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# **GCE MARKING SCHEME**

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**SUMMER 2023**

**A LEVEL  
PHYSICAL EDUCATION – COMPONENT 1  
A550U10-1**

## **INTRODUCTION**

This marking scheme was used by WJEC for the 2023 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

**GCE PHYSICAL EDUCATION**

**COMPONENT 1**

**SUMMER 2023 MARK SCHEME**

<b>Question</b>	<b>Mark Scheme</b>	<b>AO1</b>	<b>AO2</b>	<b>AO3</b>	<b>Total</b>
1. (a)	<p><b>Define reaction time.</b></p> <p><i>Award 1 mark for:</i></p> <p>The time from the stimulus occurring to the performer starting to move in response to it.</p> <p>Must specify start or beginning of movement</p>	1			1
(b)	<p><b>Explain two factors that affect the response time of the athlete.</b></p> <p><i>2x2 marks</i></p> <p><i>Max 2 marks for a list</i> <i>2 marks for explanation of each factor</i></p> <p>Age Gender Practice Illness/Health Previous experience/Stage of learning Hicks Law – simple/choice reaction time Height Stimulus intensity</p>	2	2		4
(c)	<p><b>Describe Newton's third law of motion.</b></p> <p><i>1 mark for basic description</i> Newton's third law states that for every action there is an equal and opposite reaction.</p> <p><i>2 marks for full description</i></p> <p>When a force is applied to an object, the object will apply an equal force back in the opposite direction.</p>	2			2

Question	Mark Scheme	AO1	AO2	AO3	Total
(d)	<p><b>Justify why Type IIb are the predominant muscle fibres used by the sprinter.</b></p> <p><i>Award up to 4 marks:</i></p> <p><i>1-2 marks for a limited justification of why Type II b fibres are predominant in sprinting</i></p> <p><i>3-4 marks for a developed justification of why Type II b fibres are predominant in sprinting</i></p> <p><i>Indicative content</i></p> <p>Sprinting is a maximal event, - 100% intensity  Type IIb muscle fibres predominantly use creatine phosphate for energy 90-100% intensity system- time 8-12 seconds  Contracts forcefully, powerfully and quickly  Fatigues quickly  Anaerobic</p>		4		4
(e)	<p><b>Identify four reasons why a coach would observe and analyse an athlete's performance.</b></p> <p><i>4x1 mark</i></p> <p>Identify strengths and weaknesses  Develop training programmes  Set goals/targets  Develop an ongoing fitness profile for the performer  Talent identification  Feedback  Motivation  Monitor – progress  injury  level of effort  level of performance  comparison</p>	4			4
(f)	<p><b>Explain why post performance video analysis can be beneficial to an athlete.</b></p> <p><i>Award up to 3 marks:</i></p> <p><i>1-2 marks for a basic explanation of why post performance video analysis can be beneficial</i></p> <p><i>3 marks must contain a developed answer with appropriate examples of the benefits to an athlete</i></p> <p>Candidates must explain the benefits of video analysis</p>		3		3

Question	Mark Scheme	AO1	AO2	AO3	Total
	<p><b>Indicative content</b></p> <p>Permanent record of performance which can be used to compare past and present levels</p> <p>Different camera angles can be used to give different perspectives of performance e.g. birds eye view</p> <p>Multiple watch backs – repeated -Visual guidance</p> <p>Slow motion</p> <p>Freeze Frame allows precise analysis of technique that can be compared to others</p> <p>Provides a base for specific feedback</p> <p><i>Areas of improvement</i></p> <p><i>Tactics/strategies positional</i></p> <p><i>Comparisons</i></p>				
<b>Totals</b>		<b>9</b>	<b>9</b>		<b>18</b>

Question	Mark Scheme	AO1	AO2	AO3	Total
2. (a) (i)	<p><b>Identify the axis of rotation used when performing the hammer throw (Figure 2).</b></p> <p><i>Award 1 mark</i></p> <p>Vertical longitudinal</p>	1			1
(ii)	<p><b>Explain how an athlete can change body shape to alter their speed of rotation.</b></p> <p><i>1-2 marks: Basic explanation</i>  <i>3-4 marks: Good explanation</i>  <i>5 marks: Detailed explanation, using specific terminology</i></p> <p>The response must refer to how they change their shape to alter the speed of rotation</p> <p>When an athlete rotates, the angular momentum remains constant.  Angular momentum = moment of inertia <math>\times</math> angular velocity. Angular momentum refers to the quantity of rotation.  Moment of inertia – resistance to spin</p> <p>Moment of inertia is how the performer distributes their mass around her axis of rotation, and angular velocity refers to the speed of the rotation during the performance.  If the performer changes their moment of inertia, it leads to a change in the angular velocity of their rotation.</p> <p>This is conservation of angular momentum</p> <p>For example, if they take their arms and legs further away from the axis of rotation (increase their moment of inertia) and start to open up the body in preparation this will allow her to decrease the speed of her rotation. If the athlete brings their arms/legs back towards the axis of rotation (tucks/make their body shape smaller/narrower) this decreases their moment of inertia and then the speed of rotation will increase.</p>		5		5

Question	Mark Scheme	AO1	AO2	AO3	Total
(b) (i)	<p><b>Describe how an athlete can increase their power.</b></p> <p><i>Award 1 mark for basic description Award 2 marks for detailed description</i></p> <p><i>Power training – plyometric Muscular strength – weight/resistance/circuit Speed –sprint training</i></p> <p><i>Reference to strength and speed Principals of training</i></p>	2			2
(ii)	<p><b>Outline a recognised laboratory test that could be used to measure an athlete’s power.</b></p> <p><i>Award 1 mark for a basic outline</i></p> <p><i>Award 2 marks for a detailed outline which could include the test procedure – distance, duration and protocol</i></p> <p><i>E.g. Wingate test - athlete cycles into a steady rhythm on the command of the tester a resistance is added with the athlete encouraged to peddle as hard as possible for 30 seconds</i></p> <p><i>Accept other lab tests</i></p>	2			2
(c) (i)	<p><b>Identify two possible causes of an athlete experiencing a plateau in performance.</b></p> <p><i>2x1 mark</i></p> <p><i>Fatigue Boredom Lack of motivation/drive reduction Coaching style/level of expertise Other relevant causes</i></p>	2			2

Question	Mark Scheme	AO1	AO2	AO3	Total
(ii)	<p><b>Explain the strategies a coach could use to help an athlete overcome a plateau.</b></p> <p><i>1-2 marks: Basic explanation no example</i>  <i>3-4 marks: Good explanation and some examples</i>  <i>5 marks: Detailed explanation and relevant examples</i></p> <p><i>Indicative content</i></p> <p>Use of external rewards to increase motivation            Goal setting to give the performer a focus            Vary to practice to prevent boredom            Break down the skill into parts for better understanding            Distribute the practice to allow breaks to prevent fatigue            Effective feedback            Allow time for mental rehearsal of the skill            Change coach/club/level of competition            Praise/positive reinforcement – increase confidence/self-efficacy</p>		5		5
(d)	<p><b>Discuss how the different types of practice used by a coach can help an athlete when learning of a new skill.</b></p> <p><b>Indicative content:</b></p> <p>Massed practice involves repeating the skill or action on numerous occasions with few or no rest periods. This practice is suited to the repetition of simple skills; especially those with short movement times.</p> <p>Massed practice is similar to fixed practice (see below) and will allow skills to become habitual and 'over learned' with a strong development of motor programmes (the 'pattern' of the movement). Disadvantages of massed practice are that it does not always allow time for feedback and if carried out with tiring skills the increase in fatigue could lead to boredom or injury. There is also a risk that the skill is unlearned. For example a fatigued performer may change their technique slightly (maybe to relieve the stress on a sore muscle) and this new movement pattern replaces the previous correct one.</p>	1	1	4	6



Question	Mark Scheme	AO1	AO2	AO3	Total
	<p>Distributed practice involves practice of a skill with a recovery and rest periods between each attempt. Distributed practice is similar to interval training and is best suited with novice performers, who have a lack of fitness and low motivation. Situations that suit distributed practice include dangerous environments and skills that are complex.</p> <p>Research suggests that distributed practice is more effective than massed and performers find it less tiring. This is because due to the rest periods they avoid overload. Each practice session can be varied and this prevents tedium and maintains motivation and concentration of the learner. Coaches utilise mental practice and rehearsal during the breaks between practice and feedback can be made at each session preventing mistakes being compounded.</p> <p>Fixed practice involves the repetition of a skill in a constant unchanging environment. This method suits closed skills where a movement is performed in an environment that does not change. Gymnasts and divers use fixed practice repeating skills many times until they become autonomous.</p> <p>The advantages of fixed practice are that the movement becomes 'over learned' and little conscious attention needs to be paid to the execution of the skill. This means that the skill can then be reproduced consistently. A cricket batter using a bowling machine will use fixed practice to develop one shot to give confidence and for shots like the hook or pull shot it can be safer if the learner has a clearer idea of how the ball is going to travel. A disadvantage of fixed practice is the lack of variability and challenge can become boring for the performer. In addition the repeated movement can lead to increased fatigue and poor habits may develop in these circumstances</p>				

Question	Mark Scheme	AO1	AO2	AO3	Total
	<p>Varied practice involves changing the practice conditions to incorporate as many different situations as possible, in a range of different contexts which replicate the various situations found in competition. For example a football or hockey player may have to strike balls that are rolled in from the side or from behind to replicate the different types of shot they would need to hit in a game. This enables the performer to learn the skill and apply it to different situations. Typically, invasion games that involve open skills are best suited to varied practice. Performers rehearse scenarios set by the coach, and each time a scenario is repeated something different happens.</p> <p>Also accept – with relevant detail/discussion  Whole practice  Whole – part – whole  Part  Part progressive/Progressive part  Mental practice</p> <p>(See banding grid for allocation of marks)</p>				
<b>Totals</b>		<b>8</b>	<b>11</b>	<b>4</b>	<b>23</b>

Question	Mark Scheme	AO1	AO2	AO3	Total
3. (a)	<p><b>Describe one other barrier to participation in sport.</b></p> <p><i>Award 1 mark for identifying a barrier</i>  <i>Award 1 mark for a basic description</i>  Or  <i>Award 2 marks for a detailed description</i></p> <p>Opportunity e.g. access  Provision e.g. lack of facilities  Esteem e.g. confidence  Economic e.g. cost</p>	2			2
(b)	<p><b>Explain, with reference to Figure 3, why athletes display deviant behaviour in sport.</b></p> <p><i>1-2 marks: limited explanation</i>  <i>3-4 marks: developed explanation with reference to figure 3</i></p> <p>Over conformity / positive deviance  This is defined as behaviour which is outside the norm but has no intentions to harm or break the rules in place.  <u>Examples:</u></p> <ul style="list-style-type: none"> <li>- Training too hard that harm is caused on the individual</li> <li>- Playing/ competing when injured (seen positive as they are striving to win, but harm is seen as deviant)</li> </ul> <p>Under conformity / Negative deviance:  Negative deviance occurs when a player, spectator or anybody else involved in sport behaves in a way that knowingly and intentionally breaks the rules and ethics of sport.  <u>Examples:</u></p> <ul style="list-style-type: none"> <li>- Using performance enhancing drugs</li> <li>- Cheating within a contest (e.g. deliberate fouls)</li> <li>- Bribery to fix an outcome</li> <li>- fan violence</li> <li>- Illegal betting</li> <li>- Player violence</li> </ul>		4		4

Question	Mark Scheme	AO1	AO2	AO3	Total
	<p>Relative deviance: Some actions within sport are deemed to be within the 'normal and acceptable behaviour' within a sporting context or a 'sub-culture' but deviant behaviour that is not acceptable in wider society. <u>Examples:</u> MMA fighter holding someone in a headlock. F1 drivers blocking cars from overtaking. Runners and cyclists pushing and shoving to gain a prime position</p>				
(c)	<p><b>Explain how an understanding of Bandura’s theory of observational learning can aid the development of a new skill.</b></p> <p><i>1-2 marks: Basic explanation</i> <i>3-4 marks: Detailed explanation which includes the development of a new skill</i></p> <p>Demonstration – accurate display or correct model of skill/technique Attention to copy a demonstration the performer must pay attention, and focus on the important cues. The amount of attention paid will be influenced by the perceived attractiveness of the model, the competence of the model and the status of the model. Personal characteristics (personal attention span) and the incentives that are present are also important. Retention The observer must be able to remember the model that is shown. Creating a mental picture of the process is important. Mental rehearsal can improve retention of the mental image. Coach highlight key information Motor reproduction The observer must be physically able to repeat the skill being shown. It is vital that what is being seen/demonstrated matches the capabilities of the observer. Feedback should be given in practices to help improve the skill. Motivation the level of motivation of the observer is important, in order for them to copy the performance well. External reinforcement of the model will help to increase motivation to copy it. Matching performance – Aim to repeat the original perfect technical model/demonstration – perform the skill as it should be performed</p>		4		4

Question	Mark Scheme	AO1	AO2	AO3	Total
(d)	<p><b>Discuss the idea, that sport is used as a political tool.</b></p> <p><b>Indicative content:</b></p> <p><i>Major events – World Cups/Olympics – shop window policy for nations as hosts and as competitors</i></p> <p><i>Cultural values – on the world scale</i></p> <p><i>Propaganda – a type of communication that seeks to influence people towards a certain cause and, in this case, a political philosophy. The information given as part of this communication is biased.</i></p> <p><i>Diplomacy – countries with poor relations in the real world play on the pitch/court fairly</i></p> <p><i>Protests – BLM – One love arm bands, ban oil disrupting sport events – media coverage/exposure</i></p> <p><i>Boycotts – BLM Basketball/Baseball/NFL games after police shootings</i></p> <p><i>Bans – recent ban on Russian athletes and teams from sporting events and competitions</i></p> <p>Historical use.</p> <p>Use for propaganda: e.g. 1936 Berlin Olympics and cold war</p> <p>Use for Boycotts and protests e.g. Black power salute Mexico Olympics 1968 / Munich Massacre 1972, African nations boycott 1976. Can also make reference to Moscow 1980 &amp; 1984 LA Olympic ‘tit for tat’ boycotts.</p> <p>Diplomacy - managing international relations, typically by a country's representatives abroad. Use for diplomacy: Ping pong diplomacy</p> <p>Sporting events are useful because both the spectators (people) and their governments (elite politicians) can be reached through their love of sport. As a consequence, international sporting events can improve relations. Sport provides an unofficial reason and location for international leaders to meet and begin talking. There are plenty of official meetings and summits for diplomats and heads of state, but few of them are as desirable and entertaining as sport events—nor do they</p>	1	4	5	10

Question	Mark Scheme	AO1	AO2	AO3	Total
	<p>receive as much media attention. While enjoying the performances of the elite athletes, including the ones from their own nations, many heads of state often use the opportunity to engage other parties in unofficial discussions about issues</p> <p>When Korea and Japan were asked to co-host the 2002 FIFA World Cup, the two nations used the event to start a dialogue and improve on their historically problematic relationship. However, the organization of the event itself became symbolic of the problematic relationship between the two nations, and the two nations fought openly about the name of the tournament, the mascot, and the location of the important matches (opening match, semifinals, and final).</p> <p>Use for National Identity: Sport offers a national identity, uniting countries nationally and internationally, it can be used to shape values and morals within society</p> <p>Patriotism and pride – playing of national anthems and displaying of national flag.</p> <p>By attending and supporting different sporting events, people reinforce the identity dimension of citizenship</p> <p>Sport creates a sense of belonging and unity – bringing the country together (shared experiences). ‘Feel-good’ factor associated with success in global games</p> <p>Success in sport is often linked with politics – sport seen as a shop window</p> <p>deviance / loss of integrity for sport due to increased pressure to win / win at all costs / Lombardianism e.g. match fixing allegations in cricket and Olympic boxing (</p> <p>exploitation / fame ‘too much’ for some performers committed to demands of sponsor/s - governments / performers may have to compete more than is desirable e.g. young successful footballers unable to cope with demands</p>				

Question	Mark Scheme	AO1	AO2	AO3	Total
	<p>role models created / copying of (good) behaviour of (positive) role models e.g. copying sportsmanship</p> <p>copying or being influenced by bad behaviour of (negative) role models e.g. bad language / lifestyle choices</p> <p>irresponsible press coverage fuelling (by press) of negativity towards opponents e.g. England v Germany football</p> <p>money to sport from sponsorship / sponsorship is the funding of individuals or teams or events or kit to increase brand awareness or company exposure and/or to make profit sponsoring sport gives healthy or 'cool' image to sport e.g. accept suitable / relevant example/s</p> <p>endorsements of products by well-known performers aren't appropriate for the age group or some cultures</p> <p>bad image for sport due to being linked to tobacco or alcohol or fast food products e.g. accept any suitable / relevant example</p> <p>Other areas of credit</p> <p>Social benefits - such sporting success can boost national pride and morale (concept of the 'feel good factor'). Increased social harmony and cohesion.</p> <p>Economic benefits – shop window policy - raising the profile of country / city. Increased tourism and business investment. Job creation.</p> <p>Health benefits - higher levels of grass roots participation will, inevitably lead to associated health benefits.</p> <p>Creation of role models – links with social learning theory and reduce crime rates/anti-social behaviour/social control</p> <p>No politics? – NGB's and events banning political statements, fining athletes who break these rules, some athletes faced expulsion from events for protests or political statements</p> <p>Sports are independent bodies that are regulated by international organisations and therefore can have no political agenda, due to the differences from country to country – yet sport rules remain the same across the globe</p> <p><i>See banding grid for marks</i></p>				
<b>Totals</b>		<b>3</b>	<b>12</b>	<b>5</b>	<b>20</b>

Question	Mark Scheme	AO1	AO2	AO3	Total
4. (a)	<p><b>Identify four factors that may cause aggressive behaviour in sport.</b></p> <p><i>4x1 mark</i></p> <p>Hostile crowd  Perceived unfairness – poor officiating  Retaliation  Injur  Copying significant others  Frustration  Temperature  Low moral reasoning/personality  Score line/embarrassment  High stake game/High arousal  History/rivalry/past fixtures</p>	4			4
(b)	<p><b>Explain, using sporting examples, the frustration-aggression hypothesis.</b></p> <p><i>1 mark: Basic explanation with no examples  2-3 marks: Good explanation few examples  4 marks: Excellent explanation with relevant examples</i></p> <p><i>Amendments required</i></p> <p>The frustration-aggression hypothesis suggests that aggression is created from blockage (perceived) of a goal or failure to achieve a specific task/skill/desired outcome.</p> <p>Cathartic response</p> <p>The theory proposes that frustration leads to increased arousal and this in turn increases the likelihood of aggression. However, aggression is more likely to occur if ‘socially learned cues’ were present. For example  A tennis player smashing their racquet after constantly hitting poor shots or a golfer throwing their club into the water after missing easy puts  A player pushing an opponent after constantly being fouled by them or an athlete pushing another after they blocked their route on the track</p>		4		4



Question	Mark Scheme	AO1	AO2	AO3	Total
(c)	<p><b>Discuss, using examples, the various motivational strategies used by a coach to develop the performance of an athlete.</b></p> <p><i>See banding grid for allocation of marks</i></p> <p><b>Indicative content:</b></p> <p>Use of Extrinsic rewards To develop motivation Develop intrinsic motivation Tangible and intangible rewards e.g. Medals, Disadvantage – extrinsic rewards given too frequently can result in a loss of intrinsic motivation, e.g. praise (intangible) advantages – some people are not self-motivated (and need external sources of motivation).</p> <p>Reinforcement Disadvantage is the reliance and control of behaviour, e.g. Ensure enjoyment and success within the session.</p> <p>Goal Setting Advantages: Focus Long term target –SMART Disadvantage: Unrealistic goals could be set</p> <p>Varied activities fun / novel activities a range of activities will potentially add interest and encourage participation e.g. Games such as ball touch and stuck in the mud to encourage agility and awareness of others. Disadvantage – some participants may prefer to work in the same area and focus on developing specific skills rather than constantly varying practice and activities</p> <p>Coaches use of significant others or role models Provide examples of role models, who young people copy or are inspired by role models need to be ones young people can identify with or relate to the wrong role models can reinforce disaffection, e.g. a skillful sports performer is someone to copy Disadvantage – not all significant others/role models are appropriate as motivators Other responses could include: Punishment Privileges withdrawn if punishment can reinforce poor lifestyle behaviour Some may be proud of dysfunctional behaviour or unhealthy lifestyle / some need to be different, e.g. it's more 'cool' to not do sport</p>	2	3	7	12

Question	Mark Scheme	AO1	AO2	AO3	Total
	<p>Disadvantage – punishment can lead to a loss of self-esteem/not a good strategy for cognitive learners</p> <p>Peer pressure May motivate / peers can encourage. e.g. friends can encourage ‘non doers’ to join gym</p> <p>Disadvantage – young people may participate just to retain friends/if peers are not active then they may not be either.</p> <p>Feedback Positive/negative Knowledge of results Knowledge of performance Where/When/how/who/what</p> <p><b>Accept any other relevant responses</b></p>				
<b>Totals</b>		<b>6</b>	<b>7</b>	<b>7</b>	<b>20</b>

Question	Mark Scheme	AO1	AO2	AO3	Total
5. (a)	<p><b>Identify the receptor responsible for detecting changes in blood pressure.</b></p> <p><i>Award 1 mark:</i></p> <p>B - Baroreceptor</p>	1			1
(b)	<p><b>Describe how blood is redistributed to skeletal muscle during exercise.</b></p> <p><i>Award 3x1 mark</i></p> <ul style="list-style-type: none"> <li>• <i>Receptor detect changes from resting levels</i></li> <li>• <i>Control of blood shunting</i></li> <li>• <i>vasomotor control via the VCC in the medulla oblongata</i></li> <li>• <i>Pre-capillary sphincters control the redistribution of blood working and non-working muscles</i></li> <li>• <i>Vasodilation</i></li> <li>• <i>vasoconstriction of blood vessels to control blood flow</i></li> </ul>	3			3
(c)	<p><b>Explain how a high VO<sub>2</sub> max would benefit an endurance athlete.</b></p> <p><i>Award 1 mark for knowledge of VO<sub>2</sub> max</i></p> <p>The amount of oxygen consumed and utilised per minute</p> <p><i>Award 1 mark for a basic explanation of how high VO<sub>2</sub> max benefits and endurance athlete</i></p> <p><i>Award up to 2-3 marks for a detailed explanation of how high VO<sub>2</sub> max benefits and endurance athlete</i></p> <p>Work aerobically for longer raising the Anaerobic Threshold, reducing the onset of blood lactate (OBLA) and conserving glycogen and CP stores.</p> <p>A higher intensities more O<sub>2</sub> available to use aerobic glycolysis</p> <p>More O<sub>2</sub> available to utilise fat as fuel at lower intensities</p> <p>More O<sub>2</sub> available for type 1 fibres to work aerobically</p>	1	3		4

Question	Mark Scheme	AO1	AO2	AO3	Total
	<p>Reduced recovery times after intense exercise will be shorter due to the transportation system that removes waste products as well as delivering oxygen and fuel.</p> <p>Faster recovery means the body can replenish CP stores and glycogen at a faster rate and removal of lactic acid.</p> <p>Lactic acid will be removed faster.</p> <p>Myoglobin stores will be re-saturated at a faster rate because of increased oxygen uptake.</p>				
(d)	<p><b>Analyse how the different energy systems are utilised during a 1500m race.</b></p> <p><i>1-2 marks: knowledge of energy systems used in 1500m</i></p> <p><i>1-2 marks: when the energy systems used</i></p> <p><i>1-2 marks: analysis of the energy system in race and how they interchange</i></p> <p>ATP PC 10% Creatine phosphate gain a good starting position and sprinting at the end of the race, work rate 85 % plus of MHR</p> <p>Lactic Acid System 30% Glycolysis used to increase speed when overtaking another athlete, work rate up to 85 % MHR – increasing speed towards the end of the race – limited</p> <p>Aerobic System 60 % Running at a steady pace to stock with the pack, work rate approx. 70 % MHR</p> <p>All the energy systems work together in varying proportions to replenish ATP</p> <p>The factors that determine the proportions of the energy systems used are intensity and duration of the exercise and the fitness levels of the individual.</p> <p>Threshold - The point at which the predominant energy system being used cannot provide sufficient ATP to maintain the current intensity of exercise. E.G The threshold for the CP/lactic acid system is approximately 10 seconds (after very high intensity exercise) after this the stores are depleted and the Anaerobic Glycolysis system will become the predominant system to provide ATP.</p> <p>Anaerobic Threshold – The point that which the aerobic system cannot sustain energy production (ATP replenishment) at this intensity and the anaerobic glycolysis (lactic acid) system becomes the predominant system.</p>	2	2	2	6

Question	Mark Scheme	AO1	AO2	AO3	Total
(e)	<p><b>Discuss how developments in equipment and technological advances have impacted on performers and officials.</b></p> <p><i>See banding grids for allocation of marks</i></p> <p><b>Indicative content</b></p> <p>Improved facilities/equipment/clothing/footwear/ improved access due to cost reduction</p> <p>Adapted equipment/prosthetics allow disabled athletes to compete</p> <p>Improved analysis of performance/testing more accurate/GPS tracking information</p> <p>Better rehabilitation techniques/injury prevention techniques</p> <p>Enhanced player welfare/replays allow punishments for foul play</p> <p>Improved standards of performance/more records broken</p> <p>Scoring more accurate/helps officials make correct decisions/timing more accurate</p> <p>Rules adapted to use technology more effectively</p> <p>Increasing crowd or performer interaction with decisions e.g. Hawkeye or equiv.</p> <p>Increased crowd interaction with the official e.g. refcam/ref-link or equiv.</p> <p>Different sports can make choices about type of technology they wish to use e.g. goal line technology and VAR</p> <p>Allows for globalisation/world audience/increased access to spectate (Example of increased viewing access) more eyes more pressure</p> <p>Can be used to counter/simulate extreme climatic conditions</p> <p>Drug testing more efficient</p> <p>Security can be improved at venue</p> <p>Disagree/disadvantages</p> <p>Increased costs/pressure for new stadiums/facilities/ expensive to install</p> <p>Constant record breaking reduces spectator interest</p> <p>Poorer countries/sports/performers at a disadvantage if technology not available</p> <p>Technology not always accurate/breaks down</p>	3	1	6	10

Question	Mark Scheme	AO1	AO2	AO3	Total
	<p>Use of technology takes away 'human' element of luck/decisions/traditional nature of sport</p> <p>Officials avoid immediate decisions/officials over reliant on technology</p> <p>Sport less spontaneous/Breaks in play for decisions spoils experience</p> <p>Drug testing struggles to keep pace with new technology</p> <p>Increased/live media coverage can lower attendance at events/illegal streaming of matches and lower atmosphere social facilitation/inhibition. Conflict between governing bodies and manufacturers e.g. illegal golf clubs.</p> <p>Award any other relevant examples</p>				
<b>Totals</b>		<b>10</b>	<b>6</b>	<b>8</b>	<b>24</b>
	<b>Paper Totals</b>	<b>36</b>	<b>45</b>	<b>24</b>	<b>105</b>

## Banding Grids

2. (d)

<b>Band</b>	<b>AO1 1 mark</b>	<b>AO2 1 mark</b>	<b>AO3 4 marks</b>
<b>3</b>			<b>4 marks</b> There is an excellent discussion of how practice affects the learning of a new skill. Both advantages and disadvantages are explored
<b>2</b>			<b>2-3 marks</b> There is a good discussion of how different types practice affect learning a new skill. The discussion is based to either advantage or disadvantages
<b>1</b>	<b>1 mark</b> The candidate demonstrates some knowledge of the different types of practice	<b>1 mark</b> The candidate is able to explain the different types of practice	<b>1 mark</b> There is a limited discussion of how the different types of practice affect learning

3. (d)

<b>Band</b>	<b>AO1 1 mark</b>	<b>AO2 4 marks</b>	<b>AO3 5 marks</b>
<b>3</b>		<b>4 marks</b> There is an excellent explanation of the relationship between sport, sponsorship and the media	<b>4-5 marks</b> There is an excellent discussion of the relationship between sport, sponsorship and the media
<b>2</b>		<b>2-3 marks</b> There is a good explanation of the relationship between sport, sponsorship and the media	<b>2-3 marks</b> There is a good discussion of the relationship between sport, sponsorship and the media
<b>1</b>	<b>1 mark</b> The candidate demonstrates knowledge of the relationship between sport, sponsorship and the media	<b>1 mark</b> The candidate has a limited explanation of the relationship between sport, sponsorship and the media	<b>1 mark</b> There is a limited discussion of the relationship between sport, sponsorship and the media

## 5. (e)

<b>Band</b>	<b>AO1 3 marks</b>	<b>AO2 1 mark</b>	<b>AO3 6 marks</b>
<b>3</b>	<b>3 marks</b> Excellent knowledge of the advantages and disadvantages of technology in sport		<b>5-6 marks</b> Excellent discussion of the advantages and disadvantages of technology in sport. The candidate discusses the impact on both the performer and the official
<b>2</b>	<b>2 marks</b> Good knowledge of the advantages and disadvantages of technology in sport		<b>3-4 marks</b> Good discussion of the advantages and disadvantages of technology in sport. The candidate heavily focuses on one area e.g. performer
<b>1</b>	<b>1 mark</b> Limited knowledge of the advantages and disadvantages of technology in sport	<b>1 mark</b> The candidate provides relevant examples throughout	<b>1-2 marks</b> Limited discussion of the advantages and disadvantages of technology in sport, discussion is one sided.