GCE A LEVEL MARKING SCHEME

SUMMER 2024

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

About this marking scheme

The purpose of this marking scheme is to provide teachers, learners, and other interested parties, with an understanding of the assessment criteria used to assess this specific assessment.

This marking scheme reflects the criteria by which this assessment was marked in a live series and was finalised following detailed discussion at an examiners' conference. A team of qualified examiners were trained specifically in the application of this marking scheme. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners. It may not be possible, or appropriate, to capture every variation that a candidate may present in their responses within this marking scheme. However, during the training conference, examiners were guided in using their professional judgement to credit alternative valid responses as instructed by the document, and through reviewing exemplar responses.

Without the benefit of participation in the examiners' conference, teachers, learners and other users, may have different views on certain matters of detail or interpretation. Therefore, it is strongly recommended that this marking scheme is used alongside other guidance, such as published exemplar materials or Guidance for Teaching. This marking scheme is final and will not be changed, unless in the event that a clear error is identified, as it reflects the criteria used to assess candidate responses during the live series.

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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.

Number		Answer	Mark	Additional guidance
1	(a)	**Identify Newton's three laws of motion.** 1 mark for each law *Law of inertia* • *Law of acceleration* • *Law of reaction* Award other accurate and relevant response.	3	
	(b)	**Explain how an athlete could apply Newton's third law of motion to improve their performance.** 1-2 marks for a basic explanation of the application of the law 3-4 marks for a developed explanation of the law *Law* of reaction – Must apply the law to performance • *To every action, there is equal and opposite reaction. When two bodies (objects) exert forces on one another action and reaction are equal and opposite.* • *For every action (force) exerted by object on a 2 object, there is an equal & opposite reaction (force) exerted by the 2 object on the 1st* *Always occur in pairs. For example:* *Law applied to sprint start- increased/harder action of muscle leg push against the blocks produces equal reaction from blocks.* • *Law applied to pick up and beginning of race – leg force applied against running* *surface produces equal reaction.* Other relevant examples.	4	

Number		Answer	Mark	Additional guidance
	(c)	**Describe how the pulmonary and systemic circulatory systems distribute blood.** 1-2 marks for basic description 3-4 marks for developed description – must include both systems 5-6 marks for detailed description of both systems - must refer to **how** blood is distributed. *Indicative content* *Pulmonary circulation* – *Co_2 blood (de oxygenated blood) from the heart to the lungs via Pulmonary artery* – *O_2 (oxygenated blood) from the lungs to the heart via pulmonary vein* – *Heart to lungs and return.* *Systemic circulation* – *O_2 blood (Oxygenated) from the heart to the body via the Aorta* – *Co_2 blood (deoxygenated blood) from the body to the heart via IVC and SVC* – *Heart to body and return* ***Blood Distribution – how the blood is moved in the systems*** – *Venous return/ Starlings Law* – *Blood pressure – receptors* – *Vasocontrol* – *Cardiac Control* Award other accurate and relevant response in relation to **how** (5-6 marks)	6	

Number		Answer	Mark	Additional guidance
2	(a)	**Explain, giving examples, how a coach could use feedback to improve an athlete's performance.** 1-2 marks for a basic explanation 3-4 marks for a developed explanation 5-6 marks for a detailed explanation – must have used examples throughout *Indicative content:* *Types of feedback* – *Positive* – *Negative* – *Knowledge of performance* – *Knowledge of results* – *Intrinsic* – *Extrinsic* – *Immediate/ delayed* – *Concurrent/terminal* *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.* Allow performer to develop intrinsic feedback/kinesthesis (rather than relying on extrinsic/augmented feedback) Factors affecting the use of feedback *Stage of learning – Cognitive/Associative/Autonomous* *e.g. 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 e.g. simple or complex skill.* *Personality of performer e.g. extrovert/introvert.* *Avoid information overload.*	6	

Number		Answer	Mark	Additional guidance
2	(b)	**Explain, with reference to relevant theories, possible reasons for aggressive behaviour in sport.** 1-2 marks for a basic explanation including a minimum of one theory 3-4 marks for a developed explanation including a minimum of two theories 5-6 marks for a detailed explanation including a minimum of two theories Theories *Nature v Nurture debate* ***Instinct/Trait theory*** *– states that behaviour/aggression is genetic/innate. Retained through evolution to defend territory e.g. deliberate foul play could be the result of the player born with aggressive tendencies.* ***Social learning theory*** *– (Bandura et al) behaviour/aggression observed, imitated from others around us. Especially high status, significant others. Young football player sees older team acting aggressively and then imitates the behaviour.* ***Frustration*** *– aggression hypothesis – Goals blocked creates internal tension, this leads to frustration and aggression is used as catharsis. Frustration can be caused by- perceived unfairness, injury, poor personal play, spectator influence, provocation.* ***Aggressive cue hypothesis. Cue arousal*** *– Arousal levels increase significantly because of increased levels of frustration. Certain cues trigger off aggressive behaviour e.g. a football player may see the opposition foul one of his team-mates, this would be a cue for his own aggression and he them becomes involved.*	6	

Number		Answer	Mark	Additional guidance
3	(a)	**Describe how anticipation can influence reaction time.** 1-2 marks for a basic description of how anticipation can influence reaction 3-4 marks for a developed description how anticipation can influence reaction *Anticipation is linked with experience and allows performers to:* – *improve their decision-making skills based on prior experience.* – *improve timing eg. in cricket / tennis/badminton* – *gives a performer 'extra' time* ***Prediction** - enables better positioning – as performers predict/judge before the event and respond earlier (spatial anticipation – what/where will happen)* *Anticipation refers to the ability to quickly and accurately predict the outcome of an opponent's action before that action is completed* *Performers can use cues (**cue detection**) to anticipate outcomes at earlier moments in an action (Temporal anticipation- when will it happen).* *Allowing more time to perform an appropriate response in time-stressed task.* *Reaction time is improved.* ***Incorrect anticipation can increase reaction time**.* Other relevant examples.	4	
	(b)	**Explain, using examples, the psychological refractory period.** 1-2 marks for basic explanation 3-4 marks for a developed explanation that must have examples *Indicative content* • *PRP is the delay in being able to respond to a second or two closely spaced stimuli.* • *PRP occurs where there is a presentation of a second stimulus before the previous stimulus has been processed.* • *PRP refers to a period of time during which the response to a second stimulus is significantly slower because a first stimulus is still being processed.* • *This delay in response time is required to divide attention* • *This slows down reaction time.* • *Single channel hypothesis, channel of limited capacity (explanation of process acceptable)* • *Relevant diagram* • *Relevant example. it is often associated with disguised shots or dummies*	4	

Number		Answer	Mark	Additional guidance
3	(c)	**Outline strategies that could be used to ensure information is stored in the long-term memory.** 1-2 basic outline of strategies. 3-4 developed outline of strategies. *Indicative content* • *Rehearse/repeat/reinforce information* • *Chunking* • *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* • *Provide accurate feedback (different forms)* • *Imagery - mental rehearsal/ visualisation* Relevant example	4	
	(d)	**Explain, using examples, how motor programmes are used when performing a skill.** 1-2 marks for basic explanation 3-4 marks for a developed explanation. 5-6 marks for a developed explanation must use examples throughout. *Indicative content:* *Motor programmes are stored in the long term memory and relate to the way in which our brain controls our movements.* • *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.* • *Hierarchical structure – sub-routines e.g. high jump (run-up, take-off, flight, landing).* *Application: DCR* *Retrieving/Comparing motor programmes:* *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.* *Open loop – **decisions** made in brain before performing- single message. Very little time for feedback* *Closed loop – **decisions** made in brain, but not messages sent together, slower movements with intrinsic feedback. Errors detected and possible correction during performance.* • *Transfer of similar programmes/adaptations.* • *(Schmidt) schema theory of adaptable motor programmes.* Any other relevant explanation.	6	

Number		Answer	Mark	Additional guidance
4	(a) (i)	**Outline three negative implications of illegal performance enhancing drugs on sport.** 3x1 mark *Indicative content* ***Financial risks*** *e.g. loss sponsorship* *TV rights and coverage* ***Health*** *e.g. Kidney and Liver failure.* *Females acquire masculine features such as deep voice, facial hair etc.* *Males reduce sperm count, infertility, baldness, prostate cancer* *Increase testosterone levels* ***Psychological*** *self-confidence, depression, anxiety* *Increase aggressive behaviour* ***Social risks*** *e.g. banned from team - copy deviant behaviour* Other relevant risks.	3	
	(a) (ii)	**Analyse why athletes continue to use performance-enhancing drugs despite the risks.** 1-2 marks for basic analysis 3-4 marks for detailed analysis *Possible reasons:* • *Risk - Reward* • *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 / Russia* • *In order to train harder / recovery quicker* • *Specific physiological reasons e.g. boost oxygen carrying capacity.* Other relevant reasons.	4	

Number		Answer	Mark	Additional guidance
	(b)	**Describe strategies employed by agencies 'such as World Anti-Doping Agency (WADA)' to eliminate the use of performance enhancing drugs.** 1-2 basic description of strategies 3-4 developed description with a minimum of two strategies. • *Development of anti-doping polices / prohibited lists* • *Drug testing and research (in and out of competition)* • *Sanctions and bans* • *Blood passport* • *Education, awareness and outreach work.* Other relevant examples.	4	
	(c)	**Explain, using examples, the difference between deviance under-conformity and deviance over-conformity.** 1-2 marks for a basic explanation 3-4 marks for a detailed explanation • *Most actions in sport are within a normal accepted range in society.* • *Deviance occurs outside of this normal range of action. (Coakley 2007)* • *Deviant behaviour is normally associated with finding a way around the rules.* ***Deviance under conformity*** *consists of actions based on ignoring or rejecting norms. e.g. violent conduct, drug use, financial fraud/bungs etc.* ***Deviance over conformity*** *consists of actions based on accepting norms and being willing to follow them to extreme degree, e.g. excessive training affecting family and health, playing through pain whilst injured, extreme loyalty/love for sport /team. Sportsmanship.* *Deviant behaviour can be – Institutional, Group specific, Individual.* *Deviant behaviour can be Voluntary, Co-operative, enforced.* Relevant sporting examples.	4	

Number		Answer	Mark	Additional guidance
	(d)	**Discuss, using current examples, how television has influenced modern sport.** **Banded answer** *Indicative content* ***Advantages*** • *Concept of Golden Triangle* • *Sport & Media:* • *High levels sport is a media commodity, commerce, entertainment.* • *Sport available almost 24/7.* • *Media control aspects of sport e.g. timing, season* • *Celebrities are created and role models can have positive and negative impacts* • *Sponsorship increased due to media coverage* • *Sponsorships increase popularity.* • *Sport is a relatively inexpensive form of advertising* • *Money from sponsorships can help improve spectator provision* • *Increased disabled sport coverage. Paralympics etc.* • *Promotion of lifelong involvement in sport.* • *Promotion of healthy image.* • *Professional opportunities for different careers like performers, coaches officiating, commentators* • *Standards of performance have been improved over the years because sport is so popular to watch on TV. Facilities are improved.* • *Stadiums are bigger and modern so more people can watch it live as well as watching it on TV.* • *Media is TV. It's the most prominent and powerful aspect of the media for example Sky, TNT and Pay per View having had a significant impact in recent years.* • *Hawkeye decision to, keep audience entertained.* ***Disadvantages*** • *Watch sport as opposed to taking part* • *Create sedentary lifestyle.* • *Powerful sports such as the Premier League football have some control over their sponsors* • *Top level performers lose their privacy. Paparazzi intrusion before and after a match, or even in their free time* • *Only very few get a high financial rewards, they become very rich because they are the best in the world.* • *Major sporting events may not be available to watch unless you 'pay to view'.* • *Some performers may be forced to perform more frequently.* • *TV coverage links with deviance, cheating, hooliganism.* • *Any other relevant example* • *Power of the TV and sponsors to shape sport e g. rule changes, breaks in play for adverstising', creation of new formats (Twenty20 Cricket).* • *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.*	12	

Number	Answer	Mark	Additional guidance

- *Players and other individuals want share of profits.*
- *Entrepreneurs buying sport teams as business investment.*
- *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 /TNT sport deals for televising rights. Pay per view/ Sport channels*

Any other relevant examples

	AO1 (2)	AO3 (10)
3		**8-10 marks** • Excellent discussion of TV influence on modern sport. • 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 correct terminology. Writing is very well structured using accurate grammar, punctuation and spelling.
2	**2 marks** Good knowledge of TV influence on modern sport.	**4-7 marks** • Good discussion of TV influence on modern sport. • Judgements are made but not always evidence-based. • Discussion needs to be positive and negative but tends to focus more on one perspective. The response is adequately expressed and shows appropriate use of correct terminology. Writing is generally well structured using reasonably accurate grammar, punctuation, and spelling.
1	**1 mark** Limited knowledge of TV/media influence on modern sport.	**1-3 marks** • Limited discussion of TV/media influence on modern sport. • Discussion 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 of TV influence on modern sport.	**0 marks** No discussion of influence of TV on modern sport. Response not worthy of credit.

Number		Answer	Mark	Additional guidance
5		**In order to be effective, coaches require an understanding of physiological, biomechanical and psychological principles. Analyse how a coach's understanding of long-term adaptations, fluid mechanics and group dynamics could improve a teams performance.** Candidates should analyse how a coaches understanding of the 3 factors could improve performance. All 3 factors must be analysed in order to access band 3 ***but not necessarily in the same detail.*** Candidates will be able to access band 2 if they have analysed 2 factors provided they have met the question criteria. Candidates who only analyse one factor will be limited to band 1. *INDICATIVE CONTENT* ***BIOMECHANICAL*** *FLUID MECHANICS* *Fluid friction applies to objects moving through fluids (gases or liquids)* *Fluid mechanics or fluid dynamics covers air resistance, drag* *Force acts in the opposite direction to the direction of motion, drag* *Force depends on shape, size and speed of the moving object.* *Force also depends on streamlining effect. Laminar flow* *Relevant examples of streamlining in for example running, swimming, cycling in terms of i.e. body position, shape, clothing, (Lycra) equipment structure(teardrop helmet)* *Factors affecting drag-* *Air resistance is the force acting against moving objects slowing them down* *Speed of object. The faster an object moves, the more resistance it will encounter. In cycling we refer to this resistance as drag.* *Shape of object and the way in which air (in the case of cycling) flows past it.* *Size of the object and the way in which air (in the case of cycling) flows past it.* *In cycling, streamlining can be achieved in a number of ways.* *Cyclists adopt a low crouch position (using drop handlebars to reduce their frontal cross-section area)* *How to reduce drag-* *Streamlining is an effective way of reducing drag and aiding a smoother flow of air past an object.* *This smooth flow involves air flowing in layers known as laminar flow.* *Advances in bike design such as oval-shaped frame tubes and disc wheels have helped reduce drag.* *Helmets have been designed to have a more aerodynamic shape (teardrop). The use of 'skin-suits'* *Diagrams with explanation is acceptable.* *In addition to the above, consideration could be given to spin (Magnus), and lift force (Bernoulli).*	20	

Number		Answer	Mark	Additional guidance
5		***PSYCHOLOGICAL*** *GROUP DYNAMICS* *Understanding of Cohesion* *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. *Is the group driven by a common goal* *How a coaches understanding of group faults and motivational losses and group performance* *Actual performance= potential performance – group faults* *Understanding of Social loafing* *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* *Strategies to reduce social loafing* *Importance of 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.*		

Number		Answer	Mark	Additional guidance
5		***PHYSIOLOGICAL*** *LONG TERM ADAPTATIONS* *How an understanding of Cardiovascular adaptations could improve performance e.g.* *Cardiovacular 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* *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.* *Arteries can withstand greater fluctuations of blood pressure.* *How an understanding of Respiratory adaptations could improve performance* *Strengthening/Hypertrophy of respiratory muscle.* *Increase surface area of alveoli.* *Increase lung volumes/TV/IRV/ERV.* *Capillarisation of Alveoli.* *Better O2 transportation* *Efficient use of O2/ cells /lungs* *Improved Max VO2* *Improved gaseous exchange/diffusion* *Lower resting/ recovery respiratory rate.* *OTHER ADAPTATIONS* *Increase lactic acid tolerance.* *Increase in – glycogen stores, ATP stores, creatine phosphate level, oxidative enzymes, mitochondrial density.* *Muscle hypertrophy. Changes in type 2b (type 2a muscle fibre.* *Recruitment of motor units. Increased activation of prime mover* *Maintain elasticity of muscle fibre, increased tensile strength of ligaments, tendons. Increase calcium (osteoblasts)* *Increased power, strength, speed, reaction time, flexibility, agility* *Increased lactic acid tolerance,* *Delay anaerobic threshold* *Positive effects on osteoarthritis and osteoporosis.* Other relevant example		

Q5

Band	AO1 (2)	AO2 (2)	AO3 – (16)
3			**12-16 marks** • Excellent analysis of how a coach's understanding of long-term adaptations, fluid mechanics and group dynamics could **impact on performance.** • There are detailed and reasoned applications The response is adequately expressed and shows appropriate use of correct terminology. Writing is generally well structured using reasonably accurate grammar, punctuation and spelling.
2	**2 marks** Good knowledge of how a coach's understanding of at least two from; long-term adaptations, fluid mechanics and group dynamics could impact on performance.	**2 marks** Good application of how a coach's understanding of at least two from; long-term adaptations, fluid mechanics and group dynamics could impact on performance.	**6 -11 marks** • Good analysis of how a coach's understanding of at least two from; long-term adaptations, fluid mechanics and group dynamics could impact on performance. • There are adequate and reasoned judgements applications. The response is adequately expressed and shows appropriate use of correct terminology. Writing is generally well structured using reasonably accurate grammar, punctuation and spelling.
1	**1 mark** Limited knowledge of how a coach's understanding of long-term adaptations or fluid mechanics or group dynamics could impact on performance.	**1 mark** Limited application of how a coach's understanding of long-term adaptations or fluid mechanics or group dynamics could impact on performance.	**1-5 marks** • Limited analysis of how a coach's understanding of long-term adaptations or fluid mechanics or group dynamics could impact on performance. • There are limited and reasoned judgements applications. 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 of how a coach's understanding of long-term adaptations, fluid mechanics and group dynamics could impact on performance. Response not worthy of credit.	**0 marks** No application of how a coach's understanding of long-term adaptations, fluid mechanics and group dynamics could impact on performance. Response not worthy of credit.	**0 marks** There is no analysis of how a coach's understanding of long-term adaptations, fluid mechanics and group dynamics could impact on performance. There are no reasoned judgements applications. Response not worthy of credit.