GCE AS MARKING SCHEME

SUMMER 2018

AS (NEW)
PHYSICAL EDUCATION - COMPONENT 1
B550U10-1

INTRODUCTION

This marking scheme was used by WJEC for the 2018 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 AS PHYSICAL EDUCATION

SUMMER 2018 MARK SCHEME

Question	Mark Scheme	AO1	AO2	AO3	Total
1 (a)	**Identify what is happening to their performance at A on the graph:** *Award 1 mark for:* Plateau	1			1
(b)	**Describe the different strategies a coach may use to overcome the occurrence of A in Figure 1:** **3x1 mark** *Award 1 mark for any of the following points:* New and stimulating rewards Praise and encouragement from teacher or coach Selective attention improved: concentrating on relevant cues Improved fitness levels to reduce the impact of fatigue Set realistic goals Use of mental rehearsal Enjoyment/fun in tasks Vary practices, venues Change coach or club Maker performer aware of the plateau effect Reinforcement Verbal persuasion Feedback Regular rest intervals	3			3

Question	Mark Scheme	AO1	AO2	AO3	Total
(c)	**Outline the difference between skill and ability:** Award 1 mark for each correct definition or two marks for the difference between skill and ability: Skill is the **learned ability** to bring about predetermined results with maximum certainty, often with the minimum outlay of time or energy or both Ability is the qualities which make it possible for you to achieve a task. These are stable and enduring characteristics which are **genetic** (innate) and can be either completely perceptual, completely motor or a combination Or similar	2			2

Question	Mark Scheme	AO1	AO2	AO3	Total
(d)	**Describe two types of feedback and explain how each can improve sporting performance:** *Award up to 2 marks for describing 2 of the following types of feedback:* • Intrinsic: comes during the movement from your senses e.g. sight, hearing and is perceived by the performer. It can also be from kinaesthetic feedback i.e. the feel of the movement. • Extrinsic: comes from external sources, and is an important part of coaching. Comes in two forms - • Knowledge of results: is a type of terminal (after completion of movement) feedback that gives the performer information about the end result • Knowledge of performance: is information about the performance e.g. how well the movement was executed rather than the end result. • Immediate: Instant verbal feedback if very effective in improving skills, especially coupled with visual feedback • Delayed: The transference of information to the memory can be inhibited if feedback is delayed • Concurrent: Received during the movement, both intrinsically and extrinsically • Terminal: Received when the movement is complete or after the training session ***Award up to 2 marks for application if applied to a sport:*** Feedback motivates, reinforces and informs performers. It motivates as information concerning success or failure can be motivational. It reinforces as positive reinforcement increases the chance of the performer repeating the performance. It informs as feedback can provide information about errors and therefore, can help in error correction.	2	2		4
Q1	**AO Totals**	8	2		10

Question	Mark Scheme	AO1	AO2	AO3	Total
2 (a)	**Identify the lever system operating at the ankle joint from position A:** *Award 1 mark for:* 2nd order lever	1			1
(b)	**Identify the main agonist and type of muscle contraction taking place at the knee in Figure 2.** *Award 1 mark for:* *Quadriceps or Quadricep group (do not accept 'Quads')* *Award 1 mark for:* Isotonic Concentric contraction	2			2

Question	Mark Scheme	AO1	AO2	AO3	Total
(c)	**Explain the physiological effects of dehydration and analyse its impact on sporting performance:** Indicative content: Water loss can cause the following problems: Decreased plasma volume - consequent circulatory problems Reduced stroke volume/cardiac output/ venous return Increased heart rate Reduced blood pressure Impairment of muscle function Reduction in heat loss from the skin (temperature control) – lead to over heating Reduction in the supply of energy substrates Reduction of the transport of enzymes Impairment in the removal of waste products Loss of electrolytes – lead to cramp Less O2 This means the blood cannot be transported around the body as quickly. This results in: Increase in heart rate and breathing rate. Oxygen being transported at a slower rate through the blood vessels. Less glucose/glycogen and fatty acids being transported to the muscles for energy. Increased levels of lactic acid production. All of these factors result in a reduction in the production of ATP, resulting in a reduction in the intensity of exercise. Reach the anaerobic threshold quicker.		4	3	7
Q2	**AO Totals**	3	4	3	10

Band	AO2 4 marks	AO3 3 marks
3	3-4 marks Excellent knowledge and application of the physiological effects of dehydration linked to sporting examples that analyse its impact.	3 marks Excellent discussion about the physiological effects of dehydration. Appropriate sporting examples used to analyse the impact on sporting performance. There is a clear link between the physiological effect and the impact on sporting performance. Relevant examples are provided throughout Complex ideas are expressed with clarity.
2	2 marks Good explanation of a variety physiological effects of dehydration.	2 marks Good discussion of a variety of physiological effects of dehydration. Some relevant examples throughout
1	1 mark The candidate correctly identifies some physiological effects of dehydration.	
0	0 mark No identification of the physiological effects of dehydration and there is limited application	0 mark No discussion about the physiological effects of dehydration and its effect on performance.

Question	Mark Scheme	AO1	AO2	AO3	Total
3. (a)	**The receptors that are responsible for detecting changes in blood pH are:** *Award 1 mark for:* Chemoreceptor	1			1
(b)	**Explain the physiological processes which allow the body to recover after high intensity exercise:** Alactic recovery – aim to restore CP stores Lactic recovery – aim to restore glycogen / remove lactic acid *Award up to 2 marks for amplification:* CP stores restored through rest: 3 minutes for 95% restoration. This information is vital to a coach or athlete when looking at recovery times for power events and exercises Glycogen restored through nutrition. Taking in carbohydrates/protein 4:1 ratio within 30 minutes of exercise. Lactic acid removed via active cool down, prevent blood pooling in the muscles, and allow heart rate and temperature to return to normal. The oxygen also re-saturates the myoglobin stores. Myoglobin is related to haemoglobin but has a greater affinity for oxygen, which in turn means it can carry greater amounts of oxygen into the working muscles.		4		4

Question	Mark Scheme	AO1	AO2	AO3	Total
(c)	**Explain how an effective cool-down can aid the recovery process after high intensity exercise** *Any 3 points explained. 3 marks.* • Light jog or similar cardiovascular exercise / active cool down or recovery • 5 – 10 minutes / 30 – 40% of VO2 max / gradually decreasing intensity • (Static) stretching • short static stretches of 6-10 seconds each • realigns muscle fibres / relaxes muscle / returns muscle to resting length • Increased speed of removal of lactic acid or CO2 or waste products (from blood or muscles • keeps capillaries dilated • flushes oxygenated blood through the muscles. • Decreased risk of Delayed Onset of Muscle Soreness or DOMS • (which is) intracellular pressure or swelling causes pain • Keeps metabolic activity elevated / gradually decreases metabolic activity • heart rate or respiratory rate or stroke volume gradually decrease or remain elevated • increased enzyme activity involved in buffering or breakdown of lactic acid / increased enzyme activity for efficient breakdown of glycogen in aerobic system or glycolysis • Maintains blood flow or stroke volume or cardiac output or blood pressure or venous return • (skeletal) muscle pump or respiratory pump remain active • (which) prevents blood pooling • vascular shunt mechanism remains active • Cori cycle etc		3		3

Question	Mark Scheme	AO1	AO2	AO3	Total
(d)	**Periodisation allows an athlete to concentrate on developing different fitness components during the training year.** **Discuss how an athlete would organise their training year in order to prepare competition:** Indicative content: PERIODISATION specific to chosen sport References to stages of training: Pre-season – develop fitness /strength/ speed Competitive season – technique/maintenance Post-season – maintaining/rest /recovery/ vary activities e.g. weight training Changes of intensity Tapering/ Peaking Cycles (within context) – Macro/Meso/Micro		2	4	6
Q3	**AO Totals**	1	9	4	14

Band	AO2 2 marks	AO3 4 marks
3		3-4 marks Excellent discussion about the stages of periodisation, linked to components of fitness and intensity of training and training cycles. They discuss in detail using specialist terms how periodization can improve performance with particular reference to specific sports. Complex ideas are expressed with clarity. Relevant examples are provided throughout
2	2 marks Good explanation of the stages of periodisation The candidate is able to clearly identify and explain the different seasons of training with some links to distance training and components of fitness Some examples are provided but are made in isolation. Ideas are expressed in a simple but clear manner.	2 marks Good discussion of the stages of periodisation linked to components of fitness and training. They are able to use specialist vocabulary Some relevant examples throughout Ideas are expressed in a clear and logic manner.
1	1 mark The candidate correctly identifies the different stages of periodisation	1 marks Limited discussion of periodisation linked to components of fitness and training.
0	0 mark No identification of periodisation, components of fitness or training	0 mark No discussion about periodisation, components of fitness or training

Question	Mark Scheme	AO1	AO2	AO3	Total
4 (a)	**Changing attitudes from negative to positive towards physical activity is achieved using which of the following methods:** *Award 1 mark for:* Cognitive dissonance	1			1
(b)	**Explain the components of attitude formation, using appropriate sporting examples:** *Award up to 3 marks, specific examples from sport must be used otherwise award 1 mark maximum:* 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		3		3

Question	Mark Scheme	AO1	AO2	AO3	Total
(c)	**Discuss, using appropriate theories, how the presence of an audience can influence performance in sport:** Indicative content: Social facilitation is the notion that the presence of others will affect performance. Some will perform better whilst other will experience the 'audience effect' Positive affects – increased drive leads to increased performance (dominant response) Extroverts tend to perform better to an audience etc. Negative affects – if the performer is a beginner increased drive can impair performance. Introverts tend to perform worse for an audience Effects of anxiety / apprehension. Drive Theory However, there are some cases where people who are good at their sport do not perform well with an audience but are fine in training. This leads to drive theory to be developed into the Inverted U Theory. Evaluation – Apprehension theory This theory of social facilitation was put forward by Cotrell, he said that rather than the mere presence of others, it is the worry of being judged that affects performance. If you are confident in your ability, then being watched makes you perform well, because, in effect, you are showing off. But if you are not confident about the task then you will constantly be worrying about being evaluated. Distraction - conflict theory Some may link to attribution theory / arousal but must link back to social facilitation.	2		4	6
Q4	**AO Totals**	3	3	4	10

Band	AO1 2 marks	AO3 4 marks
3		3-4 marks Excellent discussion surrounding social facilitation. There is a clear link between the theories discussed and the influence on sporting performance. Relevant examples are provided throughout They discuss in detail using specialist terms the relevant theories with particular reference to their effects on performance. Complex ideas are expressed with clarity.
2	2 marks Good explanation of a variety of theories associated with social facilitation linked to sporting examples. Ideas are expressed in a clear and logic manner.	2 marks The candidate demonstrates good knowledge and understanding of social facilitation. They are able to use specialist vocabulary and able to clearly identify and explain the different theories Some relevant examples throughout
1	1 mark The candidate demonstrates some knowledge and understanding social facilitation. They are able to identify a relevant theory. No links to a sporting example identified.	
0	0 mark No identification of appropriate theories surrounding social facilitation	0 mark No discussion about the theories surrounding social facilitation.

Question	Mark Scheme	AO1	AO2	AO3	Total
5. (a)	**Describe the consequences of adopting a sedentary lifestyle** **4x1 mark –** *Award 1 mark for any of the following points:* The risks of not adopting a healthy lifestyle include: Physical issues: positive energy balance, weight gain, obesity, hypertension, increased hypokinetic disorders e.g. osteoporosis, atherosclerosis, diabetes, stroke Psychological issues: poor body image, low self-confidence, increased stress Social issues: isolation	4			4
(b)	**Analyse, using examples, the reasons why sport is used as a political tool** *Indicative content:* Use for propaganda: e.g. 1936 Berlin Olympics and cold war 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 & 1984 LA Olympic 'tit for tat 'boycotts. Use for diplomacy: Ping pong diplomacy 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		2	6	8
Q5	**AO Totals**	4	2	6	12

Band	AO2 2 marks	AO3 6 marks
3		5-6 marks Excellent discussion surrounding the use of sport as a political tool (See reasons & examples from band 2) Relevant examples are provided throughout They discuss in detail using specialist terms the relevant theories with particular reference to their effects on performance. Complex ideas are expressed with clarity.
2	2 marks Good explanation of a variety of reason for the use of sport as a political tool. E.g. Use for propaganda Use for Boycotts and protests Use for diplomacy Use for National Identity Ideas are expressed in a clear and logic manner.	3-4 marks The candidate identifies several reasons for the use of sport as a political tool. There is good discussion around the reasons for the events identified and they begin to analyse the impact. E.g. 1936 Berlin Olympics and cold war. Black power salute Mexico Olympics 1968 / Munich Massacre 1972, African nations boycott 197 Ping pong diplomacy. Moscow 1980 & 1984 LA Olympic 'tit for tat 'boycotts. Some relevant examples throughout
1	1 mark The candidate correctly identifies one reason why sport has been used a political tool. Response lacks detail and clarity.	1-2 marks Limited discussion of why sport has been used as a political tool however relevant examples are provided The response shows basic use of terminology. Writing shows evidence of structure but some errors in grammar, punctuation and spelling.
0	0 mark No identification of the reason why sport has been used a s apolitical tool	0 mark No discussion about the reasons why sport has been used as a political tool

Question	Mark Scheme	AO1	AO2	AO3	Total
Q6.	**Scientific and technological advances have had a significant effect on the development of performance analysis techniques** **Discuss this statement** Indicative content: Different sporting activities place a different emphasis on qualitative and quantitative approaches to performance assessment. Performance analysis aims to help capture, analyse and evaluate key components relating to performance and provide concise feedback to inform future practice. Performance analysis may also help talent identification and there are links with elite sport (for example, the English Institute of Sport). Candidates are aware of the varying performance analysis techniques used for different sports. 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 Sporting activities place a different emphasis on these components. 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.	3		11	14

Question	Mark Scheme	AO1	AO2	AO3	Total
	Methods of analysing and refining Performance. 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 evitable given the age that we live in. Sport science plays a vital role in the development of the elite performer. 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 computerized 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				

Question	Mark Scheme	AO1	AO2	AO3	Total
	relaxation techniques, imagery, and mental rehearsal for example) can then be linked to results. Video: Provides objective information and can enhance performance analysis. Permanent, immediate, technological aids (freezing, slow motion). Use of performance analysis software such as Dartfish. The advantages and disadvantages of each should be discussed for A03 marks **Compare & Contrast:** Physical – Physical fitness is a vital part of all sports. Data from PA used to design specific training programmes for individuals and teams. Fitness tests (both field and laboratory) are used as a mechanism to judge an athlete's progress in relation to their goals. In sports such as swimming and athletics, fitness testing is used more extensively to assess performance (and indeed potential). Flair, vision, decision making ability and special awareness are all characteristics of team sports that are very difficult to quantify using PA. More subjective judgements (coach feedback) are used in team sports. Technical- The quality and efficiency of movement (technique) is important in all sports. Biomechanics may be used to help avoid injury due to poor technique. Video analysis (including freeze frame, slow motion) used in all sports. Importance of objective data and a permanent record. Increasing use of new technology (such as iPods) to give coach 'real time' information during performance. It might be argued that athletes and swimming require a greater focus on the technical aspects as the margins of victory are so small. Hence, biomechanics is used extensively in athletics and swimming to hone technique. The principles of physics are applied to improve execution of skill.				

Question	Mark Scheme	AO1	AO2	AO3	Total
	Skills testing is not used in either athletics or swimming but might be employed to analyse particular individuals within a team setting Tactical- Methods used to analyse tactics are similar (such as notational and video analysis). Tactical analysis is very important in games where decision making is central. This is less of a feature in athletics and swimming. Team sport coaches make extensive use of notational match analysis to look at patterns of play, errors and work/rest intervals. Software companies have developed computerised products such as Prozone to help match analysis – these are used extensively in team sports especially in the highest levels. Behavioural- Observing behaviour and assessing why performers perform in a certain way is important in all sports. Similar areas such as arousal, anxiety, confidence and self-esteem might be analysed and comparable tools (such as self-report questionnaires) would be used. Easier to observe behaviour in athletics and swimming (individual v team). It might be argued that analysing behaviour is more important in athletics and swimming as any intervention is likely to have a greater impact – diluted by the team effect. **Other valid points may include:** 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 coaches 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.				

Question	Mark Scheme	AO1	AO2	AO3	Total
	• 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.				
Q6	**AO Totals**	3	0	11	14
Required Totals		22	24	24	70

Band	AO1 3 marks	AO3 11 marks
3	3 marks Excellent knowledge of scientific and technological advances in Performance analysis techniques	7-11 marks Excellent **discussion** of scientific and technological advances in performance analysis techniques Candidates must make reference to all of the four areas of analysis (Technical, tactical, behavioural and physical and discuss the advantages and disadvantages to performers. Candidates compare and contrast the different techniques in relation to their use in different sports. Relevant examples are provided throughout The response is clearly expressed and shows an accurate use of terminology. Writing is very well structured using accurate grammar, punctuation and spelling.
2	2 marks Good knowledge of scientific and technological advances in Performance analysis techniques	4-7 marks Good discussion of scientific and technological advances in performance analysis techniques Candidates must make reference to at least 3 areas of analysis (Technical, tactical, behavioural and physical and discuss the advantages and disadvantages to performers. Relevant examples are provided throughout The response is adequately expressed and shows an accurate use of terminology. Writing is generally well structured using accurate grammar, punctuation and spelling.

1	1 mark Limited knowledge of scientific and technological advances in Performance analysis techniques	1-3 mark Limited discussion of scientific and technological advances in performance analysis techniques. Candidates discuss some of the performance analysis techniques although discussion is limited. Relevant examples are provided The response shows basic use of terminology. Writing shows evidence of structure but some errors in grammar, punctuation and spelling.
0	0 marks No knowledge of scientific and technological advances in Performance analysis techniques	0 marks No discussion of scientific and technological advances in performance analysis techniques the development of scientific and technological advances in sport.

QUESTION	A01	A02	A03	TOTAL
1	8*	2	0	10
2	3**	4	3 (3xA)	10
3	1*	9	4 (4xE)	14
4	3*	7	0	10
5	4	2	6 (6xA)	12
6	3	0	11(3xA, 8xE)	14
TOTAL	22	24	24	70

*indicates marks awarded for the use of qualitative data