GCE AS MARKING SCHEME

SUMMER 2018

AS (NEW)
PHYSICAL EDUCATION - UNIT 1
2550U10-1

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 PHYSICAL EDUCATION

SUMMER 2018 MARK SCHEME

Question	Mark Scheme	AO1	AO2	AO3	Total
1. (a)	**Which of the following is NOT a function of the skeleton? (1)** C. Production of cartilage	1			1
(b)	**b. Identify the three main axes of rotation and provide a sporting example for each (3).** • Longitudinal/Vertical (top to bottom) eg spinning skater or eqiv • Transverse/Horizontal/Frontal (side to side) eg somersault or eq • Frontal/Sagital/Anterior/posteria (front to back) eg cartwheel or eq 3x1 marks (must have sporting example to gain mark)		3		3
(c)(i)	**Using Figure 1 as a guide, identify the three bones articulating at the knee and the agonist muscle(s) that produce the movement (3)** Bones articulating at the knee joint • Femur, patella (knee cap) and tibia (2 correct = 1 mark 3 correct = 2 marks) Agonist that produces movement • Hamstring group or gluteus maximus (1x1 mark)	3			3
(ii)	**Identify the 3rd Order Lever. Tick one box below.** Load Fulcrum Effort – Box 3	1			1

(iii)	Analyse the mechanical advantages and disadvantages of using a third class lever in sport. (4) Mechanical disadvantage - this means that the output force is less that the input force Analysis (Max 2 mark) • The effort is closer to fulcrum than load • The distance from the joint to the end of the bones forming the lever is large compared to the length of the effort (the distance from the joint to the muscle attachment). This has advantages and disadvantages Advantages (Max 2 marks) • Third Class lever can give a greater range of movement because of long resistance arm • Speed of load is faster than speed of effort • Resistance can be moved quickly because force is applied close to the fulcrum Disadvantages (Max 2 marks) • Effort arm is short so muscles unable to provide much force • Performer struggles to move heavy loads	1		3	4
Q1	AO Totals	**6**	**3**	**3**	**12**

2. (a)	**Using examples, explain three social barriers that may account for the lower participation rate of women in competitive sport.** Social Factors • Opportunities (time/coaching etc) • Provision (Clubs/facilities) • Financial support • Effects of lack of media coverage, female role models, female coaches • Accepted gender role (mother, child care, homemaker etc.) Stereotypical role of women • Sport is a male preserve, women sport not as entertaining/dynamic etc. (Stereotyping) • Some sports are seen as inappropriate for women e.g. combat sports/rugby etc. • Former historical physiological myths • Some perceive a powerful/athletic female body as being a negative in terms body shape/image 3x1 or 1x2 for Amp		3		3
(b)	**b. The sporting values of 19th Century Public Schools were reflected in the ideals of the modern Olympic Games. Using examples, discuss how these sporting values have been eroded over time. (8)** Original Values • Sportsmanship and fair play • Respect for opponents • Follow rules both written and unwritten (etiquette) • Rely on ability (not drugs/cheating) • Taking part is more important than winning • Team loyalty more important than individual success • No money prizes, compete for glory and amateur values • Self-discipline with maximum commitment and effort Factors, which have eroded original values Candidates should refer to factors such as: • Movement away from amateurism to professionalism • 'Shamateurism' state sponsored athletes e.g. USA and USSR as means of competing political ideologies	2	3	3	8

	• Olympics being used as a political tool including boycotts e.g. 1980 Moscow, 1984 Los Angeles • Political statements 1968 Mexico, Black Power salute • Commercialisation/media coverage leading to globalisation of sport and worldwide superstars e.g. Usain Bolt etc. • Vast amounts of money now associated with Olympic athletes and in particular Gold medallists • Within the last few decades, there has been a constant stream of allegations of bribery and corruption within the IOC • Win at all cost cultures through funding/sport science/nutrition/performance analysis etc. • Use of numerous examples of performance enhancing drugs • State sponsored doping e.g. Currently Russia as well as well as Eastern Block countries in the 70's and 80's. • Promotion of national identity, leading to vast amounts of funding and research into specific Olympic sports e.g. UK Sports 'cut throat' policies towards funding sports that are expected to win Gold medals at games Other UK/western examples of focus on winning. Lottery funding in UK has influenced many sports, it has had an impact on - • Sports science/biomechanics/sports psychology/nutritional advice/ strength and conditioning • Sports medicine/physiotherapy • World Class Performance Pathway/Programme Discussion of values that still exist **MARKING BANDS AT END OF PAPER**				
Q2	AO TOTALS	2	6	3	11

BANDED RESPONSE FOR Q2B

Band	AO1 2 marks	AO2 3 marks	AO3 3 marks
3		**3 marks** Detailed explanation of several factors that have eroded the original values of the Olympic Games. The explanations are supported with relevant examples where appropriate.	**3 marks** Detailed discussion of the fact that some of the original values of the Olympic Games still exist within some sports/events. The discussions are supported with relevant examples where appropriate.
2	**2 marks** Good knowledge of the original values of the Olympic Games.	**2 marks** Good explanation of a few factors that have eroded the original values of the Olympic Games. The explanations are supported with some examples where appropriate.	**2 marks** Good discussion of the fact that some of the original values of the Olympic Games still exist within some sports/events. The discussions are supported with some examples.
1	**1 mark** Limited knowledge of the original values of the Olympic Games	**1 mark** Basic explanation of one or two factors that have eroded the original values of the Olympic Games. Limited examples are provided.	**1 mark** Basis discussion of the fact that some of the original values of the Olympic Games still exist within some sports/events. The discussions are supported with limited/basic examples.
0	**0 marks** No knowledge of the factors that have eroded the original values of the Olympic Games	**0 marks** No explanation or examples are provided of the factors that have eroded the original values of the Olympic Games	**0 marks** No discussion or examples are provided of the factors that have eroded the original values of the Olympic Games

3. (a)(i)	**A variety of questionnaires are used to measure state and trait anxiety, which of the following is not a recognised questionnaire for anxiety. (1)** d. BPAQ	1			1
(ii)	**Outline the reasons why such questionnaires are not always considered a reliable predictor of state and trait anxiety. (2)** • Answers may not be truthful • Participants might put answers they feel will provide the best score • Misinterpretation of questions due to lack of understanding • Questions may not allow for full answers with limited options to express feelings • Inappropriate or biased questions • Situation or timing when carried out may not be ideal/changes in mood • Participants may rush to complete questionnaire and put any answer 2x1 Marks	2			2
(b)	**Using practical examples explain somatic anxiety and evaluate somatic anxiety management techniques that could be used prior to competition. (8)** **Somatic Anxiety =** physiological issues such as increased heart rate, increased rate and depth of breathing, sweating etc. **Indicative content** • Somatic techniques can help to control physiological issues such as increased heart rate, breathing sweating etc., over arousal, stress • Physiological relaxation can help psychological relaxation **Techniques to control Somatic anxiety and critical evaluation** **Biofeedback** • Biofeedback gives an awareness of body and thus more able to deal with stress experienced • The process of monitoring body responses e.g. variation in heart rate, breathing, muscle tension and fatigue • Monitoring body temperature, and electrical activity of the brain		3	5	8

	Critical Evaluation • Some techniques involve equipment that cannot be used in some sports situations e.g. ECG, heart rate monitor, thermometers etc. • Time constraints, cost of equipment, trained members of staff etc. **Progressive Muscle Relaxation (PMR).** • This helps the body deal with stress by sequentially contracting and then relaxing groups of muscles. • Individual muscle relaxation can enable overall relaxation **Critical Evaluation** • Time constraints prior to competition • Takes practice and people often self-conscious **Pre-competition routines** • Carrying out the same thing before each event • There's a focus on what you need to do to perform well rather than the situation. • Pre-competition routine could include the use of music **Critical Evaluation** • If routine is disrupted then there can be an increase in anxiety • Routine may not fit into team or competition schedule **Other Areas** • Deep or controlled breathing (some view this as having little impact) • Use of yoga, meditation (Takes time and training and some fell self conscious) **General Critical Evaluations** • Such techniques take time to master • Skills can be difficult to apply to 'real life situations' • Such techniques are often good in practice do not always work in reality • Not all individuals have the ability or willingness to be able to carry out the various techniques • Some feel self-conscious about some of the techniques e.g. meditation or self-talk • Personality can affect anxiety management **MARKING BANDS AT THE END OF THE PAPER**				

(c)	**Discuss how a coach, through verbal persuasion, could increase levels of self-efficacy in a sportsperson.** Verbal Persuasion • Use of praise, • encouragement, • positive feedback, positive reinforcement • Avoid punishment and other negative processes • Avoid negative comparisons with other athletes • Correct use of attributions - Coaches could attribute failure due to external unstable factors and • Avoid attributing failure due to internal stable factors e.g. performers ability **AO2=2 Mark** – There is predominantly coverage of either positive or negative processes with sound explanation e.g. explanation of praise and feedback and the link to self- efficacy. **AO3=2 Marks** – There is coverage/discussion of both positive **and** avoidance of negative processes in terms of increasing self-efficacy		2	2	4
Q3	AO Totals	3	4	8	15

Band	AO2 3 marks	AO3 5 marks
3	**Banded Response for Question 3b** **3 marks** Excellent knowledge and application of the various techniques to reduce somatic anxiety.	**5 marks** Excellent critical evaluation regarding the types of somatic anxiety management techniques used. There is a detailed practical application of knowledge and the candidate critically evaluates the somatic anxiety management techniques. There is technical language in evidence throughout. The answer is well written with a logical progression to the answer.
2	**2 marks** Good knowledge and application of the various techniques to reduce somatic anxiety.	**3 - 4 marks** Good critical evaluation regarding the types of somatic anxiety management techniques used. There is some practical application of knowledge and the candidate engages in some critically evaluation of the somatic anxiety management techniques. There is fairly good technical language in evidence throughout. The answer is fairly well written with a logical progression to the answer.
1	**1 mark** Somatic anxiety is explained	**1-2 marks** Limited critical evaluation regarding the types of somatic anxiety management techniques used. There is limited practical application of knowledge and the candidate engages in some critically evaluation of the somatic anxiety management techniques but the information provided is basic and superficial.
0	**0 mark** No identification of the types of practice and there is limited application.	**0 mark** No discussion about the types of practice used to develop skill.

4. (a)(i)	**Which line, A, B or C represents the ATP-PC system** Line A = ATP-CP System (1 mark)	1			1
(ii)	**Describe two characteristics of this energy system.** • Energy released immediately/used for max intensity work • Doesn't require oxygen • ATP resynthesized quickly • PC stores replenish quickly • No waste products formed • Limited stores of PC • High intensity exercise can only be completed for a time of 8 – 12 seconds • Full recovery of PC stores takes up 2-3 minutes • No O2 present **2x1 marks**	2			2

(b)	**Evaluate the factors that determine the predominant energy system used when training to develop strength and muscular endurance (6)** The predominant energy system will be determined by: **Intensity, duration** and **fitness level** of the performer in relation to strength and muscular endurance. Candidates must refer to all 3 factors to access full marks **Intensity** • Strength will predominantly use the CP system because of working close to maximum intensity (80-100% of max) • Muscular endurance will work at a slightly lower intensity using predominantly anaerobic glycolysis/lactic acid system (40-70% of max), but will also feature some of the aerobic system. **2 marks** **Duration** • Strength exercises will only last up to 8-12 seconds before CP depletes, • while anaerobic glycolysis will have longer duration up to a 1 minute or slightly longer at a lower intensity **2 marks** **Fitness level of Performer –** • Strength - If the performer has greater amounts of **CP** then contractions will last longer an provide more force • Muscular endurance – more **stored muscle glycogen** = Longer working anaerobically • Have a increased tolerance to lactic acid, thus allowing the performer to work at a higher intensity for longer **2 marks**		3	3	6
Q4	**AO Totals**	3	3	3	9

5. (a).	**Describe how a high level of aerobic fitness can improve recovery after intense exercise.** • Speeds up the repayment of oxygen debt • Speeds up re-synthesis of CP • Removes lactic acid at a faster rate • Lactic acid gets converted to ATP at a faster rate (Cori cycle) • Re-saturates myoglobin stores at a faster rate • Faster repayment of oxygen deficit 3x1 or 2x1 amp	3			3
(b)	**Explain how the nutrients consumed immediately after exercise can aid the recovery process. Provide examples where appropriate.** • Consumption of nutrients within 30 mins of exercise is beneficial **Carbohydrate** • Combination of Simple/Complex carbohydrate • Combination of High/Med/Low glycaemic index foods **Carbohydrate** Carbohydrate aids recovery by replenishing the glycogen stores that are used during exercise. **Simple/high GI carbs will provide immediate energy after exercise.** *Example – energy drinks/high sugar foods or drink e.g. sweets/cola* **Complex/med/low GI carbs will release energy over a longer period helping to further replenish glycogen stores** • *Example – Potatoes/Pasta/breads/fruit and vegetables* • Metabolism remains elevated up to 5 hours after completion of exercise, therefore low GI foods essential to continued glycogen replenishment • Also supports increased bone mass • Improved immune function • Less muscle soreness **Protein** Proteins are used for growth and repair of the muscle *Example – Milk/Fish/chicken/ red meat etc.* • Aid the creation of enzymes/hormones /lipoproteins/connective tissue/red blood cells		4		4

	Fats Unsaturated fats – Used as a source of energy but should not be consumed in excess • *Example – nuts/vegetable and sunflower oils* • Saturated fats - Used as a source of energy but should not be consumed in excess • *Example – processed meats e.g. burger/sausage etc.* **2x2 marks** = AO2 - Examples of nutrients linked to theory **Carbohydrate** High GI food e.g. sugary sweets consumed immediately after exercise will begin to replenish lost glycogen stores. **Protein** e.g. Consuming fish or chicken to increase protein intake for growth and repair of muscle tissue				
(c)	**Explain the importance of maintaining levels of hydration during exercise. (3)** If the athlete is dehydrated then the following problems occur, which means athletic performance will drop. • Hydration = Increased plasma volume in blood, allows for efficient circulation of blood or • De-hydration leads to an increase in blood viscosity The following are factors that will be affected by increased viscosity of blood and therefore decreased speed/velocity around blood vessels • Decreased stroke volume/increased heart rate • Impaired removal of lactic acid • Decrease in the supply of energy glucose to muscles • Lowering of blood pressure • Muscle function impairment • Reduction in the transport of enzymes • Reduction in heat loss from the skin (temperature control) (all of the opposite above if candidate refers to hydration) AO2 – Candidates **must** explain the link between plasma volume/blood viscosity and the subsequent physiological impact e.g. Increased viscosity means the blood travels slower, which increases heart rate.		3		3
Q5	AO Totals	3	7	0	10

6.	**Using the diagram as a guide, discuss the methods a coach could use to develop the levels of skill in a sporting activity your choice. Provide specific examples to support your answer, where appropriate (15).** Possible indicative content for the use of Video/digital analysis • The focus is on how the coaches use the video/digital analysis • The main factors of performance that may be monitored and analysed technical factors (although there could be reference to tactical) • The focus of analysis depends very much on the sporting activity and the level of the performer with different sporting activities placing a different emphasis on these components. E.g. Gymnastic skills will vary from football or netball • Video: Provides objective information and can enhance performance analysis. Permanent, immediate, technological aids (freezing, slow motion). Use of performance analysis software such as Sportscode or Dartfish. This analysis will identify strengths and weaknesses and therefore inform the method of training and the type of guidance, practice and feedback used. a. Guidance • Verbal, visual, manual/mechanical • DARMMM b. Practice • Types of practice, massed and distributed, fixed and variable. • How these are used in different situations and abilities e.g. Open or closed based skill situations • Whole and part practice • Mental rehearsal c. Feedback • Intrinsic, extrinsic. • Timing of feedback (concurrent, terminal, delayed etc.) • Functions (motivate, inform, reinforce) • Positive/negative reinforcement	4	4	7	15

	d. Stages of learning • Cognitive, associative and autonomous phases and how a coach would alter their approach for each stage Other areas that could be included are: e. Transfer f. Motivation of athlete **Types of Practice related to skills (sporting examples should be included)** **Whole and whole/part/whole** Whole – For skills that cannot be broken down (simple/low organisation), a pass/penalty kick/hockey flick Part – Skills can be broken down into separate aspects/isolate weaker (High organisation/complex) e.g. Lineout isolate just the jump and lift without throw. A lay up in basketball **Fixed and Variable** Fixed – linked to repetition (closed skills) e.g. Free throw or penalty shot in netball Variable – must be related to gameplay (linked to open skills) e.g. 3v2 **Massed and Distributed** Massed – Continuous repetitive practice (associated with closed/fixed skills) e.g. continually kicking/passing etc. with the performer relying on kinesthesis Distributed – can be associated to more complex or high intensity (variable skills). Tasks where a break for rest/feedback/guidance is necessary Mental rehearsal/Imagery – can be used for a variety of skills but mostly associated with closed skills e.g. Penalty Some discussion points may include information regarding stages of learning and transfer of learning				

Banded Response – Question 6

Band	AO1 4 marks	AO2 4 marks	AO3 7 marks
3	**4 marks** Excellent knowledge of performance analysis techniques.	**4 marks** Excellent application of the performance analysis techniques for each of the phases: Before, During and after competition. Appropriate examples of the techniques for each phase.	**6-7 marks** Excellent **discussion** of **how coaches** use performance analysis and methods of guidance/practice and feedback to develop performance. There is constant reference to various types of appropriate practice explicitly related to variety of skills. 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	**2-3 marks** Good knowledge of performance analysis techniques.	**2-3 marks** Good application of the performance analysis techniques and methods of guidance/practice and feedback Appropriate examples of the PA techniques used and methods of guidance/practice and feedback.	**3-5 marks** Good discussion of how coaches use performance analysis to develop performance and methods of guidance/practice and feedback. There is some reference to various types of appropriate practice related to variety of skills. Some 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 performance analysis techniques and methods of guidance/practice and feedback.	**1 mark** Limited application of the performance analysis techniques and methods of guidance/practice and feedback. Some appropriate examples of the PA techniques and methods of guidance/practice and feedback however may not cover all aspects.	**1-2 mark** Limited discussion of how coaches use performance analysis to develop performance. Some examples are provided but there are gaps in application. 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 performance analysis	**0 marks** No application of knowledge and understanding of performance analysis	**0 marks** No discussion of how performance analysis is used.

Unit 1: Assessment objectives mark allocations

	Q1	Q2	Q3	Q4	Q5	Q6	Total
AO1	6	2	3	3	6	4	24
AO2	3	6	5	3	4	4	25
AO3	3	3	7	3	0	7	23
Total	12	11	15	9	10	15	72