GCE A LEVEL MARKING SCHEME

SUMMER 2022

A LEVEL
PHYSICAL EDUCATION – COMPONENT 1
A550U10-1

INTRODUCTION

This marking scheme was used by WJEC for the 2022 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 A LEVEL PHYSICAL EDUCATION

SUMMER 2022 MARK SCHEME

Question		AO1	AO2	AO3	Total
1. (a)	**Identify the learning curve in graph C.** *Award 1 mark for:* Negative or response with negative in…	1			1
(b)	**Outline three strategies a coach could use to ensure a positive learning curve occurs.** *Award up to 3 marks (3x1mark):* Feedback/reinforcement rewards correct/appropriate practice Changing tasks/ vary training practice Fee Target/goal setting Increase the stimuli e.g. coloured balls *Accept other appropriate responses*	3			3

Question		AO1	AO2	AO3	Total
(c)	**Explain how a coach could apply Bandura's theory of observational learning when teaching a beginner.** *Award 1-2 marks for a basic explanation of how a coach applies Bandura's theory when teaching a beginner* *Award 3-4 marks for a detailed explanation of how a coach applies Bandura's theory when teaching a beginner covering at least three points* *Award 5-6 marks for a developed explanation of how a coach applies Bandura's theory when teaching a beginner covering all of DARMMM* **Indicative content:** *Demonstration* *Attention* *Retention* *Motor Production* *Motivation* *Matching performance* Example of the stage/point from the knowledge of observational learning Demonstration (modelling by coach – significant other) Attention (demonstration must be seen and heard, precise, focus on specific teaching points and cues, avoid overload) Retention (performer must be able to retain information in memory and recall it, importance of practice and mental rehearsal, practices must be relevant, meaningful and/or realistic) Motor production (allow time for practice of skill, graduated approach to practices to allow success, performer must be able to carry out the task i.e. it shouldn't be too difficult) Motivation (without motivation performers will not pay attention, remember or practise skills, importance of feedback (intrinsic and extrinsic) and reinforcement (positive and negative) More respect for the significant other the other motivated you are The more relevant the skill the more they increase motivation Matching performance (performer is able to successful copy the demonstration and is ready to progress)	3	3		6

Question		AO1	AO2	AO3	Total
(d)	**Justify the placement of two specific skills on the following continuums.** *Be careful NOT to award marks for the placement of the skill. Marks are only awarded for the justification.* *Award up to 2 marks for Open – Closed* This continuum is concerned with the effects of the environment on skills (Knapp 1967) Open skills: sports such as Netball, Football, and Hockey involve open skills. The environment is continually changing, and so movements have to be continually adapted. Skills are predominantly perceptual and externally paced, for example, a pass in football. *Not the weather* Closed skills. These skills take place in a stable, predictable environment, and the performer knows what to do and when. Skills are not affected by the environment and movements follow set patterns and have a clear beginning and end. The skills tend to be self-paced, for example, a free throw in Basketball and serving in Squash or Tennis. *Award up to 2 marks for Continuous-serial-Discrete* This continuum is concerned with how well defined the beginning and end of the skill are – discrete, serial and continuous skills. Discrete skills are brief, well-defined actions that have a clear beginning and end. They are single, specific skills, which make up the actions involved in a variety of sports such as hitting and throwing. Hockey – a penalty flick in. Serial skills are a set of discrete skills that make a new complex movement e.g. the sequence skills of the triple jump Continuous skills have no obvious beginning or end. The end of one cycle of movements is the beginning of the next, and the skill is repeated like a cycle. These skills could be stopped at any moment during the performance of the skill – swimming, running, cycling.		4		4

Question		AO1	AO2	AO3	Total
(e)	**Explain how different types of reinforcement could be used in the cognitive stage of learning.** Maximum of 1 mark for identification of types of reinforcement *Award 1-2 marks for a basic explanation of HOW one/two type of reinforcement could be used in the cognitive stage of learning* *Award 3-4 marks for a detailed explanation of HOW more than one type of reinforcement could be used in the cognitive stage of learning. This response may lack detail of one of the types of reinforcement* *Award 5-6 marks for a developed explanation of HOW different types of reinforcement could be used in the cognitive stage of learning* Reinforcement: the process that causes a response or behaviour to reoccur by forming and strengthening then S-R bond The relationship between a stimulus and the specific action it initiates Stimulus-Response Bond -> a S-R bond is the connection that is made between a stimulus and the response made to this Stimulus. It is the system or process used to shape behaviour in the future **Positive Reinforcement:** Any action/stimulus/reward which increases the probability of the behaviour/action reoccurring. The use of the satisfier when the desired behaviour occurs, encouraging it to reoccur E.g. the right pass made in football, at the correct time and they will go on to score a goal. The coach would say 'well done' Strengthens the S-R bond Usually occurs after a successful performance and consists of extrinsic rewards or phrase. We are more likely to repeat a performance if it has been positively reinforced by a significant other	3	3		6

Question		AO1	AO2	AO3	Total
	Negative reinforcement: take a negative stimulus away e.g. the coach is continually shouting until they respond correctly and then they stop shouting **Punishment**: do not accept for cognitive stage of learning				
Total		**10**	**10**	**0**	**20**

Question		AO1	AO2	AO3	Total
2. (a)	**Identify, using figure 2, the following:** *Award up to 4 marks (4x1):* Movement type = Flexion Agonist muscle = Biceps (Brachii) Muscle contraction = Concentric/Isotonic Plane of movement =Sagittal	4			4
(b) (i)	**Describe the mechanical advantage of the second class lever system.** *Award up to 2 marks:* *When the effort arm is longer than the load arm it has a high mechanical advantage* *Heavy loads can be lifted with little effort* *Accept correct diagrams with labelling that offer a description*	2			2
(ii)	**Describe the mechanical disadvantage of the third-class lever system.** *Award up to 2 marks:* When the effort arm is shorter than the load arm it has a low mechanical advantage A short effort arm allows a fast movement but cannot lift a heavy load *Accept correct diagrams with labelling that offer a description.*	2			2

Question		AO1	AO2	AO3	Total
(c)	**Explain, using examples, the relationship between moment of inertia, angular velocity and angular momentum.** *Award up to 3 marks for knowledge:* *Angular momentum* Angular momentum relates to how much an object is rotating *Angular velocity* Angular velocity decreases because the body is increasing its resistance to motion *moment of inertia.* Moment of inertia is low/ angular velocity rate is high *Award up to 3 marks for the relationship using examples:* *1 mark for basic explanation* *2 marks for a detailed explanation of the relationship between at least two aspects* *Up to 3 marks for a developed explanation of the relationship of* moment of inertia, angular velocity and angular momentum *Angular of momentum=moment of inertia x angular velocity* Angular momentum relates to how much an object is rotating. An object has a constant angular momentum when it is neither speeding up nor slowing down. Conservation of angular momentum The angular momentum of an object depends on the distribution of the mass of the object. The moment of inertia is a value that describes the distribution. Moment of inertia is low/ angular velocity rate is high because the performer is tucked/ mass is close to the (transverse) axis of rotation. Moment of inertia increases when a performer is straightening body position/ untucks/ moving mass away from axis of rotation Angular velocity decreases because the body is increasing its resistance to motion/ straightening/ untucking/ moving mass away from axis of rotation	3	3		6

Question		AO1	AO2	AO3	Total
	Relationship For example, when a performer is in a tucked position during a dive their mass is close to the axis of rotation. Then when the diver straightens their body into a piked position the moment of inertia increases as the mass moves away from axis. Angular velocity decreases because the body is increasing its resistance to motion and moving mass away from axis of rotation.				
(d)	**Explain, using examples, how an understanding of fluid mechanics could improve performance.** *Award 1-2 marks for basic explanation of how fluid mechanics could improve performance* *Award 3-4 marks for a detailed explanation of how fluid mechanics could improve performance using examples throughout* The study of forces acting on the body travelling through the air or water Air Resistance: The force that opposes the direction of motion of a body through the air. Acts on a body travelling at high velocity through the air Drag: The force that opposes the direction of motion of a body through the water. Acts on a body travelling through the water Factors that affect drag such as speed of object, cross-section, surface area and surface effects. They should be able to explain the importance of streamlining and discuss developments in sports such as cycling (e.g. helmets, shape of bike, aero positioning) and swimming (e.g. swimsuits) that help to reduce the drag effect.	2	2		4
Total		**13**	**5**		**18**

Question		AO1	AO2	AO3	Total
3. (a)	**Outline the different possible motives for involvement in physical activity.** *Award 4x1 mark* *Award a maximum of 2 marks for a list* Physical Emotional Social Psychological Well-being Health Accept other credit worthy responses that might be using different terminology that could come int categories above	4			4
(b)	**Discuss how an individual's attitude can have an impact on their sporting performance.** **Indicative content:** Cognitive – thoughts & opinions e.g. you believe that training is good for you and therefore attend and make progress Affective –An emotional feeling e.g. likes and dislikes. Not enjoying training feeling undervalued Behavioural – actions & behaviour e.g. does not participate fully in training, fails to follow agreed tactics Or similar Triadic Model Attitudes are learnt from significant others. Attitudes are formed mainly through experiences. A pleasant experience in Physical Education, brought about when positive reinforcement follows success, is likely to promote a positive attitude towards sport and motivate the individual to engage in lifelong participation. Conversely, an unpleasant experience at school, such as failure, criticism or injury, would bring about a negative attitude. Sport then becomes the 'object' to be avoided in the future.		3	3	6

Question		AO1	AO2	AO3	Total
	The origin of an attitude could also stem from culture. Culture is a very complicated issue and can be determined by religion, race and peer groups. Social class is also linked to culture and in turn impacts upon attitudes in sport. For example, even in contemporary society, Rugby League is strongly associated with working-class origins, while membership at the private golf club continues to be dominated by a middle-class population. *(Please see banding grid for allocation of marks)*				

Band	AO2 3 marks	AO3 3 marks
3	**3 marks** Excellent application of the Triadic Model to performance, examples throughout (CAB)	**3 marks** Excellent discussion about how attitude can impact performance (negative and positive)
2	**2 marks** Good application of the Triadic Model to sporting performance, some examples	**2 marks** Good discussion about how attitude can impact performance (negative and positive)
1	**1 mark** Limited application of the Triadic model to sporting performance, few examples	**1 mark** Limited discussion about how attitude can impact performance

Question		AO1	AO2	AO3	Total
(c)	**Outline how persuasive communication could be used to change a performer's attitude.** *Award 1-2 marks for a basic outline covering persuasive communication* *Award up to 3-4 marks for a detailed outline covering several aspects of persuasive communication and change in attitude* To get an individual to change their attitude about something, they must be persuaded. Status of the persuader – Someone of high status who is knowledgeable and genuine is likely to be successful Clarity of the message – A clear, concise and accurate argument should be put forward Ability to understand the message – The individual being persuaded must be capable of understanding the message Is the situation in which the message being received safe and non-threatening	4			4

Question		AO1	AO2	AO3	Total
(d)	**Analyse strategies that could be used to develop self-confidence and self-efficacy in a performer.** **Indicative content:** Self-efficacy is defined as self-confidence within specific situation. It is the expectation of being competent and successful in a particular task. Performance accomplishments Modelling experiences Verbal persuasion Emotional arousal. Provide opportunities for performers to experience early success. Assist players in attributing success to internal factors such as ability and effort. Give players opportunities to watch performers of a similar standard achieve (vicarious experiences). Set attainable and realistic goals that can be met to give performers the feeling of success. These goals should be performance rather than outcome-related. Use strategies such as imagery to allow players to visualise success or self-talk to boost confidence. Use praise/encouragement and positive body language. Encourage players to act confident. Teach performers how to view arousal in a positive way (emotional control). May involve the use of relaxation techniques. Self-confidence: The belief that you can successfully perform a desired behaviour. *Trait self-confidence:* The degree of certainty individuals "usually" possess about their ability to succeed. *State self-confidence:* The belief of certainty individuals possess at a "particular moment" about their ability to succeed. *(See banding grid for allocation of marks)*		3	3	6

Band	AO2 3 marks	AO3 3 marks
3	**3 marks** Excellent explanation of the strategies used to develop self-efficacy and self-confidence. All four areas are addressed	**3 marks** Excellent analysis of the strategies used to develop self-efficacy and self-confidence. All four areas are addressed
2	**2 marks** Good explanation of the strategies used to develop self-efficacy and self-confidence. At least two areas are addressed	**2 marks** Good analysis of the strategies used to develop self-efficacy and self-confidence. At least two areas are addressed
1	**1 mark** Limited explanation of the strategies used to develop self-efficacy and self-confidence.	**1 mark** Limited analysis of the strategies used to develop self-efficacy and self-confidence

		AO1	AO2	AO3	Total
Total		**8**	**6**	**6**	**20**

Question		AO1	AO2	AO3	Total
4 (a)	**Define social institution.** *Award 1 mark for:* A group of people who come together for a common purpose Accept other appropriate or similar responses	1			1
(b)	**Explain, using examples, the role of sport in society.** *Award 1-2 marks for a basic explanation of the role of sport in society with no or limited examples.* *Award 3-4 marks for a detailed explanation of the role of sport in society with some examples.* *Award 5 marks for a developed explanation of the role of sport in society with examples throughout.* **Indicative content** Social control Develops strategic thinking Leadership skills Sportsmanship National identity Economic growth Shop window Social mobility *Accept other credit worthy responses* *Candidates should expand on each point with examples to be awarded marks*		5		5

Question		AO1	AO2	AO3	Total
(c)	**Analyse the contribution the Oxbridge melting pot and the British Empire played in the development of sport around the world.** **Indicative content** *Banded response* Oxbridge Melting pot: Public school boys coming from a variety of schools with different rules to university. This allowed a consensus of rules and conventions until there was codification of many modern sports and the formation of Governing bodies. Melting Pot: Boys spent over 5 years together, sharing ideas and experiences. These were melting pots, however, because each school had different facilities or traditions or staff. These meant that different ideas and practices were mixed up and sorted out into the games which developed into those we know today. University: Melting pot – two universities – Oxford and Cambridge. But they shared contests, rules, players, (which still persists to today) for example, the boat race. This led to more regularisation of games between colleges and universities. And the establishment of clubs outside the universities by the same young men once they had left university. This led to leagues and games across the country with the same rules. These young men often returned to the schools as teachers, where they changed the existing rules to the new ones, so that interschool games could be played. Also, some young men joined the military, the church or the foreign service. And spread the same games across the Empire (and hence to Australia, New Zealand, Canada, and South Africa). This particularly accounts for the spread of rugby and cricket across the world. And the initiation of international fixtures (tests matches). These same ex-Oxbridge students organised and created the International Governing Bodies (IGBs) which controlled these sports.		3	5	8

Question		AO1	AO2	AO3	Total
	Many old boys returned from university as teachers to coach games such as rugby to boys at public schools. Some old boys became vicars and spread their love of athleticism via games in their parishes. Some old boys became factory owners. They gave facilities and set up teams to play sport and improve worker's health and morale. Some old boys were responsible in the setting up of National Governing Bodies (NGBs) with rules and regulations that are still valid in today's contemporary sports and activities. Some young men joined the military, the church or the foreign service and spread the same games across the Empire (and hence to Australia, New Zealand, Canada, and South Africa). This particularly accounts for the spread of rugby and cricket across the world and the initiation of international fixtures (tests matches). (See banding grid for allocation of marks)				

Band	AO2 3 marks	AO3 5 marks
3	**3 marks** Excellent explanation, both areas are explained examples are provided in both areas throughout	**4-5 marks** Excellent analysis, both areas are analysed with an equal balance of both aspects
2	**2 marks** Good explanation, both areas are explained although examples in one area dominates the response	**2-3 marks** Good analysis, both areas are analysed although one area dominates the response
1	**1 mark** Limited explanation, the response is dominated by just one of the areas	**1 mark** Limited analysis, the response is dominated by just one of the areas

Question		AO1	AO2	AO3	Total
(d)	**Discuss the view that professional sport destroyed the amateur ideal of the 19th century.** **Indicative content:** Amateurism: Taking part in sport for the love of it / no monetary gain Participation/process more important than winning Encourages socially acceptable behaviour e.g. morals / abide by rules of sport/fairplay/sportsmanship Discourages deviant behaviour e.g. cheating / match fixing etc Because not tempted by extrinsic rewards 19th century – amateur middle or upper class /amateurs revered the 'all-rounder' Today can still be financially supported e.g. sponsorship / SportsAid Freedom from restrictions of professional contracts /not seen as a commodity/no contractual obligations (Amateurism) inclusive / not always based on ability / less pressure/can perform at all levels/experience lots of sports/ can perform at grass roots to elite level 'open' championships – amateurs can still compete against professionals – just not win the money e.g. golf Eligibility codes protect amateurs from competing against professionals Olympic Games – biggest competition in the world maintained exclusive amateurism for over a century / still have the oath – keeping moral focus in the Games Amateur sport can act as a platform for professional sport e.g. boxing, golf etc. Professionalism: (Professionalism) – earning money from sport/broken time payments 19th century sport became a business/amateur paid for professionals/upper class were patrons 19th century from the working class Train full time so standards improve As winning is critical/win ethic Encourages spectator sport / better spectacle for spectators 19th century occupied the masses / social control	2	4	6	12

Question		AO1	AO2	AO3	Total
	Shamateur Lombardian Ethic Olympic Games – do now accept some professional performers e.g. basketball Positive impact: 19th century elite sport run by upper/middle classes – high status in sport and society. Amateur code based on playing sport to set rules designed by middle and upper classes who formed NGBs. Amateurism – strict code of ethics/moral values/sportsmanship/fair play. Taking part more important than winning and was character-building. Played according to their 'God-given abilities' – no training – linked to professionalism. Being a good 'all-rounder' seen as more important than specialising in one sport. Amateurs – 'elite performers' of the time/higher status than professionals. Other content: The rugby divide: 1985 Modern day professionalism / amateurism *(Please see banding grids for allocation of marks)*				

Band	AO1 2 marks	AO2 4 marks	AO3 6 marks
3		**4 marks** Excellent application of how professional sport destroyed the amateur ideal, examples are provided throughout	**5-6 marks** Excellent discussion of how professional sport destroyed the amateur ideal. Both sides need to be discussed
2	**2 marks** Good knowledge of how professional sport and the amateur ideal	**2-3 marks** Good application of how professional sport destroyed the amateur ideal, good examples are evident	**2-4 marks** Good discussion of how professional sport destroyed the amateur ideal. This maybe more one sided
1	**1 mark** Limited knowledge of how professional sport and the amateur ideal	**1 mark** Limited application of how professional sport destroyed the amateur ideal, few examples are provided	**1 mark** Limited discussion of how professional sport destroyed the amateur ideal

		AO1	AO2	AO3	Total
Total		**3**	**12**	**11**	**26**

Question		AO1	AO2	AO3	Total
5. (a)	**Justify the use of creatine as an ergogenic aid to improve performance.** *Award 1-2 marks for a basic justification with little reference to improvement in performance* *Award 3-4 marks for a detailed justification with reference to improvement in performance* **Indicative content:** Supplements: Increases creatine stores, delays depletion of glycogen stores and faster restoration Allows you to use ATP_PC stores for longer Increases energy production during high intensity exercise Increased strength and speed Reduce recovery time – increase of recovery rate Off sets fatigue		4		4
(b)	**Explain the possible causes of fatigue during anaerobic exercise.** *Award up to 1 mark for a basic explanation of a cause of fatigue during anaerobic exercise* *Award up to 2 marks for a developed explanation of possible causes of fatigue during anaerobic exercise* *Award up to 3 marks for a detailed explanation of the causes of fatigue during anaerobic exercise.* Build up of lactic acid /accumulation of hydrogen ions/OBLA Glycogen depletion/needed for glycolysis Dehydration/reduces blood flow/loss of electrolytes/increase body temperature Reduced levels of calcium Reduced levels of acetylcholine/slows nerve impulse and inhibits contraction Reduced/depleted PC stores Oxygen deficit Oxygen debt		3		3

Question		AO1	AO2	AO3	Total
(c)	**Explain how an active cool-down can assist the removal of lactic acid.** *Award 1-2 marks for a basic explanation. Some understanding of active cool downs impact on the removal of Lactic acid* *Award up to 3 marks for a detailed explanation with detail on the removal of lactic acid. Understanding of the need for oxygen* Increase heart rate blood pressure muscle pump breathing frequency increase in oxygen consumption and therefore more to mucsles BMR high to allow Post exercise, lactic acid is converted back into pyruvic acid as part of the recovery process: EPOC		3		3
(d)	**Discuss the advantages and disadvantages of altitude training for endurance athletes.** *Award 1-2 marks max for a discussion focussed on either advantages or disadvantages* *Award 3-4 marks for a detailed discussion of the advantages and disadvantages of altitude training* *Award max 5 marks if the discussion also links the importance of altitude training to endurance athletes* **Advantages** Increase in the number of red blood cells Increased concentration of haemoglobin Increased levels of EPO Increased blood viscosity Increased capillarisation Enhanced oxygen transport			5	5

Question		AO1	AO2	AO3	Total
	Disadvantages Expensive Altitude sickness Difficult to train due to the lack of oxygen Increased lactate production Detraining due to the fact that training intensity has to reduce when the performer first trains at altitude due to the decreased availability of oxygen Benefits can be quickly lost on return to sea level				
(e)	**Analyse how knowledge of the three energy systems could help a coach develop a training programme.** *Award 1-2 marks for knowledge of the energy three systems* *Award 3-4 marks for a detailed analysis of the energy systems and training programming using examples* *Award 5-6 marks for a developed analysis of the energy continuum, training programming an application throughout. Including quantitative data.* **Indicative content:** The energy continuum states that all energy system work alongside one another at the predominant system used is dependent on the following: Intensity of exercise ATP-PC 95 to 100 % Anaerobic glycolysis 80-95% Aerobic up to 80% Duration ATP-PC 100% intensity for 10-12 seconds Glycolysis, muscle glycogen will be depleted after 2 minutes Fitness Level Highest level of fitness means it takes longer to reach the anaerobic threshold Greater levels of anaerobic fitness allows the performer to work in the anaerobic zone for longer	2	2	2	6

Question		AO1	AO2	AO3	Total
	Knowledge of training programmes which would include the application of intensity, frequency, duration, rest. Methods of training linked to the appropriate energy systems				
Total		**2**	**12**	**7**	**21**
TOTAL		**36**	**45**	**24**	**105**