GCE A LEVEL MARKING SCHEME

SUMMER 2019

A LEVEL (NEW)
PHYSICAL EDUCATION - COMPONENT 2
A550U20-1

INTRODUCTION

This marking scheme was used by WJEC for the 2019 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 2

SUMMER 2019 MARK SCHEME

Question		AO1	AO2	AO3	Total
1. (a)	Using Figure 1, analyse how and why the contributions of the energy systems differ across athletics events. • Contribution of each energy system is determined by the intensity and duration of the activity. • When exercise intensity is anaerobic (high intensity, short duration), the ATP/PC and Lactic Acid systems will be predominant. **ATP/PC system** • Used for high intensity (near maximal work) for activities between 2-10 seconds e.g. triple jump. • Anaerobic – no oxygen involved. • Phosphocreatine is broken down into creatine and phosphate and energy which is used to convert ADP to ATP (coupled reaction). • Takes place in sarcoplasm of muscle cells. • No by-products but the system is limited by stores of phosphocreatine (PC). **Lactic acid system** • Used for high intensity activities lasting between 10-90 seconds (depending on intensity) e.g. 400m. • Anaerobic glycolysis – no oxygen required. • Takes place in sarcoplasm of muscle cells. • Glycogen (stored in liver and muscles) is broken down into glucose then pyruvic acid then lactic acid (lactate). • Lactate causes fatigue as the increase in acidity limits the muscles ability to contract (onset of blood lactate accumulation (OBLA)). **Aerobic system** • Used for submaximal intensity exercise over longer duration e.g. 10,000m. • Aerobic glycolysis – uses oxygen. • Utilises carbohydrates and fat as fuel. • Large amounts of ATP can be resynthesised from one molecule of glycogen via glycolysis, Kreb's cycle and electron transport chain.	2		6	8

<table>
<tr><th>Question</th><th></th><th>AO1</th><th>AO2</th><th>AO3</th><th>Total</th></tr>
<tr><td></td><td>Answers the describe the information in the table on question paper are limited to band 1 only

In order to access band 3 candidate must analyse all three systems.</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>
<table>
<tr><th>Band</th><th>AO1</th><th>AO3</th></tr>
<tr><td>3</td><td></td><td>5-6 marks
Excellent analysis of why energy systems contributions vary across events. Most key factors identified and discussed in detail.</td></tr>
<tr><td>2</td><td>2 marks
Good knowledge of energy systems. Good technical language employed.</td><td>3-4 marks
Good analysis of why energy systems contributions vary across events. Some key factors identified and discussed in some detail.</td></tr>
<tr><td>1</td><td>1 mark
Limited knowledge of energy systems. Limited technical language employed.</td><td>1-2 marks
Limited analysis why energy systems contributions vary across events. Few key factors identified and discussed but in a superficial manner.</td></tr>
<tr><td>0</td><td>0 marks
Response not worthy of credit.</td><td>0 marks
Response not worthy of credit.</td></tr>
</table>
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Question		AO1	AO2	AO3	Total
(b)	Explain the physiological adaptations that could result from altitude training. *Award 1 mark for an explanation of any of the following points:* Altitude training increases the body's oxygen carrying capacity by: • Increasing red-blood cell mass. • Increasing haemoglobin levels / concentration (haematocrit). • Increased capillarisation of blood vessels. • Increasing levels of erythropoietin (EPO) • Increase in breathing frequency	2	2		4
(c)	Describe the process of carbo-loading and explain why it may aid the performance of a marathon runner. *Award two marks for a description of carbo-loading and two mark for its use. Intensity must be explained in order to achieve maximum marks.* *Max 2 marks for description* DTL – deplete, tamper, load – no quantify 1 mark • Six days prior to competition, intense training is carried out in order to deplete glycogen stores (depletion phase). • In the subsequent days as competition approaches, exercise intensity tapers off with a total rest day prior to competition. • For the final three days before competition, carbohydrate intake in increased to 70-80% of diet (repletion phase). Maximum 2 marks • Carbo-loading will aid the performance of a marathon runner as it boost glycogen levels within the body. • Delay fatigue • Delay threshold • Allowing the athlete to work at higher intensity for a longer period of time.	2	2		4

Question		AO1	AO2	AO3	Total
(d)	Explain distraction-conflict theory and describe a cognitive stress management technique which could be used to reduce its effects. *Award up to two marks for explanation of distraction-conflict theory (Baron).* Distraction-conflict theory states that: • Performers can only attend to a limited amount of information at any one time. • Single channel hypothesis. • Performers need little attention to perform basic/simple tasks and more attention to performer more difficult/complex tasks. • The presence of others (or other distractors such as loud noises) demands attention and it is this **conflict** that increases arousal leading to either an improvement or impairment in performance (i.e. social facilitation effects) Award one mark for description of one of the following cognitive stress management techniques. No mark for simply naming technique. • Goal setting. • Imagery and mental rehearsal. • Self-talk (positive and negative). • Mindfulness.	1	2		3

Question		AO1	AO2	AO3	Total
(e)	Analysis why, despite the risks, athletes continue to use performance-enhancing drugs and evaluate the success of strategies used to combat doping in sport. *Award up to three marks for suggesting reasons for use of performance-enhancing substances from points below.* <u>Possible reasons:</u> • Pressure – from peers / coaches / others • Financial gain e.g. additional sponsorship due to success. • Power, fame and success (in order to win) • To mask pain / other drugs • Part of systemised programme of doping e.g. East Germany State Plan 14:25 • In order to train harder / recovery quicker • Specific physiological reasons e.g. boost oxygen carrying capacity. • Other. *Award up to three marks for the evaluation of any of the following strategies:* *Evaluate strategies and their success* *Max of three marks if the strategies are linked to success* <u>Specific strategies:</u> • Development of anti-doping polices / WADA. • Drug testing and research (in and out of competition). • Sanctions and bans. • New developments e.g. use of blood passport. • Education, awareness and outreach work. • Other.			6	6

Question		AO1	AO2	AO3	Total
(f)	Analyse why many athletes choose to undertake regular mobility training as part of their programmes. **Indicative content** • *Types of mobility training: active stretching, passive stretching, dynamic/ballistic stretching, PNF (proprioceptive neuromuscular facilitation). – no marks awarded for types of training* • *Marks can be 2x2marks plus amplification, 5x1 marks* • Can help to improve flexibility (range of movement at a joint) – flexibility tends to decline with age and training can delay this effect. • **Joints and the impact on from training** • **Ligaments and tendons** • Can help to improve technique e.g. trail leg in hurdling / can adopt more aesthetically pleasing positions in gymnastics. • Can lead to an increase in speed and power of muscle contraction. • Therefore can help to prevent injury / avoid reoccurrence of injury.			5	5
		7	**6**	**17**	**30**

Question		AO1	AO2	AO3	Total
2. (a)	Identify the type of joint labelled A in Figure 2 and the movement action at this joint during the complete breaststroke arm action. *1 mark awarded for identifying type of joint.* Ball and socket joint. *1 mark awarded for identifying movement type.* Circumduction.	2			2
(b) (i)	Define linear motion *1 mark awarded for correct definition.* Linear motion is defined as 'movement of an object or a body occurring in a straight line when a force acts upon it.' (or similar). *Do not accept movement in a straight line without any qualifier.*	1			1
(ii)	Calculate the initial acceleration of the swimmer and the distance covered by the swimmer during the first 25 seconds on the race. *For initial acceleration calculation, award one mark for workings and one mark for correct response (with correct units).* Acceleration = change in velocity / time taken • = (1.5m/s – 0m/s) / 5s – 1 mark • = 0.3 m/s^2 – 1 mark *For distance travelled calculation, award one mark for workings (knowledge that area under graph is distance travelled) and one mark for correct response (with correct units).* Distance travelled (area under graph) • = ½ (1.5 x 5) + (1.5 x 20) – 1 mark • = 3.75m + 30m • = 33.75m } 1 mark	4			4

Question		AO1	AO2	AO3	Total
(c)	Outline the factors influencing fluid friction during the 100m breaststroke and explain ways in which swimmers may reduce the effects of drag. *Award up three marks for description of any of the following factors affecting fluid friction:* • Speed of swimmer – the faster the swimmer, the greater the drag. • Forward cross section of swimmer. • Surface area in contact with the water. • Surface effects – turbulent flow past the swimmer. *Award up to three marks for explanation of the ways swimmers reduce drag from the points below:* • Adopting streamlined position (flat body/avoid dropping feet) in water to reduce cross section and minimise drag. • Reduce surface area in contact with water by changing body shape. • Minimise turbulent flow by the use of specialised designed swimsuits, wearing swimming hats and shaving to remove body hair.	3	3		6

Question		AO1	AO2	AO3	Total
(d)	Using sporting examples, explain the role of motor programmes in performing a sporting activity. *Award two marks for knowledge of motor programmes from points below and two marks for understanding how motor programme aid performance. Examples must be used for maximum marks.* **Motor programmes:** • A plan of action stored in the long term memeory • Executive motor programmes are a series of sub-routines organised into the correct sequence in order to perform a movement (linked with stages of learning) e.g. tennis stroke – grip, stance, swing and follow-through. • Concept of hierarchical structure – sub-routines e.g. high jump (run-up, take-off, flight, landing). **Application:** • Motor programmes means that not every part of an action needs to pass through short-term memory (overcoming issues with memory overload) • Allows a movement to be performed quickly/effective and efficient. • Very little time for feedback – closed/open loop programmes/almost automatic. • Closed loop – with intrinsic feedback/errors detected and possible correction during performance. • Transfer of similar programmes/adaptations • Schema theory (recall and recognition schema).	2	2		4

Question		AO1	AO2	AO3	Total
(e)	Explain, using specific examples, how a coach may use different forms of guidance when teaching young children to swim. *Award up to 2 marks for knowledge of guidance (at least two forms of guidance) and up to 2 marks for application to teaching swimming.* • Visual guidance e.g. demonstration (live or video), visual image/ aids such as poster or workcard. For example, in swimming, a coach may demonstrate the arm action of the breaststroke (usually out of the pool) and the children will then replicate this. • Verbal guidance e.g. instructions / explanation of the key teaching points of the skill. For example, in swimming, the coach may use verbal guidance (normally in association with visual guidance) to hone in on the key aspects of the stroke such as the glide phase in breaststroke. • Manual guidance involves physical support and the moving of limbs into the correct position. For example, in swimming, a coach may work with younger swimmers and move their legs in the correct technique for breaststroke to develop kinaesthetic awareness. • Mechanical guidance involves the use of an external device to aid performance. For example, in swimming, armbands may be used to build confidence.	2	2		4

<table>
<tr><th>Question</th><th></th><th>AO1</th><th>AO2</th><th>AO3</th><th>Total</th></tr>
<tr><td>(f)</td><td>Evaluate the effectiveness of a coach using persuasion and cognitive dissonance to encourage positive attitudes towards training.

Indicative content
• Triadic model of attitudes (CAB – cognitive, affective, behavioural).
• Persuasive communication can be used to foster positive attitudes.
• Performer needs to be not resistant to change - willingness
• The message must be accurate, clear, easily understood, unambiguous, and credible. Coaches should be confident in their delivery and perceived as expert/high status. Consideration of emotional dimension – coaches must be trusted.
• Cognitive dissonance theory suggests that a mismatch in the cognitive/affective/behavioural aspects of attitude will form a dissonance (imbalance) in the mind of the performer.
• In order to address this dissonance, behaviour needs to be altered. Coaches can change behaviour by creating dissonance in order to change a negative attitude.

<table>
<tr><th>Band</th><th>AO1</th><th>AO3</th></tr>
<tr><td>3</td><td></td><td>3-4 marks
Excellent analysis of strategies to encourage positive attitudes towards training
Reasoned judgments are drawn based on evidence and conclusions are fully justified.</td></tr>
<tr><td>2</td><td>2 marks
Good knowledge of persuasion and cognitive dissonance shown.
Good use of technical language throughout.</td><td>2 marks
Good analysis of strategies to encourage positive attitudes towards training
Some reasoned judgments are drawn but made not be backed up by evidence. Some attempt to draw conclusions.</td></tr>
<tr><td>1</td><td>1 mark
Limited knowledge of persuasion or cognitive dissonance shown.</td><td>1 mark
Limited analysis of strategies.</td></tr>
<tr><td>0</td><td>0 marks
Response not worthy of credit</td><td>0 marks
Response not worthy of credit</td></tr>
</table>
</td><td>2</td><td></td><td>4</td><td>6</td></tr>
</table>

Question		AO1	AO2	AO3	Total
(g)	Define core stability and explain its importance in reducing sports injury rates. *Award 1 mark for definition.* Core stability relates to the capacity of the muscles of the **torso/trunk/central core** to stabilise the body during movement and assist with **maintenance of posture and balance.** *Award up to 2 marks for any of the following points:* Good core stability helps to reduce injury as: • enables body to withstand larger forces e.g. tackle in rugby • helps to maintain good posture during movement • reduces stress placed on spine (particular lower back) during particular activities; • allows all muscles to work efficiently and avoids overuse injuries caused by muscle imbalance.	1	2		3
		17	**9**	**4**	**30**

Question		AO1	AO2	AO3	Total
3. (a)	In the context of the historical development of cricket, explain the distinction between an amateur and a professional. *Award 1 mark for explanation of a gentleman and award 1 mark for explanation of a player.* A *gentleman*, within the sport of cricket, is an amateur who plays for the love of the game. Gentleman amateurs did not receive payment for playing the game (although they may have received nominal expenses). Gentlemen also tended to come from the middle to upper class sections of society. Patronage. In contrast, a player, is a professional (or semi-professional) who is played for money. Players were normally drawn from the working-class section of society. The distinction between Gentlemen and Players was abolished by the MCC is 1963 when all first-class cricketers became professional.		2		2

Question		AO1	AO2	AO3	Total
3. (b)	Analyse the importance of this model of leadership in relation to building successful teams. **Indicative content** **Situational Characteristics** • Effective leadership will adapt to the situation. • Certain situations may influence/control/dictate a particular mode of leadership e.g. dangerous (environmental factors) with high risk such as teaching javelin will require a strong, autocratic style leadership. **Leader characteristics** • Effective leadership is related to the personality of the leader. Leadership style will be influenced by personality e.g. autocratic/democratic/laissez-faire • Personality/experience/ability of the leader will influence whether a performer reacts in a positive/negative way towards the leader. **Member Characteristics** • Effective leadership is related to the group eg. size, experience, tradition/culture, previous expectations, age of group. **Leaders Behaviour** **Required behaviour** • Style of leadership that is required / suitable / appropriate for the particular situation / members. **Actual Behaviour** • Relates to the leadership style adopted – the way the leader acts and behaves. • The leader's actual behaviour will have a direct impact on performance of the team and the members' satisfaction. **Preferred behaviour** • This relates to way in which the group wish to be led (links with satisfaction). • The leader's behaviour can have a direct impact on performance and motivation → leading to successful outcomes for the team. • Leaders should be flexible/can change/can adapt to differing styles (to accommodate the differing needs to improve performance.)	3		6	9

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<tr><th>Band</th><th>AO1</th><th>AO3</th></tr>
<tr><td>3</td><td></td><td>5-6 marks
Excellent analysis of Chelladurai’s multi-dimensional model of leadership.
Reasoned judgements are made and appropriate, balanced conclusions are drawn using relevant theory.
Excellent application of theory to practice.</td></tr>
<tr><td>2</td><td>2-3marks
Good knowledge of leadership model</td><td>3-4 marks
Good analysis of Chelladurai’s multi-dimensional model of leadership.
Judgements made on the merits of the theory but not fully developed.
Conclusions may be one-sided or lack evidence.
Good application of theory to practice.</td></tr>
<tr><td>1</td><td>1-2 marks
Limited knowledge of leadership model.</td><td>1-2 marks
Limited analysis of Chelladurai’s multi-dimensional model of leadership.
Superficial judgements made with little link to theory.
Limited application of theory to practice.</td></tr>
<tr><td>0</td><td>0 marks
Response not worthy of credit.</td><td>0 marks
Response not worthy of credit.</td></tr>
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Question		AO1	AO2	AO3	Total
3. (c)	Discuss the barriers faced by females participating in cricket and suggest reasons for the surge in popularity of the women's game. 5-6 marks for Excellent discussion of the barriers and clear reasons for the surge in popularity 2-4 marks good discussion into the barriers with reasons for a surge in popularity Award 1 mark for a list of barriers Indicative content **Barrier to participation for women in cricket** • Less media coverage (and consequently less funding of cricket at all levels for women / lack of sponsorship). • Fewer role models. • Opportunity – provision • Self confidence/esteem • Gender stereotyping / tagging – 'cricket is a game for boys' / 'girls can't throw' for example. • Less provision e.g. fewer clubs and less opportunities within physical education and school sport / fewer competitions and leagues for women's cricket. • Lack of time due to other factors e.g. traditional role, childcare, work commitments. • Issues in relation to body image. • Temporal anticipation **Reasons for rise in popularity of women's game** • Increased media coverage including social media e.g. coverage of ICC Women's World Cup on Sky Sports • Success of England Women's cricket team e.g. England Women's team winning the World Cup • More role models due to increased exposure • Increased funding – women's cricket became professional in 2014 → leading to improvement in standards. • Greater acceptance of women playing 'male' sports • Campaigns such as *Chance to Shine* (cricket-specific) and *This Girl Can* (general). • Other.	1		5	6

Question		AO1	AO2	AO3	Total
3. (d)	Explain the importance of anticipation in sport and identify ways in which a performer may improve their response time. *Award up to 2 marks for explanation of role of anticipation from points below:* **The role of anticipation in sport:** Anticipation is linked with experience and allows performers to: • improve their decision-making skills based on prior experience. • improve timing e.g. in cricket / tennis • gives a performer 'extra' time • predict when something with happen - temporal anticipation • enables better positioning – as performers predict/judge before the event and respond earlier (spatial anticipation) • Other. *Award up to 2 marks for identification of strategies to improve response time from points below:* **Strategies to improve response time:** • Use of mental rehearsal. • Blocking out / ignoring irrelevant information • Improve attention – concentrate to initial cues e.g. early movements • Use of anticipation • Improvements in physical fitness. • Repeated practice – in order to develop a habitual response to identified stimuli / cue. • Other.	2	2		4

Question		AO1	AO2	AO3	Total
3. (e)	Explain using examples the main principles behind effective goal setting. *Award 1 mark for explanation of any of the following points. Marks are only to be awarded if the answer is backed up with an appropriate example.* • Use of the SMART(ER) or SCAMP principles. • Specific – must be directly related to their sport/activity/outcome – not generic. • Measurable - objective aspect that can be measured e.g. performance against personal best. • Achievable - within reach / Agreed - Shared with other parties e.g. coach, other team members attainable • Realistic - at the correct level for the performer but sufficiently challenging • Time-Phased - Set time to achieve the goal including short and long term objectives • Exciting / Challenging – they should enthuse/motivate the performer / provide an incentive. • Recorded - Records kept of training to monitor goals, enables accountability • Positive - Motivational/exciting and not negative in any way. • Controllable – within the remit of the athlete and not influenced by the performance of others.	2	2		4
		8	**6**	**11**	**25**

Question		AO1	AO2	AO3	Total
4.	Discuss the impact and consequences of the increasing commercialisation and globalisation of sport. **This is a banded response** **indicative content** **The discussion will take a variety of forms and will be backed up with the use of stimulus material or** a wide range of sporting examples to illustrate and exemplify. **Impact of commercialisation** • Sport as a commodity / sport as a business. Concept of assets (such as players / clubs / stadia etc.) that can be bought and sold. • Golden' triangle – symbiotic relationship between sport, media and sponsorship. • Sponsorship in all its forms e.g. replica kit market. • Financial fair play and irregularies. Influence of business and entrepreneurs. • The influence of market e.g. supply and demand / those with most money have most influence. Effect on transfer fees. • Development of the 'cult' of the celebrity sportstar – influence within and outside of sport. Impact of social media. • Power of the media and sponsors to shape sport e.g. rule changes, breaks in play for advertising 'hits', creation of new formats (e.g. Twenty20 Cricket). • Other. **Impact of globalisation** • Definition of globalisation. • Cashmore's three levels of globalization (i) the creation of global sporting competitions e.g. Indian Premier League (IPL) in cricket; (ii) the development of satellite communications e.g. people across the world can share and experience events such as Olympic 100m final 'live' and (ii) growth of the global market of sports teams, sports stars and sports merchandise e.g. evolution of sports brands such as Nike and Under Armour and the cult of celebrity such as the creation of the Jordan or Beckham 'brands' . • Players recruited to play for teams in countries other than their own and the effect on home	4		16	20

<table>
<tr><th>Question</th><th></th><th>AO1</th><th>AO2</th><th>AO3</th><th>Total</th></tr>
<tr><td></td><td>grown talent e.g. Premiership football.
• Hosting of major international tournament in different nations e.g. Qatar World Cup.
• Other.</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>
<table>
<tr><th>Band</th><th>AO1</th><th>AO3</th></tr>
<tr><td>3</td><td></td><td>11-16 marks
Excellent discussion the impact and consequences of the increasing commercialisation and globalisation of sport. Positive and negative aspects must be discussed

Sporting examples to illustrate and exemplify sports throughout</td></tr>
<tr><td>2</td><td>3-4marks
Good knowledge of commercialisation and globalisation</td><td>5-10 marks
Good discussion the impact and consequences of the increasing commercialisation and globalisation of sport. Positive and negative aspects may not be discussed in full and only one side of the discussion within this band

Sporting examples to illustrate points may not be throughout</td></tr>
<tr><td>1</td><td>1-2 marks
Limited knowledge of commercialisation and globalisation</td><td>1-4 marks
Limited discussion the impact and consequences of the increasing commercialisation and globalisation of sport.

Focused just on the positive or negative impact

Little or no reference to sporting examples</td></tr>
<tr><td>0</td><td>0 marks
Response not worthy of credit.</td><td>0 marks
Response not worthy of credit.</td></tr>
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</table>

	AO1	AO2	AO3	Total
Q1	7	6	17*	**30**
Q2	17	9*	4	**30**
Q3	8	6	11	**25**
Q4	4		16	**20**
	36	**21**	**48**	**105**

*4 Marks for qualitative skills 1. (a)
*4 Marks for quantitative skills 2. (b) (ii)