A-LEVEL

PHYSICAL EDUCATION

7582/2

Paper 2 Factors affecting optimal performance in physical activity and sport

Mark scheme

June 2019

Version: 1.0 Final

196A75822/MS

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from aqa.org.uk

Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Section A

Exercise physiology and biomechanics

0 1 A runner completes 400m at an average speed of 5 m/s.

Calculate the time taken to run the 400m.

[1 mark]

Marks for this question: AO2 = 1

B

0 2 Identify the exercise-related function of sodium.

[1 mark]

Marks for this question: AO1 = 1

A

0 3 When conducting field tests, data can be objective or subjective.

What is subjective data? Identify **one way** that it can be collected.

[2 marks]

Marks for this question: AO1 = 2

Award **one** mark for each of the following points:

- Data that involves opinions / assumptions / interpretations / beliefs / feelings / emotions (1)
- Self-analysis / questionnaire / surveys / observation / interviews (1)

Accept any other appropriate definition of subjective data and suitable method of collecting it.

Maximum 2 marks

0 4 As a sprinter accelerates along the track at the start of a 100m race, an impulse is generated.

0 4 . 1 Define impulse. State the units of measurement.

[2 marks]

Marks for this question: AO1 = 2

Award **one** mark for each of the following points:

- A measure of force applied over time / Impulse = force x time (1)
- Measured in Newton seconds / Ns (1)

Do not accept newtons per second / NS^{-1} / N/S
Accept any other appropriate definition of impulse. Answers must refer to force and time.

Maximum 2 marks

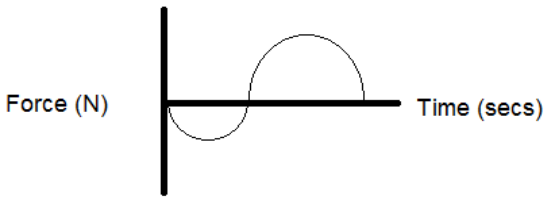
0 4 . 2 Sketch **and** label a graph to show the impulse generated at the start of a 100m race.

[3 marks]

Marks for this question: AO2 = 3

Award **one** mark for each of the following points:

- X axis: time s / seconds, Y axis: force N / Newtons (1)
- Negative and positive components of force shown with negative first (1)
- Positive impulse larger than negative impulse (1)



X and Y axis must be present to get any credit for this question.

Maximum 3 marks

Screening elite performers is a technique used by coaches for a variety of reasons.

0 5 Outline **three** purposes of screening.

[3 marks]

Marks for this question: AO1 = 3

Award **one** mark for each of the following points:

- Can identify past / current injuries / prevent injury (1)
- Can identify muscle imbalances / assess joint mobility / posture weaknesses in the musculoskeletal system (1)
- Can identify performers at risk of complications from exercise e.g. cardiac risk / any other medical condition (1)
- Can identify a suitable rehabilitation programmes (1)

Accept any other appropriate outlines of purposes of screening for injury prevention.

Do not accept general answers such as optimise performance, identify fitness levels, plan training.

Maximum 3 marks

0 6 **Figure 1** shows an injured athlete taking part in one type of strength training as part of their injury rehabilitation.

Evaluate the use of different types of strength training during injury rehabilitation.

[8 marks]

Students are expected to answer in continuous prose, use good English, organise information clearly and use specialist vocabulary where appropriate.

Level	Marks	Description
4	7-8	Knowledge is consistently accurate and well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is coherently and consistently made between different relevant factors and their impact. Relevant terminology is consistently used. The answer almost always demonstrates substantiated reasoning, clarity, structure and focus.
3	5-6	Knowledge is usually accurate and detailed. Application of breadth or depth of knowledge is often evident. Analysis and/or evaluation is often made between different relevant factors and their impact, and is usually coherent. Relevant terminology is often used. The answer usually demonstrates substantiated reasoning, clarity, structure and focus.
2	3-4	Knowledge is sometimes accurate with some detail. Application of breadth or depth of knowledge is sometimes evident. Analysis and/or evaluation is sometimes made between different relevant factors and their impact, but may lack coherence. Relevant terminology is sometimes used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, structure and focus.
1	1-2	Knowledge may be limited. Application of breadth or depth of knowledge may be limited or not evident. There may be little or no analysis and/or evaluation between different relevant factors and their impact. Relevant terminology is occasionally used. The answer may lack substantiated reasoning, clarity, structure and focus.
	0	No relevant content.

Marks for this question: AO1 = 2, AO2 = 3, AO3 = 3

Possible content may include:

AO1 – Knowledge of strength training methods for injury rehabilitation

- Methods: Free weights, machine weights, body weight, therabands
- Free weights – dumb bells, kettle bells, needs to be controlled whilst lifting, muscles stabilise the weight
- Machine weights – machine has control, set movement patterns, lat pull-down, chest press
- Body weight – develops core strength and balance, such as plank, squatting
- Therabands – elastics that provide resistance, resistance increases as injury improves

AO2 – Application of strength training methods for injury rehabilitation

- All methods are good in injury rehabilitation as it allows the injured performer to strengthen weaker muscles to prevent injuries reoccurring
- Machine weights useful for early stages of injury
- Therabands offer variety in resistance so can also be used in early stage of injury
- Body weight exercises put less stress on the body, as the performer is only required to hold their own body weight, this allows injured muscles more chance of recovery
- Free weights - varying degrees of weight can be used to build up to full strength, can target specific injured muscle groups more easily
- Dumbbells used for a shoulder press to help an athlete recover from a shoulder injury / Accept applied examples of specific strength training methods

AO3 – Evaluation of strength training methods for injury rehabilitation

- Therabands are useful because there are different bands of varying resistance, allowing athletes to choose the correct resistance depending on the stage of their injury, however, they can snap, causing further injury / may provide insufficient resistance to build strength as muscle recovers
- Body weight exercises are useful because they can be low impact, which is beneficial in the early stages of recovery, however, there is less opportunity to overload / build strength to a high degree
- Fixed weight machines are good in the early stages of injury rehabilitation as they provide the athlete with a lot of control which allows them to focus on improving strength, however the range of motion generated by the machines may be limited / focus tends to be on larger muscle groups / movements don't always mimic sporting actions
- Free weights can be good because the performer can make exercises sports specific/mimic sporting actions that will ensure the correct muscles are strengthened, however, poor form / technique can lead to further injury

Accept any other appropriate evaluation of strength training methods for injury rehabilitation

Maximum 8 marks

0 7 **Figure 2** shows the flight path of a shot put.

Analyse the factors affecting the flight path of the shot put and how an athlete can maximise horizontal displacement.

[15 marks]

Marks for this question: AO1 = 4, AO2 = 5, AO3 = 6

Students are expected to answer in continuous prose, use good English, organise information clearly and use specialist vocabulary where appropriate.

Level	Marks	Description
5	13-15	Knowledge is consistently comprehensive, accurate and well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is coherently and consistently made between different relevant factors and their impact. Relevant terminology is almost always used. The answer demonstrates a high level of substantiated reasoning, clarity, structure and focus.
4	10-12	Knowledge is usually comprehensive, accurate and detailed. Application of breadth or depth of knowledge is often evident. Analysis and/or evaluation is often made between different relevant factors and their impact, and is usually coherent. Relevant terminology is usually used. The answer usually demonstrates substantiated reasoning, clarity, structure and focus.
3	7-9	Knowledge is generally accurate and sometimes detailed. Application of breadth or depth of knowledge is sometimes evident. Some analysis and/or evaluation is made between different relevant factors and their impact but may sometimes lack coherence. Relevant terminology is used but may sometimes be missing. The answer sometimes demonstrates substantiated reasoning, clarity, structure and focus.
2	4-6	Knowledge is sometimes accurate but may lack detail. Application of breadth or depth of knowledge is occasionally evident. Some analysis and/or evaluation is attempted between different relevant factors and their impact, but is likely to lack coherence. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, structure and/or focus at times.
1	1-3	Knowledge is limited and may lack accuracy and detail. Application of breadth or depth of knowledge is likely to be limited or not evident. There may be very little or no analysis and/or evaluation made between different relevant factors and their impact. Relevant terminology used only very occasionally. The answer often lacks substantiated reasoning, clarity, structure and/or focus.
	0	No relevant content.

Possible content may include:

AO1 – Knowledge of the factors affecting horizontal displacement and the factors affecting flight paths

Knowledge of horizontal displacement

- Horizontal displacement is the shortest distance from starting point to finishing point
- Factors affecting horizontal displacement are angle of release, speed of release and height of release
- This optimum angle of release is dependent on the release height of an object and landing height
- If the release height is greater than the landing height, the optimum angle of release needs to be less than 45° / If the release height is the same as the landing height optimum angle of release is 45° / If the release height is less than landing height the angle of release needs to be greater than 45°
- The greater the release velocity and release height of a projectile, the greater the horizontal displacement travelled

Knowledge of Flight Paths

- Weight and air resistance affect the flight paths of projectiles
- Projectiles with a large weight force tend to have a small air resistance force and follow a true parabolic flight path
- Parabolic flight path – flight path of a projectile in the absence of air resistance

AO2 – Application of knowledge to the shot put

- The shot put flight path is parabolic / symmetrical because air resistance is negligible
- Flight path is parabolic due to interaction between horizontal and vertical vectors and these change during the flight path
- The release height for the shot put is greater than the landing height (ground)
- The speed of release will also affect the distance travelled by the shot putt which relates to the speed of the spin / shuffle in the throwing circle
- This suggests an angle of less than 45° would be suitable for the shot put

AO3 – Analysis of the factors affecting the flight path of the shot put and how an athlete can maximise horizontal displacement

- The faster the speed of the shift / greater impulse / spin in the throwing circle the greater the velocity so a longer throw / horizontal displacement can be achieved. Having a high amount of fast twitch glycolytic fibres (2x) will aid with this
- Greater force on the shot put results in greater acceleration and therefore horizontal displacement
- The shot put has a parabolic flight path because it has a large weight force with little air resistance due to the relatively short time it is in the air
- As the shot put has a high mass the force of gravity is constantly acting on the mass of a shot put
- This therefore means that technically the shot putter should try to release the shot at the highest point possible above the ground to gain maximum horizontal displacement
- Keeping the release angle smaller means more speed can be generated as the shot is released
- The optimum angle of release for a shot putter will also depend on the size, strength and throwing technique of the athlete
- This also implies that taller shot putter will throw further if angle of release and velocity is the same which isn't always the case either

Accept any other appropriate analysis of the flight path of the shot put and how can athlete can maximise horizontal displacement

Maximum 15 marks

Section B

Sports psychology

0 8 ‘A nervous response to a specific sporting situation.’

Which type of anxiety does this statement best describe?

[1 mark]

Marks for this question: AO1 = 1
B

0 9 Which **one** of these is an example of an intangible reward? **[1 mark]**

Marks for this question: AO2 = 1
C

1 0 Zajonc developed a model to show the effect of the presence of others on performance.

1 0 . 1 Explain the possible impact of an audience on a performer in the cognitive stage of learning.

[3 marks]

Marks for this question: AO2 = 3

Award **one** mark for each of the following points:

- Presence of an audience increases arousal (1)
- Increased arousal leads to increase in likelihood of dominant response occurring (1)
- Dominant response of a cognitive performer will be incorrect (1)
- This is known as social inhibition (1)
- Evaluation apprehension where performance decreases through the perception of being judged (1)

Accept other appropriate explanations of the impact of an audience on a cognitive performer. Answers must be specifically linked to performers in the cognitive state of learning.

Maximum 3 marks

1 0 . 2 Explain the strategies a coach may use to reduce the negative effects of the presence of others on performance.

[4 marks]

Marks for this question: AO2 = 4

Award **one** mark for each of the following points:

- Introduce an audience in training so that the players get used to being watched and learn to cope with others present (1)
- Gradually Introduce assessment and evaluation in training so that the players get used to being under review and can cope with being assessed (1)
- Improve selective attention during a game so that they focus on important cues in the game rather than the audience (1)
- Reduce the importance of a game so that the players do not feel under too much pressure to perform (1)
- Encourage others to be supportive / provide positive feedback/encouragement so they do not feel threatened when performing in front of others (1)
- Introduce/encourage the use of stress management techniques (or named example) so that the performer remains calm / not over aroused in front of an audience / feels more confident in their ability to perform in front of an audience (1)
- Ensure skills are well learnt so the dominant response becomes correct when arousal increases. (1)

Strategies must be explained to be given credit.

Accept any other appropriate explanations of the strategies a coach may use to reduce the negative effects of the presence of others on performance.

Maximum 4 marks

1 1 . 1 Describe an outcome-orientated goal.

[1 mark]

Marks for this question: AO1 = 1

- A goal set against the performance of others / based on a result (1)

Accept any other appropriate description of an outcome-orientated goal.

Maximum 1 mark

1 1 . 2 Evaluate the impact of an outcome-orientated goal on the confidence of a 100m sprinter.

[2 marks]

Marks for this question: AO3 = 2.

Award **one** mark for each of the following points:

- The impact of outcome-orientated goal would be positive on the sprinters confidence if they succeed at achieving the goal / the impact could potentially be negative on the sprinters confidence if the goal set was not achieved (1)
- Task orientated / Performance / Process goals might be more appropriate to raise a performer's confidence / Focussing on achieving a personal best would be better to increase a performer's confidence (1)

Accept any other appropriate evaluation of the impact of outcome-orientated goals on the confidence of a 100m sprinter.

1 2 Crystal Palace are a professional football club. The team lost their first seven games of the 2017-2018 English Premier League season.

Analyse how players may attribute these defeats and the effect this may have had on their performance at this point in this season.

Refer to Weiner's model of attribution theory. **[8 marks]**

Marks for this question: AO1 = 2, AO2 = 3, AO3 = 3

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1	1-2	Knowledge may be limited. Application of breadth or depth of knowledge may be limited or not evident. There may be little or no analysis and/or evaluation between different relevant factors and their impact. Relevant terminology is occasionally used. The answer may lack substantiated reasoning, clarity, structure and focus.
	0	No relevant content.

Possible content may include:

AO1 – Knowledge of Weiner's model of attribution theory

- Attribution is the perceived reason for success or failure
- Weiner's model has locus of causality, which is internal or external
- And locus of stability, which is stable or unstable
- This gives four attributions: ability, effort, task difficulty and luck
- Ability – natural levels of talent
- Effort – how hard a performer tries
- Task difficulty – strength of opposition/challenge of activity
- Luck – unpredictable events
- Locus on control/controllability dimension

AO2 – Application of Weiner's model to team performance

- A player could attribute the defeats to external-stable factors, which relates to task difficulty The player may believe that they have had some tough games at the start of the season and the opposition has just been too tough
- A player could attribute defeat to external-unstable factors that relate to luck. They may believe they have had bad luck in, for example the referee's decisions
- A player could attribute the team's defeats to internal-unstable factors that relates to effort. They may believe the team just did not try very hard in the first few games
- A player could attribute the defeats to internal-stable factors, which relates to ability, for example, they do not believe they have good enough players to be in the Premier League or as a team, they simply are not good enough
- A player could attribute the defeats to controllable factors such as the tactics not being right which is something that can be changed

AO3 – Analysis of the attribution and its impact on performance

- Usually if players attribute defeat to external factors, i.e. the difficulty of the opposition or luck then it is most likely that the players will remain motivated/confident e.g. there is easier opposition coming up so more likely to win. This is the self-serving bias
- Players are also more likely to remain motivated/confident if they attribute the defeats to effort as this can be rectified and changed if, for example that they need to work harder in training / games to improve this factor
- Problems with motivation/motivation arise if the attribution for defeat is given to ability as if the players do not believe as a team / individuals are good enough to be in the Premier League then this could lead to a demotivated team and have a negative effect on effort which could lead to further defeats
- This is learned helplessness
- A coach may then need to do some attribution retraining to change the reasons for failure to external factors
- Encourage attributions of losses to external, unstable factors and any future wins / good performances they may have to internal stable, known as the self-serving bias

Accept any other appropriate analysis of Weiner's Model of Attribution and the affect it has on motivation.

Maximum 8 marks

1 3 A golf coach believes the most important aim of a warm-up is stress management.

A rugby coach believes the most important aim of a warm-up is injury prevention.

Evaluate these two statements.

[15 marks]

Marks for this question: AO1 = 4, AO2 = 5, AO3 = 6

Students are expected to answer in continuous prose, use good English, organise information clearly and use specialist vocabulary where appropriate.

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	0	No relevant content.

Possible content may include:

AO1 – Knowledge of a warm up for injury prevention and stress management

Warm up for Injury Prevention:

- A warm is important as it prepares the body physiologically for exercise
- It is made up of a pulse raiser, stretches / flexibility exercises and a skills session / drill
- Pulse raiser usually involves jogging and will aim to increase heart rate, breathing rate and cardiac output to increase blood flow to the muscles
- It helps to increase elasticity of the muscles, produce synovial fluid, increase body temperature
- The stretches should focus on the joints being used in the session / activity in order to prevent injuries such as sprains and strains
- Different types of stretching include static stretches (active or passive) and ballistic stretches
- The drill should usually focus on the movement patterns being carried out in the sport again to ensure the muscles involved are warm to prevent injury

Warm up for Stress Management:

- A warm up also important for mental preparation in order to control stress and the negative effects this can on the performer and performance
- Cognitive stress includes having negative thoughts and feelings and potentially irrational thinking of the inability to cope with the demands of the situation
- Performers can use a variety of methods to control cognitive stress during the warm up such as self talk, imagery and visualisation
- Somatic stress is the physical response to stress. This includes an increase in heart rate, sweating, feeling sick, muscular tension
- Somatic stress techniques used during a warm up include centering / breathing control, progressive muscle relaxation

AO2 – Application of knowledge to golfer and rugby player for stress management / injury prevention

- In relation to cognitive stress, if the golfer is having negative thoughts about the round before they start then they can perform some positive self-talk to replace their negative thoughts with positive ones
- As part of the warm up a golfer can use imagery to focus on successful performances of rounds / shots
- Golfer can use thought stopping to prevent negative thoughts and focus on performance rather than distractions, such as the crowd

- Rugby is a highly explosive activity and muscles temperature must be increased via a pulse raiser, such as jogging, to enable the player to carry out physical skills such as tackling without injury
- Joints, such as the shoulder, need to be flexible to enable a wide range of movement for activities such as passing, hence the need for stretching
- Wingers sprinting down the wing need elasticity of muscles, which a warm up can provide, to prevent muscle tears, this can be done through sprints within the warm up and the game-related activity

AO3 – Evaluation of both statements

- A golf coach is likely to believe that stress management is the most important part of a warm up because of the high impact the negative high levels of stress can potentially have on a golfer's performance
- Although mental preparation could be deemed more important than physical preparation due to the high levels of focus and accuracy required in golf, it could be argued that physical preparation is also important, especially flexibility exercises / stretching because of the wide range of movement at joints such as the shoulder
- Furthermore some of the cognitive and somatic techniques a golfer could use during the warm up could also be used during the play due to the breaks during each shot and so do not have to always be performer during the warm up / prior to a round

- A rugby coach is likely to believe the most important part of a warm up is injury prevention as the pulse raiser will allow increased blood flow to muscles, increasing the temperature of the muscles, leading to less likelihood of muscle pulls
- Although a warm up for a rugby player is important for injury prevention, due to the contact nature of the sport, not all injuries can be prevented
- However, rugby involves highly pressurised situations such as conversion kicks and so it could be argued that stress management is vital too, for example the use of visualisation prior to a conversion is crucial, imagery before kick-off could also help the rugby player to control stress levels ahead of an important match

Maximum 15 marks

Section C

Sport and society and technology in sport

1 4 Which organisation is responsible for creating the World Class Performance Programme?

[1 mark]

Marks for this question: AO1 = 1
D

1 5 Which athlete would benefit the most from taking beta blockers?

[1 mark]

Marks for this question: AO2 = 1
B

1 6 State **four** reasons why sports legislation is important for performers.

[4 marks]

Marks for this question: AO1 = 4

Award **one** mark for each of the following points:

- To protect from injuries obtained through sport / through violence/deviance of other players (1)
- To protect against potential spectator behaviour (1)
- Dispute contracts with employers / sponsors (1)
- Can be compensated for loss of earnings (1)
- Equal opportunities / Protect from discrimination (1)
- Protection from sexual abuse / negligence of referees or coaches (1)
- Protection against media intrusion into private lives (1)

Accept first four points only
Accept any other appropriate reason why sports legislation is important. Answers must relate specifically to performers and not just generic.

Maximum 4 marks

1 7 . 1 State two forms of technology a coach could use in sports analytics.

[2 marks]

Marks for this question: AO1 = 2

Award **one** mark for each of the following points:

- GPS (1)
- Video / motion analysis (1)
- Heart rate monitor measures (1)
- Performance / match analysis programmes (1)

Accept first two answers only
Accept other forms of relevant technology a coach could use. Answers must relate to sports analytics.

Maximum 2 marks

1 7 . 2 Discuss the role of technology for a coach in the analysis of team games.

[4 marks]

Marks for this question: AO3 = 4

Award **one** mark for each of the following points:

Positives of technology for a coach (sub-max 3)

- Can help identify strengths and weaknesses of a team / individual, which can inform training programme / team selection (1)
- Heart rate monitors / GPS can allow analysis of work rate / fatigue / fitness to inform of injuries/substitutions/training programmes (1)
- Analysis of opposition data can help inform of which tactics / formations to play (1)
- Video analysis allows for assessment of player's technique, which can be used to adapt technique to improve performance / prevent injury (1)
- Stores information about player's performance, which means that the coach isn't required to retain it (1)

Negatives of technology for a coach (Sub-max 3)

- For team games there is the potential for lots of data to be collected, which can overload a coach (1)
- If coaches are unable to understand / analyse all of the data collected then it is difficult for a coach to make use of this data. (1)
- There can also become a reliance on data so it becomes less about coach's knowledge (1)
- Data does not always show true reflection of performance, GPS may show lack of movement but this does not mean performance is ineffective. (1)
- If equipment is not maintained/interference then it may become unreliable (1)
- Use of computers is also a possible negative as they are open to potential hacking, which can compromise data (1)

Accept any other appropriate discursive points about the role of technology available for a coach. Answers must be linked specifically to the analysis of players in team games.

Maximum 4 marks

1 8 Amy plays badminton with her friends at the school lunchtime session. She is also a member of her local badminton club where she plays in the local league every weekend.

Compare Amy's experience of badminton as recreation and her experience of badminton as sport, and explain how these might impact on her performance.

[8 marks]

Marks for this question: AO1 = 2, AO2 = 3, AO3 = 3

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3	5-6	Knowledge is usually accurate and detailed. Application of breadth or depth of knowledge is often evident. Analysis and/or evaluation is often made between different relevant factors and their impact, and is usually coherent. Relevant terminology is often used. The answer usually demonstrates substantiated reasoning, clarity, structure and focus.
2	3-4	Knowledge is sometimes accurate with some detail. Application of breadth or depth of knowledge is sometimes evident. Analysis and/or evaluation is sometimes made between different relevant factors and their impact, but may lack coherence. Relevant terminology is sometimes used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, structure and focus.
1	1-2	Knowledge may be limited. Application of breadth or depth of knowledge may be limited or not evident. There may be little or no analysis and/or evaluation between different relevant factors and their impact. Relevant terminology is occasionally used. The answer may lack substantiated reasoning, clarity, structure and focus.
	0	No relevant content.

Possible content may include:

AO1 – Knowledge of recreation and sport

- Recreation is usually fun
- Outcome is non-serious so winning is not important
- Flexible in its organisation
- Modified rules
- Voluntary
- Self-officiated / regulated

- Sport is highly organised and so involves written rules
- It is competitive and so there is a winner
- It therefore usually involves competitions, which involve officials
- Commitment to regular training
- Extrinsic rewards
- Strategies and tactics

AO2 – Application of recreation and sport to Amy / badminton

- During the lunchtime session Amy is experiencing recreation
- The rules may be modified, such as playing matches up to 11 / playing half court
- It will be played without umpires, Amy and her opponent will be making the decisions such as whether a shuttle landed out or on the line
- She has made the choice to do the activity, as she is doing it in her free time during lunch
- She is with friends so more likelihood of the activity being fun and social
- The outcome of the badminton games are not important to Amy

- When Amy plays for her local club she is experiencing badminton as sport.
- She is likely to have to train for the games and will play in competitions like the local leagues
- The rules she will be playing by will be codified, set out by the NGB
- There will be officials running her tournament / tournament referee
- Amy or her club may receive a trophy for winning the league

AO3 – Analysis of the different impact recreation and sport has on her performance

- Because sport is serious, Amy will train more so the quality of her performance is likely to be better, for example her smash shots will be executed with more force and better technique
- However, given the serious nature of sport it could lead to more deviancy when playing
- With recreation, as the outcome is less-serious, Amy may not put in as much effort into her performance, so the quality of her performance is likely to be lower, such as more serves hit into the net through a lack of concentration
- Playing badminton as a recreational activity could negatively impact on her performance when playing sport, shots could become sloppy / poor technique
- However, playing badminton at lunchtime could help improve the skills that she performs when playing league matches

Accept any other appropriate analysis of Amy's experience of badminton as recreation and sport.

Maximum 8 mark

1 9 Russia did not compete in the 2018 Winter Olympics due to allegations of drug taking.

Analyse the social, physiological **and** psychological reasons for an athlete to take drugs and the short term and long term implications this could have.

[15 marks]

Marks for this question: AO1 = 4, AO2 = 5, AO3 = 6

Students are expected to answer in continuous prose, use good English, organise information clearly and use specialist vocabulary where appropriate.

Level	Marks	Description
5	13-15	Knowledge is consistently comprehensive, accurate and well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is coherently and consistently made between different relevant factors and their impact. Relevant terminology is almost always used. The answer demonstrates a high level of substantiated reasoning, clarity, structure and focus.
4	10-12	Knowledge is usually comprehensive, accurate and detailed. Application of breadth or depth of knowledge is often evident. Analysis and/or evaluation is often made between different relevant factors and their impact, and is usually coherent. Relevant terminology is usually used. The answer usually demonstrates substantiated reasoning, clarity, structure and focus.
3	7-9	Knowledge is generally accurate and sometimes detailed. Application of breadth or depth of knowledge is sometimes evident. Some analysis and/or evaluation is made between different relevant factors and their impact but may sometimes lack coherence. Relevant terminology is used but may sometimes be missing. The answer sometimes demonstrates substantiated reasoning, clarity, structure and focus.
2	4-6	Knowledge is sometimes accurate but may lack detail. Application of breadth or depth of knowledge is occasionally evident. Some analysis and/or evaluation is attempted between different relevant factors and their impact, but is likely to lack coherence. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, structure and/or focus at times.
1	1-3	Knowledge is limited and may lack accuracy and detail. Application of breadth or depth of knowledge is likely to be limited or not evident. There may be very little or no analysis and/or evaluation made between different relevant factors and their impact. Relevant terminology used only very occasionally. The answer often lacks substantiated reasoning, clarity, structure and/or focus.
	0	No relevant content.

Possible content may include:

AO1 – Knowledge of social, physiological and psychological reasons athletes may take drugs

- The social reasons for drug taking includes the modern day ethos of society of win at all costs,
- Fame and fortune
- Pressure to win
- Lack of effective methods to ban drug taking and some athletes have the belief that they will get away with it
- State sponsored drugs programmes

- The psychological reasons can vary for different drugs, for example, some athletes may take beta-blockers to steady nerves
- Others may use anabolic steroids to increase their aggression
- When athletes are suffering from a lack of confidence, stimulants can be used to raise a performer's belief that they can achieve

- The physiological reasons can also vary depending on the drug use. Anabolic steroids help in storing protein and promote muscle hypertrophy, which increases strength and power
- Beta-blockers are good as they help to improve accuracy through reducing heart rate
- EPO increases red blood cell production, which increases an athlete's aerobic capacity. This means the athlete can work for longer and recover quicker from training
- Negative implications of taking drugs in a list like fashion can be credited under Ao1

AO2 – Application of social, physiological and psychological reasons athletes may take drugs to specific sports.

- Potential Olympic medallists may choose to take drugs because winning gold guarantees them a high media profile, sponsorship deals and other extrinsic rewards
- Russian athletes subject to state sponsored doping, required to do as instructed by coaches / NGBs
- Athletes such as golfers and snooker players may choose to take betablockers to calms their nerves and keep their arousal levels low so that they are able to carry out shots with a high degree of accuracy
- Athletes such as boxers may choose to use steroids to increase their aggression so that when they go into a fight they act more violently towards their opponent
- Anabolic steroids help in storing protein and promote muscle hypertrophy, which increases strength and power, useful for weightlifters to allow them to lift heavier weights in competition
- EPO may be used by long distance cyclists as the increased aerobic capacity allows the cyclist to last longer during events and enables them to buffer lactic acid and save energy for sprint finishes

AO3 – Analysis of short and long term implications of drug taking

- It can damage an athlete's reputation / negative publicity if caught, meaning that future sponsorship deals are less likely
- Long term this could mean that an athlete will struggle financially and therefore unable to remain professional in their sport
- Drugs such as anabolic steroids can lead to mood swings and paranoia, which can make training very difficult, coach-athlete's relationship may be affected by mood swings / could lead to long term depression
- Increased aggression as a result of anabolic steroids can be detrimental to a boxer as they may end up becoming over aggressive leading to them breaking rules, such as head-butting an opponent, could lead to long term bans from sport
- EPO can result in blood clotting and strokes, which means that athletes are putting their lives at risk
- Anabolic steroids can result in kidney failure, making continued training impossible, possible death
- Analysis linked to Russian athletes, such as all athletes labelled as drugs cheats and stricter testing of Russian athletes at future events

The specification only requires students to know about erythropoietin (EPO), anabolic steroids and beta blockers but knowledge of other performance enhancing drugs should be credited if correct and relevant.

Accept any other appropriate analysis of short and long term implications of drug taking

Maximum 15 marks