GCE A LEVEL MARKING SCHEME

SUMMER 2018

A LEVEL (NEW)
PHYSICAL EDUCATION - UNIT 3
1550U30-1

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 A LEVEL (NEW)
PHYSICAL EDUCATION

SUMMER 2018 MARK SCHEME

UNIT 3

Guidance for examiners

It should be remembered that learners are writing under examination conditions and credit should be given for what the learner writes, rather than adopting the approach of penalising him/her for any omissions. It should be possible for a very good response to achieve full marks and a very poor one to achieve zero marks. Marks should not be deducted for a less than perfect answer if it satisfies the criteria of the mark scheme.

For questions that are objective or points-based the mark scheme should be applied precisely. Marks should be awarded as indicated and no further subdivision made.

Banded mark schemes

For band marked questions mark schemes are in two parts.

Part 1 is advice on the indicative content that suggests the range of concepts, facts, issues and arguments which may be included in the learner's answers. These can be used to assess the quality of the learner's response.

Part 2 is an assessment grid advising bands and associated marks that should be given to responses which demonstrate the qualities needed in AO1, AO2 and AO3. Where a response is not creditworthy or not attempted it is indicated on the grid as mark band zero.

Examiners should first read and annotate a learner's answer to pick out the evidence that is being assessed in that question. Once the annotation is complete, the mark scheme can be applied.

This is done as a two stage process.

Stage 1 – Deciding on the band

Beginning at the lowest band, examiners should look at the learner's answer and check whether it matches the descriptor for that band. If the descriptor at the lowest band is satisfied, examiners should move up to the next band and repeat this process for each band until the descriptor matches the answer.

If an answer covers different aspects of different bands within the mark scheme, a 'best fit' approach should be adopted to decide on the band and then the learner's response should be used to decide on the mark within the band. For instance if a response is mainly in band 2 but with a limited amount of band 3 content, the answer would be placed in band 2, but the mark awarded would be close to the top of band 2 as a result of the band 3 content. Examiners should not seek to mark candidates down as a result of small omissions in minor areas of an answer.

Stage 2 – Deciding on the mark

During standardising (marking conference), detailed advice from the Principal Examiner on the qualities of each mark band will be given. Examiners will then receive examples of answers in each mark band that have been awarded a mark by the Principal Examiner. Examiners should mark the examples and compare their marks with those of the Principal Examiner.

When marking, examiners can use these examples to decide whether a learner's response is of a superior, inferior or comparable standard to the example. Examiners are reminded of the need to revisit the answer as they apply the mark scheme in order to confirm that the band and the mark allocated is appropriate to the response provided.

Indicative content is also provided for banded mark schemes. Indicative content is not exhaustive, and any other valid points must be credited. In order to reach the highest bands of the mark scheme a learner need not cover all of the points mentioned in the indicative content but must meet the requirements of the highest mark band. Where a response is not creditworthy, that is contains nothing of any significance to the mark scheme, or where no response has been provided, no marks should be awarded.

Question	Mark scheme	AO1	AO2	AO3	Total
1.	*The cardiovascular system plays an important role in the physical performance of a 5000 metre runner. The table below shows the response of the athlete's heart to an increase in exercise intensity.*				
(a)	Using the information provided describe the relationship between Heart Rate, Stroke Volume and Cardiac Output. 1 mark for equation or explanation Cardiac output = Stroke volume x Heart rate (Q=SV x HR) **Cardiac Output – amount of blood ejected from heart (ventricles) in one minute** 2 marks for description of relationship 1 mark for increasing basic As one increases the others increase 1 marks for relationship to table Data from table at least 2 values	3			3
(b)	*During exercise it is necessary to increase the supply of blood to the working muscles.* Describe the mechanisms by which blood is re-distributed to the working muscles during a 5000 metre race. Explain why this re-distribution is necessary. Max 2 for mechanisms. Vascular shunt. Blood redistribution Vasodilation/ widening of arteries /arterioles supplying working muscles. Vasoconstriction/ narrowing of arteries/ arterioles supplying NON working muscles. Precapillary sphincter opening in working muscles Precapillary sphincter closing in NON working muscles Max 2 mark for explanation Blood is distributed away from non-essential organs e.g. stomach Blood is directed to working muscles due to increase demand for O2 Supply more O2 to and remove CO2/Lactic acid from working muscle Supply more food fuels /CHO/fat for aerobic respiration Regulate body /muscle temperature Maintain pH /buffering Delay fatigue Delay anaerobic threshold	2	2		4

Question	Mark scheme	AO1	AO2	AO3	Total
(c)	If an athlete completed a twelve week programme of intense aerobic training, identify 3 long term physiological adaptations you would expect to take place within the cardiovascular and respiratory systems. Explain the effect of these adaptations on sporting performance. **3 marks for adaptations be must have at least one form Cardio Vascular or Respiratory** CARDIOVASCULAR adaptations Cardiac Hypertrophy/myocardium/ increase in heart muscle size. Increase chamber size. Greater vasodilation/vasoconstriction Blood volume increase/haemoglobin/ red cell count. Increase number of capillaries/ capillarisation/ heart muscle/skeletal muscle. Increase elasticity of arterial walls. Increase efficiency of buffering system RESPIRATORY ADAPTATION adapta Strengthening/Hypertrophy of respiratory muscle. Increase surface area of alveoli. Increase lung volumes/TV/IRV/ERV. Capillarisation of Alveoli. **3 max marks for explaining effects linked to sporting performance** Increase in Stroke Volume/ heart contracts with greater force/ ejects more blood with each beat. Bradycardia. Increase Cardiac Output Increase max HR Lower resting HR Increase storing capacity of O2 in blood. Increase lactic acid tolerance. Arteries can withstand greater fluctuations of blood pressure. Better O2 transportation Efficient use of O2/ cells /lungs Improved Max VO2 Improved gaseous exchange/diffusion Lower resting/ recovery respiratory rate. The sporting performance linked to effects needs to explain why the effects could be: Higher, Faster, Longer, Stronger	3	3		6

1. (c)	If an athlete completed a twelve week programme of intense aerobic training, identify 3 long term physiological adaptations you would expect to take place within the cardiovascular and respiratory systems. Explain the effect of these adaptations on sporting performance.	(6)
Band	**AO1**	**AO2**
	3 marks	**3 marks**
3	**3 marks** Identify 3 physiological adaptations	**3 marks** Excellent explanation of effects of Long term Physiological adaptations linked to sporting performance
2	**2 marks** Identify 2 physiological adaptations	**2 marks** Good explanation of effects of Long term Physiological adaptations some link to sporting performance
1	**1 mark** Identify 1 physiological adaptations	**1 mark** Limited explanation of effects of long term Physiological adaptations.
0	**0 marks** No knowledge of Long term Physiological adaptation.	**0 marks** No explanation of effects of long term physiological adaptations.

Question	Mark scheme	AO1	AO2	AO3	Total
2.	*The New Zealand All Blacks are considered to be one of the best rugby teams in the world. Having won the World Cup three times it can be said they are an efficient team with a group of players, individuals and coach who share a common goal.* *The New Zealand coach has stated that having a positive attitude is important for his team's success.* *The coach plays a vital role in Team Cohesion. High profile international rugby coaches have a wide range of leadership skills.*				
(a) (i)	Identify the factors that have contributed to the development of Cohesion within such a group. 1 mark each for – Interactive sports lend themselves to more cohesion Friendships/ feelings/communication within the group How attracted the group are to each other. Success of the group. Leadership/ type/strength Size of group External perception of threats Similarities of group members /race/gender/age/ability/attitude/effort/skill level/personality. Driven by a common goal (6 I's) identify, interaction, interdependence, interpersonal relationships, identical norms and values, independence	3			3

Question	Mark scheme	AO1	AO2	AO3	Total
(ii)	Outline the possible causes of social loafing and explain the strategies that a coach could use to overcome such problems. 2 marks for outlining causes **Causes** Loss of motivation of an individual within a group/reduced/lack of effort of individual. Perception that others aren't trying Lack of reinforcement/motivation from others Lack of individual attention/feeling ignored/unnoticed/lack of identity/large group Low self-efficacy/negative past experience Perceived low ability/ Attribution theory - failure due to stable /internal factors/task complexity/or relevant e.g. Low arousal/boredom. Ringlemann effect 3 marks for explanation of the strategies Minimum of 2 strategies (1 mark for amplification) **Strategies** Highlighting individual effort/performance/importance Feedback about performance/positive/negative/ reinforcement/praise/ use statistics/notation Social support from group members/social cohesion/team building activities Give individual responsibility Perform in small groups/manipulate success Set individual goals Pressure/punishment from team members/coach Relevant e.g.	2	3		5
(b)	Describe the characteristics of a positive attitude using the Triadic Model. Triadic model. **Cognitive** – Belief. e.g you are improving , have good skill set, can win. **Affective** – emotions/feelings. enjoyment - training/winning /competing. **Behavioural** – participating/competing Relevant e.g.	3			3

Question	Mark scheme	AO1	AO2	AO3	Total
(c)	With reference to appropriate theories, explain why a coach would employ a variety of leadership techniques within different sporting situations. **Answers with no reference to Theories can only access AO2 marks** **Theories e.g.** Fiedler contingency model/ Favourability of the situation. Power of the leader/task complexity/pressure of time/relationships with members. Task orientated/person orientated. Relationship orientated. Chelladurai multi -dimensional model. Leader personality/situation/member's personality Leadership scale for sport (LSS) Other relevant theories. **Explanation of different leadership styles -** Autocratic/Democratic/Laissez faire/ Emergent/Prescribed. Nature/Nurture Advantages and dis-advantages of each style. **Sporting situations** Variations in leadership styles dependent upon situation/ member characteristics/ leader personality. Small group/team- democratic/person orientated/relationship orientated. Female -democratic/person orientated Male – autocratic/command style Beginners/ weaker performers – task orientated/ democratic/autocratic Elite – person/relationship orientated/democratic/laissez faire Large group / dangerous situation/complex task – Autocratic/ Safe environment/basic task – democratic.	3	5		8

2. (c)	With reference to appropriate theories, explain why a coach would employ a variety of leadership styles within different sporting situations.	(8)
Band	**AO1**	**AO2**
	3 marks	**5 marks**
3	**3 marks** Excellent knowledge of theories.	**5 marks** Excellent justification of use of leadership techniques in sporting context.
2	**2 marks** Good knowledge of theories.	**3-4 marks** Good justification of use of leadership techniques in sporting context.
1	**1 mark** Limited knowledge of theories.	**1-2 mark** Limited justification of use of leadership techniques in sporting context.
0	**0 marks** No knowledge of theories.	**0 marks** No justification of use of leadership techniques in sporting context.

Question	Mark scheme	AO1	AO2	AO3	Total
3.	*Athletics events are categorised as running, jumping and throwing.* *Throwing events such as discus and javelin in athletics involve projectiles.*				
(a)	Explain the factors that effect the flight path of a javelin List three factors = 1 mark 2 factors but one detailed explanation could access 3 marks **Factors determining trajectory** Speed of release Height of release Angle of release Environmental factors inc; wind direction, air resistant, mass, gravity **Achieving max horizontal range** Greater the speed of release = greater horizontal range Optimal angle of release is 45 degrees Greater the height of release/the greater the horizontal range (up to optimum).		3		3
(b)	Explain why the spin turn in the discus throw can produce a greater distance than a standing throw 3x1 The hand is in contact with the discuss for a greater time/ therefore force is generated of longer time Since impulse = force x time (F x t) The greater the value of t, the greater the impulse Giving a larger velocity/change in momentum/acceleration Linked to Newton's second law (F = ma/ F = mu-mv)		3		3

Question	Mark scheme	AO1	AO2	AO3	Total
(c)	Explain the Bernoulli effect and analyse the factors that affects the flight path of the discus. 4 AO2 marks for explanation: Bernoulli effect- relationship between flow speed and pressure • Where flow is fast, pressure is low • Where flow is slow, pressure is high • The resulting pressure force moves from high to low. 4 AO3 marks for flight path analysis: • Air travels further over top of the discus • Air flowing over the top moves faster than the air flowing underneath. • The pressure on top of the discus is lower than the pressure underneath • This creates a pressure differential/gradient • Causing a lifting force (which helps the discus sail a greater distance) • Giving a non-parabolic flight path. • The flight path will be asymmetrical • Relevant diagram • Environmental factors inc; wind direction, air resistant, mass, gravity (A max of 1 mark could be for factors below) • speed, height, and angle of release		4	4	8

Question	Mark scheme	AO1	AO2	AO3	Total
(d)	The misuse of illegal aids is often associated with athletic events. Outline the possible long term risks associated with such practices. 4 x 1 or 2 x 2 with detailed amplification – • • Physical health risks e.g. bodies reaction to aids, addiction • Mental health risks e,g. aggression, self confidence • Social health risks e,g, cheating • Financial risks e.g. banned	4			4

Question	Mark scheme	AO1	AO2	AO3	Total
4.	Tennis is a sport where concentration and fast reactions are essential for effective performance. In a study comparing the reaction time of tennis players, footballers and sedentary individuals the data shown in Fig1 was gathered.				
(a)	Use practical examples to explain the strategies that could be used to improve reaction time. **Allow 1 mark for definition + 2 strategies** Time between the onset of the stimulus and the start of the response Time between the first presentation of the stimulus to the start/initiation of movement Relevant e.g. / bang of the gun to pressure applied to blocks **3 marks can be given for strategies** Practice responding to stimulus Use previous experience Anticipation/warning signals/attend to preliminary movements Control/reduce arousal level Reduce number of stimuli/ create simple a time situation Use selective attention/concentrate /focus Use mental rehearsal Increase intensity of stimulus/brightness and size of stimulus Make stimulus and response compatible Use kinesthesis/sense of sound/touch Increase physical fitness		3		3
(b)	Diet and nutrition are important considerations in order to improve performance in tennis. Describe how a tennis player would use the process of carbo loading prior to a match. **Answers need detail to access top marks** 3 AO1 marks for the 3 points below Discussion of carboloading e.g.Astrand /Sherman • Depletion • Tapering • Loading 2 AO2 marks for detail below 6/7 day cycle. Initial depletion of glycogen stores 2 4 6 Tapering of exercise over days 6-1. Rest on final day 80% increase in CHO intake over final 3/4 days Pre competition meal high in medium and low GI carbs Med to high GI food Maltodextrin Energy/Isotonic drinks. Gel Hydration High CHO intake over 2/3 days prior to match 8-10grams per kg of body weight	3	2		5

Question	Mark scheme	AO1	AO2	AO3	Total
(c)	Information processing is an important part of improving sporting performance. Discuss the role of selective attention, long term memory and feedback within this process. SELECTIVE ATTENTION Concentration on a stimulus Focus on cues Stimulus identification Transfer of stimulus to short term memory Relevant information is retained Irrelevant information is filtered out The process is important for concentration/improving reaction time Relevant e.g. MEMORY Rehearse/repeat/reinforce information Make information more meaningful Associate with information that is already familiar Relate to past experiences Make experiences emotional/pleasurable/painful/intense Make stimuli more recognisable/contrasting/different/intense FEEDBACK Types of feedback- Positive/negative Immediate/delayed Concurrent/terminal Knowledge of performance/knowledge of results Verbal/visual Internal /external Functions of feedback Inform – increase knowledge Error detection/error correction Motivate/praise/increase self confidence Reinforce / good /correct performance/rewards Punishment- against undesirable behaviour/ supplemented by positive reinforcement Factors Stage of learning – Cognitive/Associative/Autonomous Novice = positive feedback/praise/reinforce good habits/ immediate/ simple /clear/no overload/KP Advanced performers = positive + negative/detect errors/prevent bad habits/delayed/detailed/KR Type of activity Personality of performer Avoid information overload Allow performer to develop internal feedback/kinesthesis (rather than relying on external/augmented feedback)	2		10	12

4. (c)	**Information processing is an important part of improving sporting performance. Discuss the role of feedback selective attention and long term memory within this process**	**(12)**
Band	**AO1**	**AO3**
3		**8-10 marks** Excellent discussion and knowledge of the different uses of **feedback, selective attention and long term memory** The discussion shows excellent evaluation of **feedback, selective attention and long term memory**. Reasoned judgements are made about uses of **feedback, selective attention and long term memory** There are excellent links between theory and practice The response is clearly expressed, and shows accurate use of technical terminology. Writing is very well structured using accurate grammar, punctuation and spelling
2	**2 marks** Good knowledge of types of feedback, selective attention and long term memory	**4-7 marks** Good discussion of the different uses of feedback, selective attention and long term memory. The discussion shows good evaluation of feedback, selective attention and long term memory Judgements about uses of feedback, selective attention and long term memory for performance are made but lack development The response is adequately expressed, and shows appropriate use of technical terminology. Writing is generally well structured using reasonably accurate grammar, punctuation and spelling.

1	**1 mark** Limited knowledge of types of feedback, selective attention and long term memory	**1-3 mark** Limited discussion of the different uses of feedback, selective attention and long term memory The discussion shows limited evaluation of feedback, selective attention and long term memory. Judgements about uses of feedback, selective attention and long term memory are superficial The response shows basic use of technical terminology. Writing shows some evidence of structure but with some errors in grammar, punctuation and spelling
0	**0 mark** No knowledge of types of feedback, selective attention and long term memory Response not worthy of credit	**0 mark** No discussion of the different uses of feedback, selective attention and long term memory. Response not worthy of credit

Question	Mark scheme	AO1	AO2	AO3	Total
5.	It could be argued that significant investment from global companies has resulted in sport becoming over commercialised. Discuss this statement using examples to illustrate your answer. The following is indicative of the material that might be included in the answer. • Commercialisation of sport- sport becomes subject to market force of commerce. • Sport has become a commodity (bought and sold) • Rise in professionalism led to rise in commercialisation. • Players and other individuals want share of profits. • Entrepreneurs buying sport teams as business investment (Glaziers/ Man Utd). Huge increase in wages/fees. Transfer market. Massive prize money. Sponsorship and advertising deals. Commodification of sports brands (Nike). • Importance of television revenues, huge Sky /BT sport deals for televising rights. Pay per view/ Sport channels. • Americaisation of sport. • Has sport become over commercialised? Rewards are so massive that it creates a 'win at all cost mentality. Lombardian ethic. • Naïve to assume that fair play could still be part of modern sport given vast sums of money involved! • Is there still a moral code in sport • Sportsmanship v Gamesmanship debate. Sportsmanship has been eroded and replaced by gamesmanship as individuals/teams/authorities seek to gain the vast rewards associated with success. • Models of morality. • Deviant (behaviour deviating from norm of society) even violence is becoming more prevlant. • Potential rewards outweigh consequences of being caught. • Everybody else cheats!! • Pressure by sponsers/coaches/managers/teammates. • Examples of deviant behaviour – violent play, drug taking, match fixing, bungs, bribery, sledging, diving in football, corruption	2	2	16	20

Question	Mark scheme	AO1	AO2	AO3	Total
	(Fifa,IOC) • Poor role models. • However/ Counter argument – • Good role models • Sportsmanship is still important and still evident in modern sport. • Relevant examples should be included. • Are sport authorities getting better at catching cheeting. Has cheating in sport always exicsted. • Better drug test. WADA. • Greater coverage of deviance by media • Involvement of law enforcement agencies – police in sex abuse cases. FBI in IOC corruption. Goldern triangle – media, sport and sponsor				

5.	**It could be argued that significant investment from global companies has resulted in sport becoming over commercialised. Discuss this statement using examples to illustrate your answer.**	**(20)**	
Band	**AO1**	**AO2**	**AO3**
	2 marks	**2 marks**	**16 marks**
3			**11-16 marks** Excellent evaluation of the effects of commercialisation on sport and the influence on deviance, sportsmanship and fair play Detailed and reasoned judgements are made. Positive and negative effects on sport are discussed in detail The response is clearly expressed, and shows accurate use of technical terminology. Writing is very well structured using accurate grammar, punctuation and spelling.
2	**2 mark** Good knowledge and understanding of the effects of commercialisation on sport and the influence on deviance, sportsmanship and fair play.	**2 mark** Good application of the effects of commercialisation on sport and the influence on deviance, sportsmanship and fair play	**5-10 marks** Good evaluation of the effects of commercialisation on sport and the influence on deviance, sportsmanship and fair play Judgements are made but not always evidence-based Evaluation tends to be one sided concentrating on either the positive or negative effects The response is adequately expressed, and shows appropriate use of technical terminology. Writing is generally well structured using reasonably accurate grammar, punctuation and spelling.

1	**1 mark** Limited knowledge and understanding of the effects of commercialisation on sport and the influence on deviance, sportsmanship and fair play.	**1 mark** Limited application of the effects of commercialisation on sport and the influence on deviance, sportsmanship and fair play	**1-4 marks** Limited evaluation of the effects of commercialisation on sport and the influence on deviance, sportsmanship and fair play Evaluation is one sided and is superficial The response shows basic use of technical terminology. Writing shows some evidence of structure but with some errors in grammar, punctuation and spelling
0	**0 marks** No knowledge and understanding of the effects of commercialisation on sport and the influence on deviance, sportsmanship and fair play.	**0 marks** No application of the effects of commercialisation on sport and the influence on deviance, sportsmanship and fair play	**0 marks** No evaluation of the effects of commercialisation on sport and the influence on deviance, sportsmanship and fair play Response not worthy of credit

Q3(a)

3c	**Explain the Bernoulli effect and analyse the factors that affects the flight path of the discus.**	**(8)**
BAND	**AO2 (4)**	**AO3 (4)**
3	**4 marks** **Excellent explanation of Bernoulli effect**	**4 marks** **Excellent analysis of flight path**
2	**2-3 marks** **Good explanation of Bernoulli effect**	**2-3 marks** **Good analysis of flight path**
1	**1 mark** **Limited explanation of Bernoulli effect**	**1 mark** **Limited analysis of flight path**
0	**0 mark** **No explanation of Bernoulli effect**	**0 mark** **No analysis of Bernoulli effect**

Unit 3: Assessment objectives mark allocation

	Q1	Q2	Q3	Q4	Q5	Total
AO1	8	11	4	5	2	30
AO2	5	8	10	5	2	30
AO3	0	0	4	10	16	30
Total	**13**	**19**	**18**	**20**	**20**	**90**