



GCE A LEVEL MARKING SCHEME

SUMMER 2025

**A LEVEL
PHYSICAL EDUCATION – COMPONENT 2
A550U20-1**

About this marking scheme

The purpose of this marking scheme is to provide teachers, learners, and other interested parties, with an understanding of the assessment criteria used to assess this specific assessment.

This marking scheme reflects the criteria by which this assessment was marked in a live series and was finalised following detailed discussion at an examiners' conference. A team of qualified examiners were trained specifically in the application of this marking scheme. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners. It may not be possible, or appropriate, to capture every variation that a candidate may present in their responses within this marking scheme. However, during the training conference, examiners were guided in using their professional judgement to credit alternative valid responses as instructed by the document, and through reviewing exemplar responses.

Without the benefit of participation in the examiners' conference, teachers, learners and other users, may have different views on certain matters of detail or interpretation. Therefore, it is strongly recommended that this marking scheme is used alongside other guidance, such as published exemplar materials or Guidance for Teaching. This marking scheme is final and will not be changed, unless in the event that a clear error is identified, as it reflects the criteria used to assess candidate responses during the live series.

**EDUQAS A LEVEL PHYSICAL EDUCATION
COMPONENT 2**

SUMMER 2025 MARK SCHEME

Question	Mark Scheme	AO1	AO2	AO3	Total
1. (a)	Britain's Andy Murray made his comeback in the 2023 Wimbledon Championships Gentlemen's Singles, following hip surgery. Identify the type of synovial joint and the movement patterns possible at the hip joint. <i>Award one mark for the correct identification of the joint type:</i> Joint type: - Ball and Socket (1) <i>Award a further two marks for the correct identification of any of the following movement patterns:</i> <i>Movement classifications can be accepted even if the joint type is incorrectly identified.</i> - Flexion (1) - Extension (1) - Horizontal flexion (1) - Horizontal extension (1) - Adduction (1) - Abduction (1) - Internal/medial rotation (1) - External/lateral rotation (1) - Rotation (3x1) <i>Accept any other appropriate movement patterns.</i>	3			3
(b)	Describe the possible factors that could lead to a sports injury. <i>Award 1-2 marks for a basic description</i> <i>Award 3-4 marks for a detailed description</i> Candidates must refer to 2 in detail to get max 4 marks. (not for identification) of any of the following predictors: Predictors of injury: - Training errors – if the volume and intensity of training is excessive with little or no time given for recovery then athletes may be more at risk of fatigue and injury as a result. Poor or incorrect technique is also a factor linked with increased	4			4

Question	Mark Scheme	AO1	AO2	AO3	Total
	injury risk especially when related to resistance or weight-based training methods. - Environmental conditions – the playing surface, lighting and temperature. For example, if the lighting was poor, a player may be more likely to misjudge attacking and defensive moves, likewise if the surface was wet, a player would be more likely to slip. - The nature of the sport- some sports are more susceptible to incurring sports injuries. For example, in contact sports such as rugby union/league players are more likely to come away with injuries from tackling or being tackled. - Equipment/clothing/footwear issues – if clothing is too restrictive this can reduce the range of movement allowed and therefore cause injury. Likewise, not wearing the correct equipment for your sport will increase the likelihood of injury such as a failure to wear shin pads, mouth guards and face shields when defending penalty corners in sports such as hockey could lead athletes wide open to injury. - Muscular factors – such as muscle imbalances which may lead to differences between limbs or between muscle groups as a weaker muscle is more open to fatigue and injury. - Lack of flexibility – involvement in many sports often requires movements to take place at the end of their range of motion, stretching to make a shot in badminton for instance. If there is a restriction in the range of motion this can increase the likelihood of injury. - Individual variables – such as age, growth/development and gender. For example, older athletes may be more at risk of strains and younger athletes may be at more risk of apophysitis injuries due to overuse. Females are at a higher risk of ACL sprains, and body composition is also a huge risk factor especially within underweight or overweight athlete categories. Fitness levels also play a part in injury risk with those in the unfit category being more prone to injury when compared to conditioned athletes. - Postural defects – abnormal curvatures (scoliosis/kyphosis and lordosis) of the spine are potential risk factors that can restrict sporting performance. - Psychological factors – factors such as personality type (high trait anxiety), internal and external stressors and coping mechanisms are all linked to an increased injury risk. <i>Accept any other appropriate predictors of an injury.</i>				

Question	Mark Scheme	AO1	AO2	AO3	Total
(c)	The latter stages of tennis matches are when players are more susceptible to temperature and hydration-related problems. Explain why dehydration could have a detrimental effect on performance in sport. Award 1-2 marks for a basic explanation Award 3 marks for a detailed explanation (effect on performance must be mentioned). Indicative content: Dehydration through excess water loss can cause the following problems and impact on performance: - Decreased blood plasma – will lead to inadequate blood volume and the ability to sweat will also be impaired as there will be less blood flow to the skin and core temperature will therefore increase leading to the inability to control the body's temperature. All of which will impair CV function and consequently lead to circulatory problems such as reduced stroke volume/cardiac output/ venous return, Increased heart rate and reduction in blood pressure leading to a loss in aerobic capacity. - Reduced availability of O₂ - This means the blood cannot be transported around the body as quickly. This results in an increase in heart rate and breathing rate as oxygen is also being transported at a slower rate through the blood vessels leading to a reduction in exercise intensity as thresholds will be reached quicker. - Impairment of muscle function – due to a decrease in the availability of O₂ to the working muscles which will in turn impair the removal of waste products which may lead to a reduction in strength and power. - Reduction in the supply of energy substrates - Less glucose/glycogen and fatty acids being transported to the muscles for energy will lead to increased levels of lactic acid production which ultimately contribute to muscle fatigue. - Electrolyte depletion – it is vital to maintain electrolyte balance as this can cause further complications such as inhibited nervous function, tiredness, cramping and fainting and an overall loss of performance as muscular contraction will be inhibited. - <i>Dehydration could cause dizziness and headaches (basic example for 1 mark)</i> - <i>Dehydration could result in a reduction in the intensity of exercise as the performer may feel tired quicker which will mean they can't work as hard. (basic example for 2 marks)</i> Accept any other appropriate responses.		3		3

Question	Mark Scheme	AO1	AO2	AO3	Total
(d)	There are many common classification continua that can be used to classify movement skills in sports such as tennis. Describe, using an example, what is meant by a discrete skill. Award up to 2 marks for a description of a discrete skill with an appropriate example (Award 1 mark only if no example is given). - Discrete skills – are movement skills that have a clear beginning and a clear end. Examples of these skills are catching a ball in rounders, a penalty in hockey or football or a low serve in badminton. <i>Accept any other appropriate descriptions of a discrete skill with an example.</i>	2			2
(e) (i)	Define the terms, state and trait anxiety. Award up to 1 mark for each correct definition up to a maximum of 2 marks: - State anxiety is a nervous response to specific sporting situations. - Trait anxiety is a predisposition to suffer from anxiety/nervousness/worry in most sporting situation/s. (2x1) <i>Accept any other appropriate definitions of state and trait anxiety.</i>	2			2

Question	Mark Scheme	AO1	AO2	AO3	Total
(e) (ii)	Explain how stress management techniques could be used to control anxiety levels in sports performers. Award 1 mark for knowledge of stress management techniques Award 2 basic explanation Award 3 detailed <i>The ways in which sports performers can control the amount of stress can be cognitive and/or somatic:</i> <i>Cognitive stress management strategies include:</i> - Positive thinking - this strategy can be used to motivate performers or to psych themselves up which helps to control stress and anxiety levels. This process involves thinking of success and the prospect of winning rather than losing. - self-talk – this strategy involves being positive about your past performances and your future actions by talking to yourself in a positive manner i.e. 'I can do this!' This will help to build and maintain confidence and motivation levels. - Thought stopping – this strategy involves stopping negative thoughts from manifesting in the mind and taking over performance. By stopping negative thoughts such as 'I am never going to succeed' performers can halt feelings of stress and anxiety and maintain confidence and motivation levels. - Mental rehearsal – often referred to as mental practice, is a strategy that involves mentally rehearsing the skill about to be performed e.g., a rugby union or league player may use this strategy to visualise their conversion kick before actually stepping forward to take it. No physical movements are involved, and the technique can become easier through practice and helps to control rising levels of stress and anxiety. - Imagery – this strategy involves the formation of mental images that are often unrelated to the actual activity. For example, performers may picture images of escape 'happy places' where they would be more relaxed and by visualising this, they can bring about the feelings and emotions associated with them, helping them to relax and reduce their anxiety levels. - Goal setting – SMART/short/medium/long term targets/outcome/process/performance-oriented goals can all alleviate stress and anxiety in sport by helping performers to focus their attention, increase motivation and confidence and therefore control their stress and anxiety levels.	1	3		4

Question	Mark Scheme	AO1	AO2	AO3	Total
	- Therapy/CBT- providing tools and strategies to manage and reduce symptoms <i>Somatic stress management strategies include:</i> - Relaxation – this strategy involves performers being aware of their body and the elements of tension at various parts throughout the body and releasing this tension can help performers to adopt a calm and positive attitude before their performance. The aim is to take as little time as possible to become fully relaxed, which is crucial if performers are to be able to use it effectively just before performing. - Progressive muscular relaxation – this technique is a much lengthier process than self-relaxation but is very effective at controlling stress and anxiety levels. This strategy involves being aware of and feeling the tension in the muscles and getting rid of this tension by letting go by progressively working down the body from top to toe or vice versa. - Biofeedback – this strategy involves performers being aware of and controlling their physiological responses to stress such as, heart rate. Breathing rate, skin temperature and muscle tension. The strategy involves using different types of equipment, heart rate monitors etc. to collect and inform performers of their response to stress e.g., if a performer realised that their HR rises as a response to stress, they can use strategies such as deep breathing to control and combat this response. - Centering – this strategy involves using both somatic and cognitive responses to control stress and anxiety levels and involves focusing on the here and now and concentration is therefore shifted to the body by concentrating on breathing for example, energy can be redirected to the centre of the body and away from the stress or stressors. - Breathing control – this strategy involves relaxing by concentrating on breathing mainly through nose, deep breaths, for example before taking a penalty kick a player may take a deep breath in for 5 seconds, holding the breath for 5 seconds, breath out for 5 seconds and hold for 5 seconds, this is known as box breathing and is associated with bringing about a positive and calm feeling and therefore reducing stress and anxiety by shifting focus to your breathing and away from what is causing the anxiety. <i>Accept any other appropriate explanations of stress management techniques related to practical examples.</i>				

Question	Mark Scheme	AO1	AO2	AO3	Total
(f)	Discuss the view that “deviance has increased both within and outside of sport”. (WordPress, 2016) Banded Answer The content below is indicative of what candidates may discuss but is, by no means, exhaustive: - Deviance - Coakley (2007) states most actions in sport are within a normal accepted range in society. - Deviance occurs outside of this normal range of action. - Deviant behaviour refers to those who will find a way around the rules. - Deviant behaviour can be – Institutional, Group specific, Individual. - Deviant behaviour can be Voluntary, Cooperative, enforced. - Deviance under conformity consists of actions based on ignoring or rejecting norms. e.g., violence, drug use, financial fraud/bungs etc. - Deviance over conformity consists of actions based on accepting norms and being willing to follow them to extreme degree, e.g., excessive training affecting family and health, playing through pain whilst injured, extreme loyalty/love for sport /team. - Sportsmanship- an intention to compete within the rules and intended spirit of the rules. - Link with moral integrity. Public school ethos of gentlemen sportsmen subscribed that it was better to lose honourably than win by cheating. - Nash model of morality. - Gamesmanship, the intention to compete to the limit of the rules, to get away with as much as you can. Potential rewards can outweigh moral considerations. - Pressure of Commercialisation of sport- sport becomes subject to market force of commerce. Sport has become a commodity. - Influence of the media on deviant behaviour also has to be considered - Players and other individuals want share of profits. - Massive prize money. Sponsorship and advertising deals - these rewards are worth the risk - ‘win at all cost mentality/Lombardian ethic. - Are we naïve to assume that fair play could still be part of modern sport given vast sums of money involved! - Sportsmanship v Gamesmanship debate. - Sportsmanship has been eroded and replaced by gamesmanship as individuals/teams/authorities seek to gain the vast rewards associated with success. - violence is becoming more prevalent.	2		10	12

Question	Mark Scheme	AO1	AO2	AO3	Total
	- Everybody else cheats!! - Pressure by sponsors/coaches/managers/teammates. - Examples of deviant behaviour – violent play, drug taking, match fixing, bungs, bribery, sledging, diving in football, corruption - (FIFA, IOC) - Poor role models. Deviance outside of sport: - Fan Violence and Hooliganism: Football hooliganism and fan-related violence have persisted or even intensified in certain regions, often fuelled by alcohol, rivalries, or political tensions. - Online Abuse and Discrimination: - With the rise of social media, athletes and officials face unprecedented levels of racist, sexist, or homophobic abuse, reflecting broader societal deviance spilling into the sports domain. - Criminal Behaviour by Athletes: - High-profile cases of athletes involved in domestic violence, sexual assault, or tax evasion suggest that deviance off the field remains a serious issue, sometimes exacerbated by celebrity culture and lack of accountability. However, / Counter argument – - Good role models - Sportsmanship is still important and still evident in modern sport. - Sportsmanship and fair play are still an important part of sport. Players who demonstrate good sportsmanship not only abide by the written rules of the game but also follow the unwritten ones such as walking before the umpire's decision in cricket or passing the ball back to the attacking team after an injury. - It is naïve to assume that such behaviour should still be part of modern professional sport given the vast sums of money available for success. Examples to illustrate this counter argument should be included. - Are sport authorities getting better at catching cheating? - Better availability and use of technology - VAR, third ref/umpire etc - means players can get away with less without being caught. - Has cheating in sport always existed? - It may be the case that deviance in sport is not. - increasing, it is just the case that the sports. - authorities are getting better at catching the - cheats (e.g., important of World Anti-Doping - Agency (WADA) and new drug testing				

Question	Mark Scheme	AO1	AO2	AO3	Total
	- technology) or that - There is more media coverage of issues relating to deviance in sport. - Relevant sporting examples Further counter-arguments – Has It Really Increased? - Increased Detection and Media Exposure: It can be argued that deviance hasn't necessarily increased, but that we are more aware of it due to 24/7 media coverage, social media, and improved investigative techniques. - Changing Norms and Definitions: What was once considered acceptable may now be labelled as deviant. For example, outdated gender norms or casual aggression may have previously gone unchallenged but are now recognised as harmful. - Efforts to Tackle Deviance: Anti-doping agencies, ethics committees, and educational programs show that sport is actively trying to curb deviant behaviour, suggesting a proactive rather than deteriorating environment. <i>Accept any other appropriate discussions as to whether deviance has increased in sport.</i>				

Band	AO1 2 Marks	AO3 10 Marks
3		8-10 marks Excellent discussion of the view that deviance in sport has increased. Most key factors identified and discussed in detail. Both sides of the debate have been fully discussed. Detailed and reasoned judgements are made. The response is clearly expressed and shows accurate use of technical terminology. Writing is very well structured using accurate, grammar, punctuation, and spelling.
2	2 marks Good knowledge and understanding of deviance in sport.	4-7 marks Good discussion of the view that deviance in sport has increased. Judgements are made but not always evidence based. Discussion tends to be one-sided, concentrating on either agreeing or disagreeing with the statement posed. The response is adequately expressed and shows appropriate use of technical terminology. Writing is generally well-structured using reasonably accurate grammar, punctuation, and spelling.
1	1 mark Limited knowledge and understanding of deviance in sport.	1-3 marks Limited discussion of the view that deviance in sport has increased. Few key factors identified, and discussion is one-sided and superficial. The response shows basic use of technical terminology. Writing shows some errors in grammar, punctuation, and spelling.
0	0 marks No knowledge and understanding of deviance in sport.	0 marks No discussion of the view that deviance in sport has increased.

Question	Mark Scheme	AO1	AO2	AO3	Total
2(a)	As Elaine prepares to race, her arousal levels need to be managed, and her heart rate must be regulated. Describe how the cardiac control centre (CCC) regulates heart rate during exercise. <i>Award 1-2 mark for a basic description</i> <i>Award 3-4 up to four marks for a detailed description</i> The cardiac control centre (CCC) is located within the medulla oblongata of the brain and is stimulated by the peripheral and central chemoreceptors, baroreceptors, and proprioceptors. - During exercise the action of the cardiac control centre (CCC) is determined by 3 control mechanisms: Neural control, intrinsic control and hormonal control. - Neural Control: - Information received by the chemoreceptors, baroreceptors and proprioceptors are sent to the CCC and direction is sent via the sympathetic cardiac accelerator nerve to stimulate the SA node (increasing HR and SV) - During exercise the chemoreceptors are responsible for detecting changes in pp O₂, pp CO₂ and decreases in pH and inform the CCC in order to increase HR to help speed up the removal of CO₂. - The baroreceptors in the aorta and carotid arteries are responsible for detecting changes in Bp and during exercise they help to establish a set point for Bp. Therefore, when a decrease in arterial pressure is detected the CCC is informed, and HR is increased. - The proprioceptors (Golgi tendon organs, muscle spindles and joint receptors) are responsible for detecting changes in motor activity and as there is more movement during exercise, they inform the CCC, HR is increased as a result to provide the working muscles with O₂ they demand. - Intrinsic Control: - Temperature changes will affect the viscosity of the blood and speed of nerve impulse transmission. - venous return changes will affect the stretch in the ventricle walls, force of ventricular contraction and therefore SV. - Hormonal control: - Adrenaline and noradrenaline are released from the adrenal glands increasing the force of ventricular contraction and therefore SV, and increasing the speed of electrical activity through the heart, therefore increasing HR. <i>Accept any other ways the CCC regulates heart rate during exercise</i>	4			4

Question	Mark Scheme	AO1	AO2	AO3	Total
(b)	Analyse, using sporting examples the drive and inverted-U theories of arousal. Banded Answer <i>The content below is indicative of what candidates might discuss but is, by no means, exhaustive.</i> - Drive Theory of arousal - this theory suggests as arousal increases so does the level of performance/direct link between arousal and quality of performance. For example, A basketball player scores two from two free throws when trying hard. Therefore, the dominant response is more likely to occur as arousal increases. Most applicable to experts as skills tend to be well learned so their dominant response is to perform better as arousal levels increase. Conversely, beginners' dominant response is worse with high levels of arousal. Points for Analysis: - The Drive theory is very simple to understand and clearly shows the relationship between arousal and performance. - Many performers and coaches believe that the dominant response is indeed what happens when their arousal increases and could be why countries hosting major competitions/tournaments always do well. - The theory is also accurate when related to certain types of skills such as gross and simple skills as these are skills that require/suit higher levels of arousal and so therefore performance should improve when arousal increases. - Doesn't take into account the idea that performer may lose motivation (drive reduced) - However, the quality of performance does not always increase as levels of arousal increase as seen with both experts and novice performers as, even experts and experienced team's choke. - Doesn't take into account individual differences such as personality and skill type. - Doesn't explain why some performers and personalities i.e., extroverts perform well at low levels of arousal. - Some skills/simple/gross skills are performed well at low arousal. - The Inverted U theory of arousal – this theory suggests that, as arousal increases so does the quality of performance up to an optimal point where performance is said to have reached its peak (peak flow) and performance is at its best. Also suggests that at lower levels of arousal when performers are said to be under aroused this causes poor performance and that after the optimal zone the performer becomes over aroused and performance declines.	2		6	8

Question	Mark Scheme	AO1	AO2	AO3	Total
	Points for Analysis: - It is simple and easy to apply. - This theory is far more reliable than the drive theory as many performers have and do refer to the zone of optimal functions or being in the zone/peak performance and that when they are not in the zone performance was low or that they simply were not 'feeling it.' - It is also accurate that most sports and skills respond positively to arousal up to a point. - It also recognises that the optimal levels can differ for different performers/ personalities / skill level / types of skill. - It is however, a very limited view of the relationship between arousal and performance as it does not take into account the effect of different types of arousal on performance i.e., if over aroused some performances may drastically decline not gradually. - It also does not take into account that some performers with the right level of experience and skills may be able to recover once performance has started to deteriorate and does not always lead to disaster. <i>Accept any other appropriate analysis of the two theories of arousal.</i>				

Band	AO1 2 Marks	AO3 6 Marks
3		5-6 marks Excellent analysis of both the Drive and Inverted-U theory of arousal. Most key factors identified and analysed in detail. Both positive and negative effects are fully analysed for each theory. Excellent, well-reasoned analysis of Most key factors identified and analysed in detail.
2	2 marks Good knowledge of the Drive and Inverted-U theory of arousal.	3-4 marks Good analysis of the Drive and Inverted-U theory of arousal. Some key factors identified and analysed in some detail. Judgements are made but not always evidence based. Analysis tends to be one-sided, concentrating on either the positives or negatives.
1	1 mark Limited knowledge of the Drive and Inverted-U theory of arousal.	1-2 marks Limited analysis of the Drive and Inverted-U theory of arousal. Limited analysis of the effectiveness of at least one theory. Few key factors identified and analysed but in a superficial manner. Both positive and negative effects are superficially evaluated for at least one theory.
0	0 marks Response not worthy of credit.	0 marks Response not worthy of credit.

Question	Mark Scheme	AO1	AO2	AO3	Total
(c)(i)	Outline the possible physiological adaptations to the musculo-skeletal system as a result of a strength training programme. <i>Award 1-2 marks for a basic outline</i> <i>Award 3-4 marks for a detailed outline</i> Following a specific strength training programme for a period of 12 weeks significant structural changes will occur: - Increase in recruitment of motor units and FTG/type IIb/x fibre types = increase in force of contraction - Decreased inhibition of stretch reflex = increased force of contraction from the agonist and decreased inhibition of the antagonist and increased stretch of the antagonist. - Muscle hyperplasia (multiplication of fibres/cells) - increased force of contraction. - Muscle hypertrophy (increase in size of the muscle cell)– increased force of contraction. - Increase in the number and size of contractile proteins and myofibrils – increased force of contraction. - Connective tissue – increased strength of tendons and ligaments – increased joint stability and decreased risk of injury. - Increased bone density – increased absorption of calcium and decreased risk of osteoporosis. - Increased ATP/PC/Glycogen stores – increased capacity for alactic/high intensity energy production. - Increased enzyme activity – increased efficiency of anaerobic energy production – reduces the onset of fatigue. - Increased buffering capacity – increased tolerance to and removal of LA. - Overall leading to an increased speed, strength and power output/ increase the body's capacity to produce fast, strong and powerful contractions. - Increase in the production of synovial fluid. <i>Accept any other appropriate adaptations as a response to strength training.</i>	4			4

Question	Mark Scheme	AO1	AO2	AO3	Total
(ii)	Explain the importance of using the correct training zone for successful performance. Award 1-2 marks for a basic explanation Award 3 marks for a detailed explanation Indicative content: - If the intensity of training is too high, the performer may fatigue quickly and adapt anaerobically as they would adapt to tolerate lactic acid build up and the opposite could occur if the intensity of training was too low. - Prevents performers from unnecessarily draining their energy by pushing too hard in their training session, making it less likely that they will recover effectively for the next session which may mean they are less able to maintain the training needed to effectively adapt. - e.g., zones can be used to monitor the intensity to ensure the correct type of adaptation needed - to improve aerobic endurance HR should be maintained within the aerobic/moderate/cardio training zone (70-80% of max HR for a duration of 10-40 minutes). - Using training zones can help prevent overtraining and lower the risk of injury as we are more likely to stay in our desired zones. - Training at the correct intensity also helps performers keep on track and work towards training goals more efficiently. - If the intensity is too low or too high no adaptations may result or it may take longer for the necessary adaptations to occur, thus affecting their ability to maintain the intensity needed for the duration of a match. Accept any other appropriate explanations.		3		3
(d)(i)	Define the term speed Award one mark for a correct definition of speed. Speed is the rate of change in distance. (1) Accept any other appropriate definitions of speed.	1			1

Question	Mark Scheme	AO1	AO2	AO3	Total
(ii)	Calculate, using Figure 3, the athlete's average speed for the 100m sprint. <i>Award a further two marks for the correct calculation of average speed (one mark for the correct understanding of the formula and one mark for the correct answer).</i> Speed can be calculated using the following equation: Calculation: Speed = distance / time taken Speed is measured in m/s and distance is measured in (m) and time taken is in seconds (s) Speed = 100 / 10.54 Speed = 9.49s Accept answers that are rounded to the nearest decimal place or as it appears on the calculator	2			2

Question	Mark Scheme	AO1	AO2	AO3	Total
2(e)	Explain, using examples, Newton's three laws of motion. Answers must be related to examples Award 2 marks per law 1 mark basic 2 marks for detailed explanation with sporting example - Newton's 1st law (the law of inertia) states that a body remains at rest or in a constant state of motion until acted upon by an external/unbalanced force. For example, whilst standing waiting to put the stone in play, they and the stone will remain at rest until a downward force is applied to the ice as all the forces acting on her and the ice are balanced, so neither they nor the ice should move. Also, once in play the stone will travel down the ice in a constant state of motion unless encouraged to change by the curling broom action/s or when making contact with another stone. - Newton's 2nd law (the law of acceleration) $F=ma$ – states that when a force acts on an object, the rate of change of momentum experienced by the object is directly proportional to the size of the force applied and in the direction the force is applied. For example, when a downward force is applied to the ice the rate of change of momentum experienced by the ice is directly proportional to the size of force applied by the participant and will propel them faster down the ice, the more powerful the downward force applied to the ice and will take place in the direction in which the force was applied. Likewise, the stone travel will be directly proportional to the force applied and in the direction the force is applied (i.e., straight with spin, rebound etc). - Newton's 3rd law (action reaction) – states that for every action there is an equal and opposite reaction. For example, when they exert a downward force on the ice (action force) and releases the stone there will be an equal and opposite force exerted by the second (ice) on the first (player) as the ice will propelling them down the ice (reaction force) to enable them to execute their move effectively. <i>Accept any other appropriate explanations of how Newton's Laws of Motion applies to sporting examples.</i>		6		6

Question	Mark Scheme	AO1	AO2	AO3	Total
3(a)	Explain, using Figure 4, how Ben has increased his stability when playing the sweep shot. Award 1-2 marks for a basic explanation Award 3 - up to 4 marks for an explanation <i>from any of the points below up to a maximum of 4 marks, (explanations must refer to figure 3 in order to achieve maximum marks):</i> The cricketer has increased their stability during the sweep shot by: - Position of the centre of gravity/stance - the cricketer has bent their knees to lower the centre of mass and keeping their line of gravity is in the centre of the base of support, making it more difficult to be knocked off balance when taking the shot. - Size of the base of support - The cricketer has widened their legs into a lunge position enabling them to rest motion during the shot - wider and more stable. - Distribution of weight over the base - the cricketer has kept their head over their centre of mass. - Points of contact- the cricketer has increased their floor map by getting more points of contact with the ground i.e., their front and back feet as well as their back knee are in contact with the ground. <i>Accept any other appropriate explanation for increasing stability.</i>		4		4
(b)	Cricket consists of short periods of high-intensity work which could lead to fatigue. Explain why lactate accumulation causes muscle fatigue. Award 1 mark for a basic explanation Award 2 marks for a detailed explanation Indicative content: - If pyruvate production exceeds its oxidation, excess pyruvate is converted into lactic acid, which dissociates into lactate and H⁺ - Leading to a reduction in pH, resulting in acidosis - Which in turn inhibits enzyme action. - This further inhibits anaerobic respiration. - Reducing the ability to break down glucose and resulting in muscle fatigue. Accept any other appropriate explanations.		2		2

Question	Mark Scheme	AO1	AO2	AO3	Total
(c)	Assess the use of nutritional ergogenic aids in preparation for competition. Banded Answer <i>The content below is indicative of what candidates might assess but is, by no means, exhaustive (all three substances could form part of the assessment)</i> Introduction: Ergogenic Aids – a substance or method used to improve or enhance performance. Examples – Pharmacological aids, physiological aids, nutritional aids and mechanical aids. For the purpose of the specification however, this question is focusing on the following nutritional aids; <i>caffeine, protein and creatine.</i> Positives: - Protein – proteins are found in most foods and in large amounts in milk, soya, eggs and meats such as chicken. But can also be taken in the form of bars and powders. The amino acids from proteins are essential for growth and repair of cells and tissues. They are also used to make muscle proteins, haemoglobin, enzymes, antibodies and collagen. With regards to performance, they can also be broken down to provide energy for aerobic exercise once no other fuels are available. Protein benefits for both strength/resistance-based athletes and endurance training activities like running, swimming, and cycling, through muscular growth and energy storage. - Benefits of Protein – growth and repair of cells and tissues, weight loss (if a necessary requirement), reduce muscle fatigue, - Caffeine – is a stimulant which can be used to heighten the central nervous system response and increase the breakdown of fats which can be used as a fuel for aerobic energy production. It can be found in many soft drinks, tea and coffee as well as many energy drink products and for this reason is very easy to consume in small amounts throughout the day. There is significant evidence that consuming around 3-9 mg per kg of body weight around 1 hour prior to exercise can increase aerobic capacity and there are significant benefits to performance. As it can be used to help with the breakdown of fats, glycogen stores can therefore be preserved for higher bouts of intense exercise. Caffeine also has further benefits which can aid performance across a variety of sports and events.			6	6

Question	Mark Scheme	AO1	AO2	AO3	Total
	- Benefits of Caffeine – increasing alertness, focus/ concentration, nervous stimulation, increased metabolism of fats, preservation of muscle glycogen and increased endurance. - Creatine – is produced naturally in the body from amino acids and can be consumed by eating meats such as Beef, pork, tuna, salmon, and cod which all contain between 1.4 to 2.3 grams of creatine per pound but can also be taken in the form of powder and capsule and tablet form. Almost all creatine is stored in the muscle tissue as PC and used to fuel high intensity exercise. Their use therefore is predominant in sports such as weightlifting and in events such as sprinting. The use of creatine can increase stores of PC by up to 50% allowing performers to train harder for longer. - Benefits of creatine – increase in PC stores in the muscle, increase fuel for high intensity exercise, increased intensity and duration of training and increased maximum and explosive strength. Negatives: - Protein – Can lead to dehydration and muscle cramping and there is significant evidence to suggest that over time, consuming too much protein can lead to an increased risk of osteoporosis and can also worsen existing kidney problems. - Caffeine – can lead to dehydration due to its diuretic effects, insomnia, anxiety, and gastrointestinal problems. - Creatine – Can lead to increased water retention, weight gain, muscle cramping, gastrointestinal problems such as bloating, other longer-term issues such as Kidney damage, Liver damage, Kidney stones. <i>Accept any other appropriate reasons and side effects of their use.</i>				
Band	AO3				
3	5-6 marks Outstanding assessment of the benefits and side effects of nutritional aids on performance in sport.				
2	3-4 marks Good assessment of the benefits and side effects of nutritional aids on performance in sport.				
1	1-2 marks Limited assessment of the benefits and side effects of nutritional aids on performance in sport.				
0	0 marks No assessment of the benefits and side effects of nutritional aids on performance in sport.				

Question	Mark Scheme	AO1	AO2	AO3	Total
(d)	Identify three methods of practice that could be used to improve performance. Award up to 1 mark for each correct type of practice below, up to 3 marks (3x1): Types of practice include: - Varied - Massed - Distributed - Fixed - Whole - Part - Whole-part-whole - Progressive-part <i>Accept any other appropriate types of practice.</i>	3			3
(e)	Increasing mass participation is more important than developing elite performance. Discuss this statement. Banded answer Benefits of an increase in mass participation: Physical: - Regular exercise can help burn calories. - Exercise can help increase the ratio of HDLs to that of LDLs, which reduces levels of bad cholesterol. - Can help to achieve a negative energy balance for those wishing to lose weight. - Physiological examples of further benefits could be given here such as increase in strength of connective tissues, maintaining the elasticity of arteries and arterioles therefore reducing the risk of hypertension, strengthening muscle and bones etc. - Reduction in colon cancer – long-term endurance-based exercise can decrease colon cancer by 50%, gall-stone formation, and decrease incidences of constipation and IBS due to the changes in gut micro bacteria. - Regeneration of heart cells – exercise increases protective proteins in the heart by increasing blood flow to regions lining the heart and decreases incidences of heart cell death (apoptosis). - Reduce incidence of health risks associated with inactivity – CHD/strokes/heart attacks etc. - Raise BMR as muscle mass increases. - Helps to maintain a higher BMR up to 5 hours after exercise.	2		10	12

Question	Mark Scheme	AO1	AO2	AO3	Total
	- Helps to control blood glucose/insulin levels which can help to reduce the chances of developing diabetes. - Helps to increase and/or maintain bone density and reduce the risk of osteoporosis. - Helps to prevent falls disease in older adults. - Relief from musculoskeletal symptoms such as back pain, - Eyesight Improvements – due to the reduction in free radicals (particles that can cause damage to DNA, proteins, and other parts of the body) caused by all types of regular exercise. - More energy to complete day-day tasks and helps to increase independence. Social: - Social benefits – creates opportunities to meet new people and feel part of the community. - Enhanced work performance, studies have shown that exercise improves several aspects of cognitive function, including improvements in memory, academic achievement, attention span and executive function by increasing grey matter, which, in-turn increases the amount of processing power the brain is capable of. - Values associated with physical activity involvement – teamwork, cooperation, tolerances, respect for others etc. - brings more communities together - social cohesion. - reduction in crime rates - reduction in mortality rates - reduction in health care costs - Could lead to further lifestyle change such as a reduction in alcohol and cigarette consumption - further reducing costs. - more pride in nation and local environment - more investment in sport and physical activity - regeneration programmes - Sport England suggest that every £1 spent on community sport and physical activity generates nearly £4 for the English economy and society. - Enabling more bidding on sporting competitions. - levelling up - more employment opportunities - more taxes paid. - more international success - shop window effect, increase in tourism, votes for political parties in power. - Bigger pool of talent Psychological: - improved mood - reduction in depression symptoms - reduction in stress and anxiety				

Question	Mark Scheme	AO1	AO2	AO3	Total
	- improved ability to cope with stress. - improved self-esteem and confidence - improved body image - improve memory. Positive impacts of developing elite sport: There are a number of benefits that are associated with success in international sporting competitions (such as World Cups and Olympic Games) - Many governments now feel that it is a legitimate use of public funds to support elite athletes. - Sporting success can boost national pride and morale. Concept of the 'feel good factor' and bread and circuses theory – divert attention away from problems within society (esp. important in the age of austerity) - Economic benefits – shop window policy. - Increase tourism for the county. - Success in elite sport as a great driver of mass participation. - Success at an elite level can help to create more role model leading to increased participation (widen the base of the participation pyramid) - Extended media exposure. - Creation of role models – links with social learning theory. - Lord Coe - everything starts from emulation and aspiration. - Is elite sport something to aspire towards? Negative impacts of developing elite sport: - However, supporting elite sport is very costly and others argue that funds could be better used in other areas such as health, education and the promotion of sport for all. - Issues relating to the promotion of sporting excellence. - Is elite sport too elitist? Money is ploughed into the chosen few at the expense of the rest - could the money be better spent elsewhere? - Problems with win at all costs (Lombardian ethic) and deviance – made worse by the commercialism of sport. - Promoting excellence will not address wider societal issues/inequalities. - Some sports don't need funding-mass spectator sports (football)				

Question	Mark Scheme	AO1	AO2	AO3	Total
	Further evaluations: The positive impacts are not always felt across all aspects of society: - Some have a lack of interest in sport. - The rising cost of living - means that there is less disposable income than ever across households to be spent on sports participation. - Those not participating in sport - the opposite of the above points could exist. - Participation levels are not always increased across all areas of the population, across all areas of the country and in all sports. - Existing Barriers - opportunity, provision, esteem - in relation to several population groups. - Governments funding policy - means gaps still exist in sports and fewer pathways therefore still exist. - media coverage of bigger sports - only seeks to widen the gaps further. - Policy changes - more about mass participation and less about elite sporting success - is more being invested here than at a community or participation based level which accounts for a much bigger majority and where the biggest health and well-being benefits can be seen - therefore, money invested in elite sport could be better spent elsewhere. - cost - some activities, equipment and facility memberships are expensive and so not available to all. - lack of education - there is still a lack of knowledge and understanding around the wider benefits of physical activity involvement. - Environmental consequences of an increase in elite sport participation - damage to wildlife habitats etc. - Is it possible for Governments to promote both excellence and mass participation. (Finite levels of funding – funding elite programmes may direct money away from mass participation programmes – both are costly). - Results from funding elite sport more immediately visible and tangible. Mass participation benefits tend to be long term. <i>Accept other appropriate evaluations.</i>				

Band	AO1 2 Marks	AO3 10 Marks
3		8-10 marks Excellent discussion of whether it is more important to increase mass participation or develop elite performance. Detailed and reasoned judgements are made. The response is clearly expressed and shows accurate use of technical terminology. Most key factors identified and discussed in detail. Consistently accurate and very detailed discussion.
2	2 marks Good knowledge and understanding of the impact of an increase in participation in sport.	4-7 marks Good discussion of whether it is more important to increase mass participation or develop elite performance. Judgements are made but not always evidence based. Discussion is often accurate and detailed. Discussion tends to concentrate on one aspect: either positive or negative impacts.
1	1 mark Limited knowledge and understanding of the impact of an increase in participation in sport.	1-3 mark Limited discussion of whether it is more important to increase mass participation or develop elite performance. Few key factors identified and discussed but in a superficial manner. Discussion is superficial and sometimes accurate with some detail.
0	0 marks No knowledge and understanding of the impact of an increase in participation in sport.	0 marks No discussion of whether it is more important to increase mass participation or develop elite performance.

Question	Mark Scheme	AO1	AO2	AO3	Total
4.	Snooker is just one of many sports that have embraced the global stage. With an ever-growing number of tournaments across the world and players willing to travel huge distances to participate. Analyse the impact of globalisation on sport. Banded answer Indicative content: Positive Impacts: Globalisation of sport has led to: - Definition of globalisation. - Cashmore's three levels of globalisation (i) the creation of global sporting competitions e.g. Indian Premier League (IPL) in cricket; (ii) the development of satellite communications e.g. people across the world can share and experience events such as Olympic 100m final 'live' and (ii) growth of the global market of sports teams, sports stars and sports merchandise e.g., evolution of sports brands such as Nike and Under Armour and the cult of celebrities such as the creation of the Jordan brands, Andy Murray - AMC Castore, Roger Feder and Nadal - Nike branding. - Players recruited to play for teams in countries other than their own and the effect on home grown talent e.g., Premiership football. - Successful hosting and coverage of major international tournaments and competitions in different nations e.g., World Cups/Olympics etc – has led to sport becoming available worldwide with more funding, better facilities/coaching/equipment - UK Sport has confirmed that sport in the UK will be given around £15.2 million in funding building up to the Paris Olympics to help build on the success of previous games. - Development of the 'Cult' of the celebrity sport star/influence in and out of sport - Power of the media – globalisation has further increased the power of the media in shaping sport/s e.g., rule changes, breaks in play for advertising, new formats such as T20 and The Hundred (100 ball Cricket). - Impact of social media – further increased the growth and impact of social media platforms such as twitter/Instagram etc. - Increase the number of sports being covered. - Seen an increase in female presenters/pundits/commentators/refs/umpires as a result - e.g., Gabby Logan, Clare Balding, Alex Scott now found in traditionally male sports	4		16	20

Question	Mark Scheme	AO1	AO2	AO3	Total
	e.g., Match of the Day, football World Cup. Six Nations rugby. - Raised profile of women's sport/which has stimulated participation/increased profile of role models stimulates participation. - Revenue Increased revenues for women's sports - has made sport a potential career for women/ increased prize money/enabled more women's sports to become professional for example, Women's Premier League football, Netball Super League, WNBA, women's golf have all enabled more women to train full time. - More sponsors attracted - foreign investors etc. - Growth in spectatorship - Sport as a commodity/sport as a business. Concept of assets (such as players/clubs/stadia/merchandising etc) that can be bought and sold for a profit. - Market forces – supply and demand/those with the most money have the most influence. Effect on transfer fees - Harry Maguire most expensive defender of all time = Man Utd £80 million. - Americanisation of sport – NBA/Superbowl/inclusion of baseball in Tokyo Olympics etc. - Commercial benefits – the selling of sports goods and merchandise can often add to the profits of many local, regional, and national businesses. Negative Impacts: Globalisation of sport has led to: - Has sport become over commercialised as a result? - Unsuccessful sports have their funding withdrawn widening the gap. - Unequal funding when sponsorship reflects company image. - Minority sports (still) get limited coverage / are less marketable. - There are still huge wage disparities between men and women's sports. - These presenters are often young/attractive women. - Media coverage/pressure - leading to many athletes withdrawing from competition for mental health reasons e.g., Niaomi Osaka and Simone Biles. - Participation decline - despite participation figures rising during major events, participation figures in the UK are continuing to decline year on year/easier and cheaper to stay at home at spectate.				

Question	Mark Scheme	AO1	AO2	AO3	Total
	- Media control of sport / timing or scheduling of events - Increased exposure of negative role models - Too much emphasis on winning /pressure to perform Lombardianism / loss of 'traditional' sport. - Copying or being influenced by the bad behaviour of (negative) role models. o Irresponsible press coverage / myths and stereotypes reinforced. - Media intrusion or media demands. - Pay per view means not everyone can see all events. - Delays for television match officials (TMOs) may put performers off or disrupt a game. - Deviance – it could be argued that the pressure to achieve success has led to an increase in deviant behaviour in sport and is often highlighted by the media prior to, during and after these major events e.g., doping allegations and controversies, match fixing, hooliganism, violent and aggressive acts etc. - Unequal access – despite numerous regeneration and redevelopment projects many parts of the country do not experience the same facility and transport benefits as the host city and many parts of the host country remain unchanged and unaffected. - Relatively few sports are as lucrative as e.g., tennis, golf, football, F1 etc. - Withdrawal of sponsorship – if athletes or sports are unsuccessful during major sporting events their support is often withdrawn as a result or does not generate the expected level of funding. - Spectators / supporters may disagree with corporate sponsors ethics. - More costly for spectators – rise in ticket costs/season tickets/merchandising/pay per view etc. - Unequal funding from sponsorship deals - Some athletes / sports are more marketable than others. - Pressure to perform on individual / team performers/maintain / please sponsors. - Can lead to deviance / illegal aids / violence. - Performers must attend promotional events / are limited to specific kit or equipment – can be fined for not promoting their sponsor e.g., Niaomi Osaka - \$15,000 fine for skipping her news conference at Roland Garros.				

Band	AO1 4 Marks	AO3 16 Marks
3		11-16 marks Excellent, well-reasoned analysis of the impact of globalisation of sport. Most key factors identified and discussed in detail. Both sides of the debate have been fully discussed. Detailed and reasoned judgements are made. The response is clearly expressed and shows accurate use of technical terminology. Writing is very well structured using accurate grammar, punctuation, and spelling.
2	3-4 marks Good knowledge and understanding of globalisation in sport.	5-10 marks Good analysis of the impact of globalisation of sport. Judgements are made but not always evidence based. Discussion tends to be one-sided, concentrating on either agreeing or disagreeing with the statement posed. The response is adequately expressed and shows appropriate use of technical terminology. Writing is generally well-structured using reasonably accurate grammar, punctuation, and spelling.
1	1-2 marks Limited knowledge and understanding of globalisation in sport.	1-4 marks Limited analysis of the impact of globalisation of sport. Few key factors identified, and discussion is one-sided and superficial. The response shows basic use of technical terminology. Writing shows some errors in grammar, punctuation, and spelling.
0	0 marks Response not worthy of credit.	0 marks Response not worthy of credit.

Component 2: Assessment objectives mark allocation

	Q1	Q2	Q3	Q4	TOTAL
AO1	14	13	5	4	36
AO2	6	9	6	0	21
AO3	10	6	16	16	48
TOTAL	30	28	27	20	105

* 7 marks for quantitative skills - 2d (3) & 3a (4)