



General Certificate of Education

Sport & Physical Education 5581/6581

PED1 Physiological and Psychological Factors which Improve Performance

Mark Scheme

2006 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.

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) (i) 1. Agonist – Triceps (brachii);
2. Antagonist - Biceps (brachii).
(Credit first answer only) *2 marks*
- (ii) 1. Position **A** – Isometric;
2. Position **A** to **B** – eccentric/isotonic.
(Credit first answer only) *2 marks*
- (iii) 1. Sagittal Plane/median;
2. Transverse axis/horizontal. *2 marks*
- (iv) 1. Adduction/horizontal extension (shoulders are moving forward);
2. Pectoralis Major/ (anterior) deltoids/pectorals. *2 marks*
- (b) (i) 1. Verbal – Appropriate example/instructions/telling/commands;
2. Visual - Appropriate example/demonstrations/video;
3. Mechanical/manual – Appropriate example/tumbling belt/support. *3 marks*
- (ii) 1. Cognitive/Associative/Autonomous; *Sub max 1 mark*
2. Cognitive stage – Mechanical/Visual;
3. Associative/Autonomous – Verbal. *3 marks*
- (iii) **Cognitive Stage of learning** *Sub max 3 marks*
1. (Primarily) extrinsic/external/coach/augmented;
2. Knowledge of Results (KR);
3. General/simple/basic;
4. Immediate;
5. Receive intrinsic feedback/kinesthetic but cannot use it;
6. Terminal.
- Autonomous stage of learning** *Sub max 3 marks*
7. (Primarily) intrinsic/correct own mistakes;
8. Knowledge of performance (KP);
9. Specific/detailed/critical;
10. Can be delayed;
11. Concurrent. *4 marks*

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2. (a) 1. Large surface area (of the alveoli);
 2. Large blood supply
 3. Thin membrane for diffusion/one cell thick/walls are thin;
 4. Short distance for diffusion;
 5. Layer of moisture;
 6. Small capillaries = slower transit time= more time for diffusion. 3 marks
- (b) (i) 1. **A** = Tidal Volume;
 2. **B** = Inspiratory (reserve volume);
 3. **C** = Expiratory (reserve volume).
(no letters credit in order of answer)
(1 mark for 2 correct lung volumes, 2 marks for 3 correct lung volumes)
2 marks
- (ii) 1. Increase in tidal volume/larger/higher proportion;
 2. More frequent/more peaks/closer together. 2 marks
(NB: not performer credit trace)
- (c) 1. Power - the ability to jump high/serve/smash/spike/kick;
 2. Speed- the ability to move quickly;
 3. Aerobic capacity/stamina/cardiovascular endurance. The ability to last the length of the game/delay the onset of fatigue;
 4. Flexibility - range of movement around a joint/goalkeeper;
 5. Co-ordination - the ability to catch/pass/throw/kick. Effective body movement;
 6. Muscular endurance-repeated sprints/movements.
 7. Strength – ripping the ball/tackling;
 8. Balance – setting the volleyball/equiv.
(2 marks for identifying two components for fitness and 1 mark for a correct example)
3 marks
- (d) (i) 1. Too much information from environment;
 2. for the limited processing capacity/single channel hypothesis/bottleneck theory;
 3. Filtering/ignoring/blocking out of unnecessary information;
 4. E.g. crowd/environment/appropriate example;
 5. Focussing/concentrate/picking out on relevant information/stimulus;
 6. E.g. player position, ball, shuttlecock/equiv. 4 marks
- (ii) 1. Changing the intensity of the stimulus/examples;
 2. Motivate and arouse the performer/ performer is alert;
 3. Transfer from previous experience to help with explanation/expectation;
 4. Direct attention to one aspect of the performance/ highlight/cue;
 5. Identification/focus on cues/specific cues/;
 6. Learn to ignore irrelevant stimulus/what is relevant/training with distraction/audience;
 7. Lots of relevant practice/rehearsal/mental rehearsal (to the stimulus). 4 marks
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- 3 (a) (i) 1. Cardiac output is the amount of blood leaving the heart/left ventricle per minute;
2. Stroke Volume is the amount of blood leaving the heart/left ventricle per beat;
3. Cardiac output = Stroke Volume x Heart rate/Q = SV x HR/pulse rate/equiv. 3 marks

- (ii) 1. Cardiac output does not change;
2. Stroke volume increases/equiv. 2 marks

- (iii) 1. Exercise increases venous return leads to increase in cardiac output/equiv;
2. This increases the stretch of the cardiac muscle;
3. Which increases the force of contraction/contractility/stronger/powerful;
4. Known as Starlings law;
5. At rest the ventricles do not pump out all of the blood (approximately 60%) in the left ventricle;
6. So ejection fraction is lower at rest/during exercise ejection fraction is higher;
7. Higher percentage of blood ejected from the heart per beat;
8. End systolic volume is lower than compared at rest; 4 marks

- (b) (i) 1. The will/desire to win/achieve success/equiv;
2. That occurs within the performer/internal/equiv. 2 marks

(ii) **Intrinsic motivation**

Advantages:-

1. Usually best/more effective;
2. Gain self-satisfaction/pride-desire to challenge oneself;
3. Gives performer a sense of control over performance. Sub max 2 marks

Extrinsic motivation

Disadvantages:-

4. Excessive extrinsic may damage /lead to loss(intrinsic) of motivation/love of the game/self satisfaction/just a job/only for rewards;
5. Too much pressure, leading to cheating/deviance;
6. Removal/failure to achieve of extrinsic reward may lead to loss of motivation. Sub max 2 marks
3 marks

- (iii) 1. Allow success/ handicap races/competitions/group similar abilities together;
2. Use of external rewards/prizes/certificates;
3. Make it fun/enjoyable;
4. Use of role models;
5. Use praise/smile/verbal encouragement/positive reinforcement;
6. Emphasise personal improvement/set personal goals;
7. For the more able runners make more targets/goals more demanding;
8. Avoid punishment;
9. Immediate reinforcement for the weaker runners;
10. Attribute success internally. 4 marks

4 (a)

	Hip	Ankle
Joint action	<i>Extension/hyperextension</i>	<i>Plantar Flexion</i>
Main agonist	<i>Gluteal muscles/hamstrings</i>	<i>Gastrocnemius</i>
Muscle contraction	<i>Concentric/isotonic</i>	<i>Concentric/isotonic</i>

(Only credit isotonic once)

6 marks

- (b) 1. The test will involve going to exhaustion/single rep;
 2. Therefore motivation aspect to be considered;
 3. Safety considerations;
 4. Correct technique being used/protocol;
 5. Accessibility of appropriate equipment;
 6. Comparison to norms/charts. 3 marks

- (c) (i) 1. Change in behaviour;
 2. Relatively permanent;
 3. That is reflected in performance/examples;
 4. Resultant of practice. 2 marks

- (ii) 1. (Attention) - how attractive/successful/powerful or if the behaviour is functional;
 2. (Attention) - demonstration can be seen/is accurate;
 3. (Retention) - can the observer retain the skill in memory/involves cognitive skills;
 4. (Retention) - demo is meaningful/relevant/realistic/succinct and clear;
 5. (Motor production) - the abilities/skills to complete the task;
 6. (Motor production) - opportunity to practice/complex skills show progression;
 7. (Motivation) - model needs to be successful/status of model;
 8. (Motivation) - reinforcement/praise/feedback/sense of pride/sense of satisfaction. 4 marks

- (d) 1. Insight learning-understanding the process to achieve the result/reasons you do things;
 2. Involves cognitive processes/development;
 3. Experiences the 'whole' activity rather than skills in isolation;
 4. Helps to identify role in the game/transfer skill to game/game to game/equiv;
 5. Allows learners to develop their own strategies and/or routes of understanding;
 6. Poses questions **but** not 'trial and error' learning;
 7. Better for the performer rather than being told what to do all the time. 3 marks

5. (a) 1. (Negative reinforcement) - when the stimulus is withdrawn when the desired response occurs;
 2. Eg: removal of criticism from coach when player is successful/equiv;
 3. (Punishment) - giving a stimulus to prevent a response reoccurring/equiv;
 4. Being shouted at/press ups/sin bin/equiv. 4 marks

- (b) 1. Praise from the coach;
 2. Use of rewards/man of the match;
 3. Increases the probability of a desired response/strengthens the S-R bond;
 4. Success at the skill/self satisfaction. 2 marks

- (c) 1. Learning based on strengthening the relationship between stimulus response/S-R bond;
2. Trial and error learning;
3. Consequences of action;
4. Manipulation of the environment to get the desired action;
5. Shaping;
6. Appropriate example- target areas/lower baskets/equiv. 3 marks
- (d) 1. Agility- the ability to move and change direction/the position of the body quickly and effectively under control;
2. Relevant example/e.g. sidestep;
3. Illinois agility run/t-test/ski-jump test/a measurable way of changing direction against time. 3 marks
- (e) 1. Valid - measure what it is supposed to measure;
2. Reliable - test can be repeated;
3. No account of context/not game related/equiv;
4. But test only measures the ability to run this test in a controlled environment;
5. Carrying a ball/dribbling a ball/carrying a stick/appropriate game example;
6. Hence not a very valid method of testing agility;
7. But a reliable method of measuring a player's agility. 4 marks
- (f) 1. Subjectivity – perceptions/interpretations/opinions/qualitative;
2. Objectivity – facts/measures physical/scientific/quantitative. 2 marks

Quality of Written Communication

The GCSE and GCE A/AS Code of Practice require 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*