



GCE A LEVEL MARKING SCHEME

AUTUMN 2020

A LEVEL
PHYSICAL EDUCATION - COMPONENT 1
A550U10-1

INTRODUCTION

This marking scheme was used by WJEC for the 2020 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 - COMPONENT 1

AUTUMN 2020 MARK SCHEME

Question	Mark Scheme	AO1	AO2	AO3	Total
1. (a)	Reaction time is important for effective decision making in sport.	1			1
	Figure 1 is a representation of Hick's law (1952) of reaction.				
	Using figure 1, describe what happens to reaction time as the number of stimuli are increased.				
	Award one mark for one of the following or similar:				
	Reaction time is linearly related to the amount of information that needs to be processed.				
	The more responses that are possible the longer the reaction time will be.				
	Accept any other relevant response				
(b)	Explain how the psychological refractory period can affect reaction time.	2	2		4
	Award up to two marks for knowledge of the PFP and two marks for relative examples: Can award up to four marks for explanation without examples Can award up to four marks if answered through example, demonstrating the knowledge Maximum of two marks if not linked to the effect on reaction time				
	The term psychological refractory period (PRP) refers to the period of time during which the response to a second stimulus is significantly slowed because a first stimulus is still being processed.				
	The reaction is slowed down because the first stimulus having to be cleared before the second can be processed.				
	If a performer can fake a movement, the opponent will be unable to clear the first stimulus in time.				

Question	Mark Scheme	AO1	AO2	AO3	Total
(c)	Outline the characteristics of the short term memory. Award three marks for any of the following points (3x1): Limited capacity (5 to 7 items) Limited time / duration (up to 30 seconds) Receives information from the STSS / selective attention Working memory that leads to decision making Part of the DCR process Triggers motor programmes Transfer of info through repetition	3			3
(d)	Describe, using specific examples, the characteristics of a skilled performer. Award one mark for the listing of the characteristics Award up to two marks for basic description of the characteristics Award up to four marks for the description of the characteristics linked toa sporting example Indicative content: Aesthetics Accuracy Techniques Attitudes Fluent Efficient	4			4

(e) Explain why feedback and distributed practice are used with performers in the cognitive stage of learning. Award up to two marks for the explanation of feedback. Award up to two marks for the explanation of distributed practice. Award up to three marks for the link between feedback and distributed practice to the cognitive stage of learning. Feedback Motivate – Goal setting Reinforce – Strengthen the SR bond, enforce repetition of the skill when feedback is positive and leads to a positive outcome Inform – Inform strengths and weaknesses; allow performers to set targets for improvement based on feedback given. In this stage of learning, performances are inconsistent and not success is not guaranteed. Performing the skill requires all of the athlete's attention and so they rely on the coach for cues. This is a process of trial and error with a success rate of 2 or 3 out of 10 attempts. Correct performances must be reinforced through external feedback Distributed practice Attempts at the skill are divided up with intervals in-between to allow for rest and mental rehearsal. This is best used in difficult, dangerous or fatiguing skills and with young or lowly motivated individuals Allows recovery, less mental pressure, allows metal rehearsal/feedback, and reduces danger. Cognitive Stage Learning Characteristics: Little knowledge Don't know how the skill looks or feels Rest required at this stage Attention Reduction in the feeling of ressure	Question	Mark Scheme	A01	AO2	AO3	Total
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Total 10 9 19	Total		10	9		19

Question	Mark Scheme	AO1	AO2	AO3	Total
2. (a) (i)	The graph above represents which theory of arousal. Tick one box only.	1			1
	Award one mark for:				
	D. Catastrophe Theory				
(ii)	Explain, using Figure 2, the effects of arousal on performance in a sport of your choice.		5		5
	Indicative content:				
	Somatic arousal increases, performance increases up to an optimum or midway point Optimal arousal is where the potential to learn and perform well is maximised If arousal continues to increase or is (too) high there is a sudden or extreme decline in performance or learning / performer 'goes over the edge' If high cognitive arousal coincides with or interacts with high somatic anxiety it causes a loss of control or coordination or concentration or decision making skills If arousal then controlled performance can improve / the upward curve can be re-joined If arousal continues to increase then performance will continue to decrease The theory explains why performance can suddenly or dramatically decline It is a multidimensional theory / it takes various factors into account (cognitive anxiety and somatic arousal) It explains how some performers can recover (as they re-join the upward curve of arousal Some performers never experience a sudden decline (but slowly decline - as suggested by inverted U) The theory does not take task or skill level or personality into account				

Question	Mark Scheme	AO1	AO2	AO3	Total
	The catastrophe theory concludes that increases in levels of cognitive anxiety will help performance if somatic anxiety is low. So if the body is relaxed but the performer is feeling anxious then this anxiety can help to improve performance. If there is an increase in cognitive anxiety & somatic anxiety is high then performance will decline. If there are high levels of cognitive anxiety & there is a continuous increase in somatic anxiety/physiological arousal then performance can suddenly deteriorate — a 'catastrophic' response. If after this catastrophic effect, arousal decreases, then performance will once again improve but not back to its originally optimum level. See banding grids for allocation of marks				

Band	AO2 5 marks
3	4-5 marks The candidate is able to give a detailed explanation of the effects of arousal making reference to the graph and both somatic and cognitive arousal. Relevant examples are provided throughout. Complex ideas are expressed with clarity.
2	2-3 marks The candidate is able to give a good explanation of the effects of arousal making reference to the graph. They are able to provide examples. Make reference to either somatic or cognitive arousal or their characteristics.
1	1 mark The candidate explains basically that arousal has an impact on performance e.g. describing the phases of the graph.

Question	Mark Scheme	A01	AO2	AO3	Total
(b)	Describe the difference between trait and state anxiety	2			2
	Award up to two marks				
	Candidates must describe both trait and state anxiety for two marks:				
	Trait anxiety is stable (what born with) State anxiety may vary depending upon situations.				
	Accept any other relevant response				
(c) (i)	Identify two factors that may cause an increase in aggressive acts.	2			2
	Award one mark for any of the following (2x1):				
	Poor officiating Temperature				
	Partisan crowd Frustration aggression Being substituted Local rivalry				
	Accept any other relevant response				
(ii)	Describe a strategy that can be used to control aggression in sport.	2			2
	Award up to two marks for a description of one of the following:				
	Set punishments – punish aggressive behaviour to change future behaviour e.g. dropped from the team Emphasise non aggressive role models –				
	modelling expected behaviours Cognitive strategies to prevent aggressive play				
	Somatic strategies to prevent aggressive play Threaten with retroactive reinforcement				
	Accept any other relevant response				

Question	Mark Scheme	AO1	AO2	AO3	Total
(d)	Teams are thought to achieve more success if they are cohesive. Explain the relationship between task and social cohesion.	1	3		4
	Award one mark for knowledge of cohesion:				
	'The sum of the forces that influence members in whether to remain part of a group.' Festinger et al (1950) or similar				
	Wanting to stay in a group or similar.				
	Up to two marks for a basic explanation of task and social cohesion.				
	Award up to 3 marks for the explanation o fthe relationship between Task and Social cohesion:				
	Task Cohesion – relates to way in which a group will work together to complete a task successfully – very important in interactive sports such as rugby and netball.				
	Social Cohesion – involves the social relationships within the group. Many groups develop sub-groups e.g. cliques, reciprocal pairs, isolates and the rejected.				
	Socially cohesive teams are more likely to successfully achieve the task				
	Accept any reasonable response that highlights a relationship				
	Candidates may answer this through practical examples				
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Question	Mark Scheme	AO1	AO2	AO3	Total
(e)	Profile of Mood State (POMS) is a questionnaire given to performers to establish their relative measures of tension, anger and arousal.	1	1	4	6
	Discuss the advantages and disadvantages of using questionnaires to provide psychological information.				
	Indicative content:				
	Advantages High researcher: respondent ratio/lots of subjects at a time/quick/efficient; Cheap/cost effective; Numerical/objective measures achieved; Reliable.				
	Disadvantages Weak validity/non-specific/too general/too simplistic for complex areas; Tendency to give expected answer/lie/respond with demand characteristics/biased questions; Difficult to self-assess; Ambiguous questions/misinterpretation (See banding grid for allocation of marks)				
Total		9	9	4	22

Band	AO1 1 mark	AO2 1 mark	AO3 4 marks
3			3-4 marks Excellent discussion of a range of advantages and disadvantages of using questionnaires in providing psychological information.
			Relevant examples are provided throughout.
			Ideas are expressed with clarity.
2			2 marks Good discussion of the advantages and disadvantages of using questionnaires in providing psychological information. Some examples are provided.
1	1 mark The candidate correctly identifies a relevant reason for the use of questionnaires in providing psychological information	1 mark The candidate demonstrates good application of at least one advantage or disadvantage of the use of questionnaires in providing psychological information	1 mark Basic discussion of at least one advantage or disadvantage of using questionnaires in providing psychological information

Question	Mark Scheme	AO1	AO2	AO3	Total
3. (a)	Methods of identifying talent are widely used to develop participation and success in sport. Identify a talent identification initiative from the list below. Tick one box only. Award one mark for: A. Girls4gold	1			1
(b)	Explain, using Figure 3, the support available that allows a performer to progress from performance to excellence level. Award up to two marks for a basic explanation of the support available. Award up to three marks, for a more developed explanation using a variety of support mechanisms. Award up to four marks, for a more developed explanation using a variety of support mechanisms with reference to figure 3. Indicative content: Specialist coaching Specialist facilities Sport Science/Psychology/nutrition Financial support Development squads Hubs National training squads Centres of excellence / academies		4		4
(c)	Explain the role of the media in sport. Award up to two marks for a basic explanation of the role of the media in sport. Award up to four marks, for a more developed explanation of the role of the media in sport. Inform Interpret Educate Entertain Advertise		4		

Question	Mark Scheme	AO1	AO2	AO3	Total
(d)	Deviance in sport has increased in the 21 st century. Discuss this statement	1	4	5	10
	Indicative content:				
	Within the sporting context negative deviance includes using PEDs, cheating, bribes to influence the outcome of a match, hooliganism, illegal betting on the outcome, financial irregularities in transferring of players and player violence.				
	Deviance in sport has been fuelled by the Lombardian ethic to win at all costs. Sport has moved away from the sportsmanship ethic of taking part and doing one's best.				
	Performance-enhancing drugs (PEDs) - 21 st century high profile cases have been numerous.				
	The biggest one involved more than 1,000 Russian athletes who were involved in the ongoing use of prohibited substances, wash out testing and false reporting, supervised by the Russian Anti-Doping Agency.				
	21 st century high profile cheats include Lance Armstrong who was banned for using blood doping techniques (rEPO – recombinant erythropoietin).				
	THG (tetrahydrogestinone) used by Marian Jones during the Sydney Olympic Games in 2000 and Dwain Chambers in 2008.				
	High profile cases destroy professional careers and the reputations of IGBS and NGBs.				
	Player violence and hooliganism, particularly in football, are part of the sporting culture of the 21 st century.				
	Contemporary technologies, for example, the use of the third match official (TMO) and CCTV are strategies used to curb such violence. NGBs have the ability to punish player pitch violence.				

Question	Mark Scheme	AO1	AO2	AO3	Total
	Educational campaigns, such as Fair Play Awards, reward clubs with good disciplinary records.				
	Effects fuelled by social media				
	Bribery scandals, bungs, match fixing, sport betting syndicates and simulation are also considered forms of deviant behaviour.				
	For example, Sepp Blatter was recently involved with alleged corruption, bribery and vote rigging with respect to the awarding of the 2018 and 2022 World Cups to Russia and Qatar. In the 21 st century, the media has given extensive coverage of these scandals, and so it is difficult to assess how widespread deviance was pre-21 st Century.				
	Encouragement of non-deviant behaviour: Stopping the game for injury Hospital visits Charity work etc.				
	Accept other relevant exemples in relation to deviant behaviour (See banding grid for allocation of marks)				
Total		2	12	5	19

Band	AO1 1 mark	AO2 4 marks	AO3 5 marks
3		4 marks Excellent explanation of a wide range of reasons as to why deviance has increased or decreased. Ideas are expressed clearly and logically.	5 marks Excellent discussion as to why deviance has increased or decreased in the 21st century. The candidate makes reference to both negative and positive deviance and its effect on sport. Relevant examples are provided throughout. Ideas are expressed with clarity.
2		2-3 marks Good explanation of a variety of reasons as to why deviance has increased or decreased.	3-4 marks Good discussion as to why deviance has increased or decreased in the 21 st century. Relevant sporting examples are provided throughout.
1	1 mark The candidate demonstrates some knowledge and understanding of deviance in sport.	1 mark The candidate demonstrates some application and understanding of deviance in sport.	1 mark The candidate demonstrates a sound discussion of deviance in sport.

Question	Mark Scheme	AO1	AO2	AO3	Total
4. (a)	During exercise the body systems provide energy for the muscles to work. After regular and repeated exercise, these systems adapt to become more efficient during physical activity.	4			4
	Identify the short-term responses that occur during exercise to the cardio-respiratory system				
	Award up to 4 marks for the following (4x1):				
	Increase in: Heart rate Cardiac Output Stroke volume (Starlings Law of the heart)				
	Tidal volume, breathing frequency minute ventilation				
	Sympathetic nervous system decrease parasympathetic nervous system				
(b)	Explain how long-term adaptations to the musculo-skeletal system benefit performance.		4		
	Awarded up two marks for explantion of adaptations Award up to four marks for the explanation of the benefits to performance				
	Adaptions might include:				
	Muscular hypertrophy – Increased anaerobic energy stores (more Creatine Phosphate and Muscle Glycogen present). Greater tolerance to lactic acid (also known as buffering capacity of the muscles) allowing exercise to go on for longer. Co-ordination of the neural system improves i.e. the firing patterns of the neural impulses are more co-ordinated to the sporting movement being carried out. Increase Bone density Articular cartilage and ligaments Changes to fibre types				

Question	Mark Scheme	AO1	AO2	AO3	Total
	Benefits might include: Because of increased muscular hypertrophy,				
	the performer will be able to increase the amount of force, power output, speed and strength to a given sporting situation. The performer will also be able to remain in the anaerobic zone for longer due to the increased energy stores (CP and glycogen) and increased tolerance to lactic acid. Being able to work in the anaerobic zone for a longer period of time. The muscles being able to exert greater force thus increasing speed, strength and power of the performer				
(c)	Evaluate, using specific examples, how you have developed and monitored your physical performance.	2	3	7	12
	Indicative content:				
	The candidate should be clear on what sport / activity they are developing				
	Components of fitness related to the activity Correct selection of fitness test for their components Discussions of reliability and validity of tests Interpretation and comparison of results to				
	normative data / personal data. Selection of appropriate methods of training Use of principles of training to develop performance Periodisation / training cycles for training				
	Monitoring techniques – goal setting, comparison of results, training diary, heart rate monitors etc.				
	See banding grids for allocation of marks		_		
Total		6	7	7	20

Band	AO1 2 marks	AO2 3 marks	AO3 7 marks
3		3 marks Excellent application to examples of various ways in which performance can be developed and monitored. Response must include both development e.g. appropriate methods of training linked to sport and monitoring techniques. Ideas are expressed clearly and logically.	6-7 marks Excellent evaluation of various ways in which performance can be developed and monitored. Response must include the appropriateness and relevance of the development and monitoring techniques. Relevant examples are provided throughout. Ideas are expressed
2	2 marks The candidate demonstrates good knowledge and understanding on how to monitor and develop their physical performance.	2 marks Good application of ways in which performance can be developed and monitored	with clarity. 3-5 marks Good evaluation of ways in which performance can be developed and monitored. Relevant sporting examples are provided.
1	1 mark Limited knowledge and understanding on how to develop or monitor the physical performance.	1 mark Limited application of ways in which performance can be developed or monitored	1-2 marks Limited evaluation of ways in which performance can be developed or monitored

AO3	Total
	1
	3
	5

	1		1	Total
how the muscular and skeletal work together at the elbow when ing a set shot in basketball.	2	2	2	6
p to 6 marks for analysis of ent at the elbow:				
bow the hinge joint the biceps is contracting concentrically to exion whilst the antagonist triceps relaxes to allow the movement to be. The bones articulating the int that act as levers for movement the Humerus, Radius and ulna.				
nding for allocation of marks)				
ŀ	elaxes to allow the movement to se. The bones articulating the art that act as levers for movement	elaxes to allow the movement to the. The bones articulating the that act as levers for movement the Humerus, Radius and ulna.	elaxes to allow the movement to the. The bones articulating the that act as levers for movement the Humerus, Radius and ulna.	elaxes to allow the movement to the. The bones articulating the that act as levers for movement the Humerus, Radius and ulna.

Band	AO1 2 marks	AO2 2 marks	AO3 2 marks
2	2 marks Good knowledge of the muscular and skeletal systems at the elbow joint	1 mark Good application of the muscular and skeletal systems at the elbow joint to the set shot in basketball	2 marks Good analysis of how the muscular and skeletal systems work together at the elbow joint in the set shot in basketball
1	1 mark Some knowledge of the muscular and/or skeletal systems at the elbow joint	1 mark Some application of the muscular and skeletal systems at the elbow joint to the set shot in basketball	1 mark Some analysis of how the muscular and skeletal systems work together at the elbow joint in the set shot in basketball.

Question	Mark Scheme	AO1	AO2	AO3	Total
(e)	Discuss how coaches use performance analysis techniques to develop sporting performance.	2	2	6	10
	Indicative content:				
	Candidates are aware of the varying performance analysis techniques used for different sports and can discuss their advantages / disadvantages. Technical aspects: efficiency of movement and its aesthetic Tactical aspects: good tactical play is about decision-making Behavioural aspects: observing behaviour and assessing why performers behave in a certain way Physical aspects: physical fitness is a critical factor in most sports Technical aspects: efficiency of movement and its aesthetic qualities – a thorough understanding of the technical demands of the sport is essential to the coach and performer. Tactical aspects: important in many sports, especially games. Outcome significant as well as execution. Good tactical play is about decision-making. Behavioural aspects: Observing behaviour and assessing why performers behave in a certain way is crucial in sport. Physical aspects: Physical fitness is a critical factor in most sports – the physical training programmes should match the demands made of the performer while competing. The focus of analysis depends very much on the sporting activity and the level of the performer. Many of the methods employed at the elite level involve technology – this is inevitable given the age that we live in. Sport science plays a vital role in the development of the				
	elite performer.				

Question	Mark Scheme	AO1	AO2	AO3	Total
	Biomechanics: Biomechanical analysis of technique is integral to the work of coaches in most sports. It can determine how coaches devise and manipulate practice sessions and what feedback they give to performers. In order to carry out a technique analysis the coach needs to know what good technique looks like and an understanding of the biomechanical principles involved in its execution. Study of the body motions in terms of force, time, distance.				
	Notation: Using symbols to record information about performance – statistical – patterns of play – technical errors and achievements – work/rest intervals. Match analysis only provides raw data but it can help in making more informed decisions about performance. Coaches may use this information to work out if a training intervention has been successful or identify the team's areas of strength and weaknesses (esp. relating to tactics). Many software companies have developed computerised products such as Prozone to help match analysis - speed of analysis affects depth of analysis.				
	Physical Fitness (both laboratory and field) and Skill Tests: Outside competition to gain information on performance: physical conditioning, technical efficiency or tactical effectiveness. Most important use of fitness testing is to provide feedback to performers about their progress in relation to their goals. There are good for establishing a starting point for performers (baseline information) and useful for helping to plan training programmes.				
	Questionnaires: Provides information from performers on issues and feelings about performance. Intervention strategies (such as relaxation techniques, imagery, and mental rehearsal for example) can then be linked to results.				

Question	Mark Scheme	AO1	AO2	AO3	Total
	Video: Provides objective information and can enhance performance analysis. Permanent, immediate, technological aids (freezing, slow motion). Use of performance analysis software such as Dartfish.				
	Other discussion points may include:				
	Tactical: The limitations of using just real time analysis- It is very difficult, if not impossible, for coaches to observe and remember all the key events occurring within a training session or match using just their powers of observation. This is why using performance analysis as a discipline within sport is developing at a considerable pace. Problems with retaining and recalling information that coach have observed during games. Studies suggest that coaches can only recall between 30-50% of the key performance factors they had witnessed within a game due to the way in which our memory works. Coaches may form biased views of their athletes, which in turn may mean that incorrect guidance is given on how to improve performance. During a game, coaches will only be able to observe small sections of what is actually going on. Views may be obstructed or the coach's position may not allow them to see the full field of play. This is where other performance analysis methods such as video and notational analysis have proved extremely beneficial. Subjectivity in a performance heightened situation may lead to the coach making the wrong decision. The emotional nature of the competitive situation may mean that performers are unable to take information on board or coaches may not be able to clearly articulate their views. Physical: Reliability / validity of test, particularly field tests Technical: Over analysis can reduce productivity, players become clones of the perfect model. Subjectivity of analysis.				
	Any other valid points e.g. use of apps. See banding grids for allocation of marks				
	See banding grids for allocation of marks				
Total		9	8	8	25

Band	AO1 2 marks	AO2 2 marks	AO3 6 marks
3			5-6 marks Excellent discussion of how coaches use performance analysis to develop performance. At least two areas must be discussed (Physical, tactical, technical, behavioural) Relevant examples are provided throughout using specific terminology. Ideas are expressed with clarity.
2	2 marks Good knowledge of performance analysis techniques. At least one area must be referred to (Physical, tactical, technical, behavioural)	2 marks Good application of performance analysis to develop performance. At least one area must be applied (Physical, tactical, technical, behavioural)	3-4 marks Good discussion of how coaches use performance analysis to develop performance. At least one area must be discussed (Physical, tactical, technical, behavioural) Relevant sporting examples are provided throughout.
1	1 mark Limited knowledge of performance analysis techniques.	1 mark Limited application of performance analysis to performance.	1-2 marks Limited discussion of how coaches use performance analysis to develop performance.

	Q1	Q2	Q3	Q4	Q5	Total
AO1	10*	9*	2	6*	9	36
AO2	9	9	12	7	8	45
AO3	0	4	5	7	8	24
Total	19	22	19	20	25	105