



General Certificate of Education

Sport and Physical Education 5581/6581

*PED1 Physiological and Psychological Factors
which Improve Performance*

Mark Scheme

2007 examination – January series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' 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.

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Sport & Physical Education

Unit 1

General Instructions

In the mark scheme ; separates single marks
 / indicates alternatives
 CAO correct answer only
 Equiv. Means allow any equivalent answers.

- 1 (a) 1. All four stages stated
 2. Attention – highlight the key areas of the skill/attractive to the learner/focus/concentrate
 3. Retention – Performer must remember the information to reproduce it – mental image. *(do not credit retain)*
 4. Motor production – Physically capable of performing the skill
 5. Motivation – performer’s drive/desire/Use of rewards/praise by coach. 4 marks

- (b) 1. Make sure the learner understands the importance and relevance to the final performance/meaningful;
 2. Use of role model/significant other;
 3. Get someone to demonstrate of similar/appropriate to age/ability (self efficacy)
 4. Ensure that the audience can see and hear the demonstration well;
 5. Show complex skills from different angles and at different speeds/slow motion;
 6. Break down skill into components/;
 7. Highlight the main aspects/cues of the demonstration on a few points rather than the whole performance/simple/specific/short/information overload/used with verbal guidance;
 9. Minimum delay between instruction and demonstration;
 10. Allow time for mental rehearsal;
 11. Repeat the demonstration if necessary;
 12. Reinforce successful demonstrations;
 13. Model is accurate/clear/perfect 4 marks
(Do not credit age/gender/ability)

- (c) (i)

| Kicking action | | |
|-----------------------|--------------------------------|---------------------------------|
| | Main agonist | Joint action |
| Hip | Hip flexors/illopoas | Flexion |
| Knee | Quadriceps/or named quad group | (Flexion to) – <i>Extension</i> |
| Ankle | Gastrocemious | Plantar – flexion |

6 marks

- (ii) 1. Sagittal/median plane
 2. Transverse/Frontal-horizontal/medial – lateral axis 2 marks

- (d) 1. Subjectivity – how good did it look, technical assessment
 2. Objectivity – numerical measure / how many kicks went over. **2 marks**
2. (a) (i) 1. Ability to delay the onset of fatigue/supply working muscles with oxygen without tiring or fatigue/equiv
 2. Important because of the duration of the game e.g. time **2 marks**
- (ii) 1. Multi-stage fitness test / bleep test (sub max 1 mark)
 2. Paced 20m shuttles
 3. Increasing speed / decreasing time / beeps get faster / progressive
 4. Until unable to maintain pace / maximal
 5. Shuttle achieved determines stamina / predicted VO₂ max / comparison to norms
 or
 6. Queens college / Harvard step test (sub max 1 mark)
 7. Paced stepping on to and off a bench
 8. Specific rhythm / height
 9. Certain duration
 10. Heart rate achieved determines stamina.
 or
 11. Coopers / 12 min run test (sub max 1 mark)
 12. Run as far / fast as possible
 13. Around a track
 14. Maintain pace
 15. Distance achieved determines stamina
 or
 16. PWC 170 cycle test (sub max 1 mark)
 17. Cycle at known workload
 18. Increasing workload every 3 minutes
 19. Maintain pace
 20. Heart rate achieved determines stamina
 or
 21. Direct measurement (sub max 1 mark)
 22. Run / cycle at increasing workloads
 23. On machine
 24. Maximum exertion
 25. Oxygen consumed indicates stamina **3 marks**
- (b) 1. Hypertrophy / Athlete’s heart (do not credit bigger/stronger);
 2. Increased stroke volume/equiv;
 3. Increased ejection Fraction / increased force / power / strength of contraction;
 4. Greater diastolic filling;
 5. Increased maximum cardiac output;
 6. Lower resting heart rate / Bradycardia;
 7. Increased capillarisation; **3 marks**
- (c) 1. Positive is used as a form of reinforcement, encouraging the performer to repeat the action;
 2. Negative is used if the technique was incorrect to discourage a repetition of the action;
 3. Intrinsic received from within/inside the performer via proprioceptors – kinaesthetic;
 4. Extrinsic/augmented received from outside the performer – coach;
 5. Terminal is received immediately after the performance;

6. Delayed takes place sometime after the event;
7. Continuous/concurrent – during the activity via proprioceptors for kinesthesia;
8. Knowledge of Performance information that the performer receives about the quality of their technique or performance;
9. Knowledge of Results information about the outcome of the action.

4 marks

- (d)
1. Performer can only process a small amount of information limited/succinct/short;
 2. Information that is clear/accurate/correct;
 3. Focussed on relevant/specific points/simple;
 4. As soon as possible after the event – immediate / terminal;
 5. Individual rather than to the group;
 6. Mainly extrinsic/augmented feedback normally from a coach/more KR. *3 marks*

(e) **Associative** – (*sub max 2 per section*)

1. At the associative stage – performer begins to monitor his own feedback/kinesthesia;
2. Still need feedback from coach – but more exact;
3. At this stage more extrinsic /coach than intrinsic/use of KR and KP;

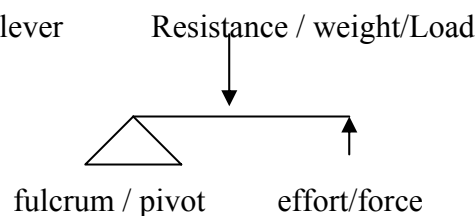
Autonomous – (*sub max 2 per section*)

4. At autonomous stage the performer uses more KP;
5. Be able to detect own errors with kinesthesia/intrinsic feedback;
6. Be able to make corrections to own performance;
7. Can be delayed;
8. Technical/detailed information;
9. Can handle negative feedback

3 marks

3 Performance can be improved by the effective use of levers and reinforcement.

- (a) (i)
1. 2nd class lever
 2. Labels



3. Correct order

3 marks

- (ii)
1. Effort arm
 2. Resistance arm

2 marks

- (b)
1. Power/strength;
 2. Height off jump;
 3. Speed
 4. In run up;
 5. Flexibility
 6. Movement around / over the bar;
 7. Agility
 8. Moving from take off phase to landing phase;
 9. Co-ordination
 10. Effective movement/linking of the body parts to complete the phases from take off to landing.

4 marks

- (c)
1. Trial and Error learning;

2. Positive reinforcement;
3. Increasing the probability of the correct response happening again/equiv;
4. Through the use of praise/rewards;
5. Negative reinforcement;
6. Withdrawal of adverse/unpleasant stimulus when desired response occurs;
7. Removal of critical comments/shouting from coach/equiv e.g;
8. Punishment is not applicable because it weakens response;
9. Shaping/modifying environment;
10. e.g. reducing target areas/small sided games/equiv. 5 marks

- (d)
1. Learner needs time to assimilate before moving onto the next stage
 2. Targets are set too low (or high)
 3. Fatigue
 4. Lack of variety of practice methods
 5. Lack of motivation / interest / boredom
 6. Physical fitness is lacking for next level
 7. Low level of aspiration / lack of confidence / lack of self esteem
 8. Lack of ability to adapt skills / lack of feedback / lack of understanding
 9. Limited coaching / poor coaching
 10. Reached maximum / perfect
 11. Bad / limited technique. 4 marks

4 (a)

| | Type of joint | Joint action | Main agonist |
|-----------------|---------------|------------------------------|-------------------|
| Elbow | Hinge | Extension | Triceps (brachii) |
| Shoulder | Ball & socket | Horizontal flexion/adduction | |

5 marks

- (b)
1. Validity – measures what it’s supposed to measure;
 2. Reliability – can the results be replicated next time with the same method;
 3. Test only measures ability to hit the stumps/wicketkeeper;
 4. Not a measure of the other skills/abilities such as batting/bowling/catching;
 5. This test is reliable because it is repeatable and you would expect similar results;
 6. Conclusion it is not a valid but is a reliable test. 4 marks

- (c)
1. Skills learnt in one activity affects/influence/impact another
(*sub max 4*)
 2. Positive – enhances/helps/aids the learning of a new skill/e.g’s
 3. Ensure original task is well learnt/practice
 4. Planned progression
 5. Make practice sessions realistic / relevant to the competitive environment
 6. e.g. – practicing against opposition / time / equiv
 7. Eliminate bad habits
 8. Performer is well motivated / confidence. 5 marks

- (d)
1. Coach makes performer aware of transfer potential/highlight elements of skill that are similar.
 2. Identify elements that may hinder learning
 3. Ensure original task is well learnt / practice
 4. Planned progression
 5. Make practice sessions realistic / relevant to the competitive environment
 6. eg – practicing against opposition / time / equiv
 7. Eliminate bad habits
 8. Performer is well motivated / confidence. 4 marks

- 5 (a) 1. Input/detecting information from display/sensory information/sensory systems/sensory store/senses;
 2. Perception – the direction / speed of ball and / or players;
 3. Selective attention to focus on relevant cases / filter out irrelevant cues / e.g.'s;
 4. Comparison/ recognition/DCR;
 5. Decision on appropriate response / motor programme;
 6. Retrieval of information from LTM;
 7. Anticipation – likely moves if ball carrier and or support players;
 8. Use of kinethesis/Intrinsic feedback;
(credit appropriately annotated diagrams) 4 marks
- (b) 1. Attackers select a move and defender must respond/initial stimulus is closely followed by a second stimulus;
 2. Defender slowed by increasing decisions/choices/first stimulus must be cleared before the second one can be processed;
 3. Hick's Law / Single channel hypothesis/bottleneck theory;
 4. Attacker can make use of psychological refractory period;
 5. To fake / dummy and beat the defender;
 6. Attackers are more skilled / better timing of pass. 3 marks
- (c) 1. Cognitive stage / early associative stage;
 2. Unable to repeat skill consistently/not learned the skill;
 3. Information overload – to perform skill and look to see where defender and support player are /poor selective attention;
 4. Lack of variety of responses to the situation/poor slot selection/lack of experience;
 5. Unable to make a quick decision;
 6. Loss of concentration. 3 marks
- (d) (i) 1. Increased CO_w /lower PH/chemoreceptor
 2. Release of adrenaline
 3. Increased sympathetic impulses/decreases parasympathetic impulses
 4. Increased rate of firing of the SAN
 5. Increased diastolic filling
 6. Increased strength of contraction
 7. Increased heart rate
 8. Increased stroke volume 3 marks
- (ii) 1. Information from Chemoreceptors
 2. Sent to/controlled by medulla
 3. Sympathetic pathway increases heart rate
 4. By release of adrenaline / noradrenaline to increase HR
 5. Increase stroke volume
 6. Parasympathetic decreases HR / reduces adrenaline levels
 7. By vagus nerve
 8. Production of Acetylcholine
 9. Both act on Sino atrial node/SAN. 5 marks

Quality of Written Communication

The GCSE and GCE A/AS Code of Practice requires the assessment of candidates' Quality of written communication wherever they are required to write in continuous Prose. In this unit, this assessment will take place for the candidates' script as a whole by means of the following marking criteria.

The candidate expresses moderately complex ideas clearly and reasonably fluently, through well linked sentences and paragraphs. Arguments are generally relevant and well structured. There may be occasional errors of grammar, punctuation and spelling. *3 marks*

The candidate expresses straightforward ideas clearly, if not always fluently. Sentences and paragraphs may not always be well connected. Arguments may sometimes stray from the point or be weakly presented. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas. *2 – 1 marks*

Ideas are expressed poorly and sentences and paragraphs are not connected. There are errors of grammar, punctuation and spelling showing a weakness in these areas. *0 marks*

Total *3 marks*