p> <table border="1"> <thead> <tr> <th>Distance (m)</th> <th>Split times (s)</th> </tr> </thead> <tbody> <tr> <td>0-50</td> <td>22</td> </tr> <tr> <td>50-100</td> <td>28</td> </tr> <tr> <td>100-150</td> <td>26</td> </tr> <tr> <td>150-200</td> <td>28</td> </tr> </tbody> </table> <p>(b)</p> <ul style="list-style-type: none"> 1.92 or 1.9 m/s (Average speed = distance (m) ÷ time (s) 200m divided by 104s) 	Distance (m)	Split times (s)	0-50	22	50-100	28	100-150	26	150-200	28	<p>Do not accept 1.93 or 1.91</p> <p>No marks for correct equation but wrong answer</p>	<p>A (4) B (1) 5 marks overall</p>
Distance (m)	Split times (s)												
0-50	22												
50-100	28												
100-150	26												
150-200	28												

Question Number	Answer	Additional Guidance	Mark
21	<ul style="list-style-type: none"> Spatial awareness allows the games player to notice team mates, opponents, the ball Improved agility/ multi directional work allows the games player to change direction ahead of an opponent Motor skills allow a games player to improve coordination Improved speed/power allows a games player to sprint at speed for a ball Reprogramming of neuromuscular system/ improved quickness allows a games player to adapt to the play they see Benefits to reaction time allow games players to respond to play 	<p>Linked points</p> <p>Allow any suitable application</p>	<p>(5)</p>

Question Number	Indicative Content		Mark
22	<p>AO2 = 4 marks, AO3 = 4 marks</p> <p>Students who only show achievement against AO1 will not be able to gain marks beyond Level 1.</p> <p>Reward acceptable answers. Responses may include, but are not limited to the following.</p> <ul style="list-style-type: none"> • Gravity • Air resistance (drag / shape of object) • Lift <p>The indicative content is a guide to the responses candidate may give. Other valid responses which answer the question correctly can be credited as appropriate.</p> <p>The candidate's response must be read in conjunction with the level descriptor below in order to give the appropriate mark. For example, a response that is firmly in the level would receive the middle mark in the level, a response that is just into the level would receive the bottom mark in the level, a response which nearly reaches the next level would receive the top mark in the level preceding it.</p>		(8)
Level	Mark	Level descriptor	
0	0	<ul style="list-style-type: none"> • No rewardable content 	
1	1 - 2	<ul style="list-style-type: none"> • There are few links between theory and practice. Isolated elements of knowledge and understanding (AO2). • There is little application of knowledge and understanding of factors that underpin performance and involvement in physical activity and sport (AO2). • Limited balancing of ideas against each other (AO3). • Limited evaluative statement (AO3). 	
2	3 - 5	<ul style="list-style-type: none"> • Makes connections between theory and practice (AO2). • Applies a knowledge and understanding of factors that underpin performance and involvement in physical activity and sport (AO2). • Examines a wide range of ideas, balancing ideas against each other (AO3). • An evaluative statement which is relevant (AO3). 	
3	6 - 8	<ul style="list-style-type: none"> • Makes many insightful and significant connections between theory and practice (AO2). • Applies an excellent knowledge and understanding of factors that underpin performance and involvement in physical activity 	

		<p>and sport (AO2).</p> <ul style="list-style-type: none"> • Critically examines a wide range of issues balancing ideas against each other (AO3). • Clear evaluative statement which is thorough and focussed (AO3).
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Question Number	Indicative Content	Mark
23	<p>AO1 = 4 marks, AO3 = 4 marks</p> <p>Students who only show achievement against AO1 will not be able to gain marks beyond Level 1.</p> <p>Reward acceptable answers. Responses may include, but are not limited to the following.</p> <ul style="list-style-type: none"> • Wingate • MAOD • RAST • Cunningham and Faulkner • It depends on the sport • Balance of issues explaining pros and cons of different tests <p>The indicative content is a guide to the responses candidate may give. Other valid responses which answer the question correctly can be credited as appropriate.</p> <p>The candidate's response must be read in conjunction with the level descriptor below in order to give the appropriate mark. For example, a response that is firmly in the level would receive the middle mark in the level, a response that is just into the level would receive the bottom mark in the level, and a response which nearly reaches the next level would receive the top mark in the level preceding it.</p>	(8)

Level	Mark	Level descriptor
0	0	<ul style="list-style-type: none"> • No rewardable content
1	1 - 2	<ul style="list-style-type: none"> • Some accurate and relevant knowledge (AO1). • Simple or generalised statements supported by limited evidence (AO1). • Limited balancing of ideas against each other (AO3). • Limited evaluative statement (AO3).
2	3 - 5	<ul style="list-style-type: none"> • A good level of accurate and relevant knowledge (AO1). • A line of reasoning is presented and supported by some evidence (AO1). • Examines a wide range of ideas, balancing ideas against each other (AO3). • An evaluative statement which is relevant (AO3).

3	6 - 8	<ul style="list-style-type: none">• A high level of accurate and relevant knowledge (AO1).• Articulates a clear viewpoint with clarity and precision which is well substantiated (AO1).• Critically examines a wide range of issues balancing ideas against each other (AO3).• Clear evaluative statement which is thorough and focussed (AO3).
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Question Number	Indicative Content		Mark
24	<p>AO1 = 5 AO3 =10</p> <p>Students who only show achievement against AO1 will not be able to gain marks beyond Level 1.</p> <p>Students who only draw their answer from one area of study will not be able to gain marks beyond Level 4.</p> <p>Reward acceptable answers. Responses may include, but are not limited to the following:</p> <ul style="list-style-type: none"> • Conditioning • Muscle balance • Technique • Protective Equipment • Managing Risks • Application of training principles • Playing within the rules of the game • Performing at the correct level/weight/age • Effective preparation for performance • Recovery strategies to promote tissue recovery and avoid overuse injuries • Tactical strategies <p>The indicative content is a guide to the responses candidate may give. Other valid responses which answer the question correctly can be credited as appropriate.</p> <p>The candidate's response must be read in conjunction with the level descriptor below in order to give the appropriate mark. For example, a response that is firmly in the level would receive the middle mark in the level, a response that is just into the level would receive the bottom mark in the level, a response which nearly reaches the next level would receive the top mark in the level preceding it.</p>		(15)
Level	Mark	Level descriptor	
0	0	<ul style="list-style-type: none"> • No rewardable content 	
1	1 – 3	<ul style="list-style-type: none"> • Limited understanding of the factors that underpin performance and involvement in physical activity and sport. This is communicated in a basic way with simple or generalised statements (AO1). • Limited analysis of the factors that underpin performance and 	

		<p>involvement in physical activity and sport (AO3).</p> <ul style="list-style-type: none"> • Little analysis of performance due to limited application of relevant skills and techniques in physical activity and sport (AO3). • Analysis is not used to make a judgement (AO3).
2	4-6	<ul style="list-style-type: none"> • Attempts some understanding of the factors that underpin performance and involvement in physical activity and sport and organises or expresses ideas with some clarity (AO1). • Attempts some analysis of the factors that underpin performance and involvement in physical activity and sport (AO3). • Attempts to apply relevant skills and techniques in physical activity and sport to analyse performance (AO3). • Analysis may not be used to make a clear judgement (AO3).
3	7-9	<ul style="list-style-type: none"> • Evidence of some basic understanding of the factors that underpin performance and involvement in physical activity and sport and offers a logical clear writing structure (AO1). • Evidence of some analysis of the factors that underpin performance and involvement in physical activity and sport (AO3). • Some application of relevant skills and techniques in physical activity and sport to analyse performance (AO3). • A judgement may be given but with limited substantiation (AO3).
4	10-12	<ul style="list-style-type: none"> • Key issues are explored, but not all viewpoints may be addressed. The answer is generally well organised, communicated with clarity but may lack precision (AO1). • Analyses the factors that underpin performance and involvement in physical activity and sport (AO3). • Application of relevant skills and techniques in physical activity and sport to analyse performance (AO3). • Uses analysis to make a clear judgement and supports this with examples (AO3).
5	13 -15	<ul style="list-style-type: none"> • Excellent knowledge and understanding of factors that underpin performance and involvement in physical activity and sport. Communicated in a coherent writing structure with clarity and precision (AO1). • Sophisticated analysis of the factors that underpin performance and involvement in physical activity and sport (AO3). • Uses analysis to make a fully informed judgement and supports this with examples (AO3).

Total for Paper – 140 marks