



ASSESSMENT and  
QUALIFICATIONS  
ALLIANCE

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# Mark scheme January 2004

## GCE

### Sport & Physical Education

### Unit PED1

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## General Instructions

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

- 1 (a) 1 Brain function needs to be maintained during exercise/or at rest;  
 2 Brain requires glucose/feeding/oxygen(O<sub>2</sub>). 2 marks
- (b) 1 Digestion and absorption of food takes time;  
 2 During exercise, there is reduced blood flow to the gut;  
*(accept references to figures)*  
 3 If the gut is full, blood will be diverted to the stomach;  
 4 Denying blood to the active muscles;  
 5 Affecting performance/lack of oxygen (O<sub>2</sub>) to muscles/equiv;  
*(do not accept stitch or cramp)*  
 6 Feeling nauseous/sick. 3 marks
- (c) 1 Active muscles require nutrients/oxygen (O<sub>2</sub>);  
 2 Blood is redirected/shunted to (active) muscles;  
 3 This is achieved by the action of the autonomic/sympathetic system;  
 4 Vasodilatation/allowing greater flow to areas needing blood;  
 5 Vasoconstriction/restricting blood flow;  
 6 Pre-capillary sphincters/control blood flow into the capillary flow. 4 marks
- (d) 1 High complexity;  
 2 Low organisation/limited information processing. 2 marks
- (e) (i) 1 Develops (Kinethesis) feel of the movement;  
 2 Builds up a cognitive picture/mental picture/know what to do;  
 3 Link together the spatial and temporal elements of the skill/correct order of sequence;  
 4 More meaningful from the start;  
 5 Give student an aim. 3 marks
- (ii) 1 Reduced demands for complex skills/less information to process;  
 2 Allows confidence and understanding to grow quickly;  
 3 Helps with motivation;  
 4 Useful in dangerous situations – swimming;  
 5 Can reduce fatigue in physically demanding skills;  
 6 Allows the opportunity to focus on particular elements/work on one part at a time;  
 7 Provides stages of success;  
 8 Low organisation skills can be broken down easily. 4 marks

- 2 (a) 1 Responsibility for one's own learning/more likely to remember;  
2 Improves self-confidence/motivation;  
3 Encourages creativity/self expression;  
4 Aids self fulfilment;  
5 Allows for group interaction and therefore promotes cohesion;  
6 Good for high level performer;  
7 Helps understanding. 3 marks
- (b) 1 Working with beginners/young children/ inexperienced;  
2 Working with large/unruly groups;  
3 Dangerous situations;  
4 Limited time situations. 2 marks
- (c) 1 Task-analysis (allow examples);  
2 Demands placed on performer;  
3 Classification/complexity/organisation/nature/type of skill;  
4 Danger;  
5 Distribution of practice;  
6 Learner-individual/group characteristics (with examples);  
7 Students age;  
8 Students level of skill/ability/fitness/knowledge/attitude/experience/ behaviour;  
9 Situation – environmental factors (with examples);  
10 Resources/staffing/size of group;  
11 Facilities/equipment/time;  
12 Dangerous.  
*(Danger to be credited only once unless qualified)* 4 marks
- (d) 1 To the amount/percentage of body fat on a person compared to the lean body tissue;  
2 In gymnastics, body weight has to be lifted against gravity/extra mass in terms of fat will be a disadvantage/detrimental to performance/limits flexibility/equiv. 2 marks
- (e) 1 Strength to gain height/lift someone off the ground/ strength to maintain balance/e.g./equiv;  
2 Flexibility (range of movement)/splits/pike/straddle jumps. 2 marks
- (f) 1 Identify strengths and/or weaknesses in a performance;  
2 Physiological potential/a named fitness component to be tested with an appropriate test;  
3 Success of a training programme/show improvement;  
4 Compared against norms of the group. sub max 3 marks
- 5 They are not sport specific;  
6 They do not replicate movements required in sports;  
7 They do not replicate competition conditions;  
8 Many do not use direct measuring – therefore inaccurate;  
9 Tests may not be valid and reliable. sub max 3 marks  
5 marks

- 3 (a) 1 Motor programme – Pre determined set of neural commands/nerve impulses that controls the execution of each particular movement/set of instructions/made up of subroutines/plan of action stored in memory (long term)/equiv;
- 2 Subroutines – Sequences of movement, which are performed automatically/isolated aspects of a movement/practised in isolation/parts/equiv;
- 3 Grip/footwork/backward swing/forward swing/ball toss/contact with ball/follow through. (*minimum of three examples for 1 mark*) 3 marks
- (b) 1 (Knowledge of) initial conditions/initial set up/environmental conditions/requirement of skills;
- 2 (Knowledge of) response specifications/response demands/what is needed;
- 3 Sensory consequences/Kinethesis/Knowledge of Performance/KP
- 4 Movement outcomes/Knowledge of Results/KR. 4 marks
- (c) 1 Practice to be varied/avoid blocked or massed practice/examples;
- 2 Should include plenty of information;
- 3 Should have feedback;
- 4 Should be realistic to the game/activity;
- 5 Should include transferable elements;
- 6 Becoming more challenging/more difficult. 3 marks
- (d) 1 Exercise produces an increase in blood temperature;
- 2 Increase in blood carbon dioxide concentration (pCO<sub>2</sub>);
- 3 Increase in blood acidity;
- 4 Bohr Shift
- 5 Resulting in less saturation of haemoglobin with oxygen;
- 6 And an increase in oxygen release/oxyhaemoglobin disassociation to the working muscles. 4 marks
- (e) 1 The increase in acidity/lowering of the pH of the blood;
- 2 This is detected by chemoreceptors (in the aorta);
- 3 Nerve messages are sent to the medulla (oblongata);
- 4 Sympathetic nervous impulses are sent to the Sino-Atrio node;
- 5 Decrease in parasympathetic/vagus nerve firing. 4 marks

- 4 (a) (i) 1 Sagittal plane  
2 Transverse axis

2 marks

	Agonist	Action	Type of contraction
<b>Hip</b>			
(ii) Drive Phase	<i>Hamstrings/Gluteals</i>	<i>Extension/hyperextension</i>	<i>Concentric</i>
(iii) Recovery Phase	<i>Hip flexors/Illopsoas</i>	<i>Flexion</i>	<i>Concentric</i>
<b>Knee</b>			
(ii) Drive Phase	<i>Quadriceps</i>	<i>Extension</i>	<i>Concentric</i>
(iii) Recovery Phase	<i>Hamstrings</i>	<i>Flexion</i>	<i>Concentric</i>
<b>Ankle</b>			
(ii) Drive Phase	<i>Gastrocnemius</i>	<i>Plantar Flexion</i>	<i>Concentric</i>
(iii) Recovery Phase	<i>Tibialis Anterior</i>	<i>Dorsi Flexion</i>	<i>Concentric</i>

3 marks for drive phase  
3 marks for recovery phase

- (b) 1 Movement Time – The time taken from the initiation/completion of the movement from start to finish to perform the response.  
E.g executing/performing the shot;
- 2 Response Time – The total time to complete a response to a given stimulus/Reaction time + Movement time. E.g seeing the ball to the end of the shot;
- 3 Reaction Time- The time taken to recognise and begin to react to the stimulus/time taken between the first presentation of the stimulus to the start of the movement/ time taken to decide the shot. E.g the cue of the bowlers run up to the playing of the shot. 3 marks
- (c) 1 Type of stimuli- sight/sound;  
2 (Previous) experience/anticipation of the movement (*accept reverse*);  
3 Gender – Males have shorter response times than females;  
4 Age – response time decrease with age;  
5 Intensity of the stimulus – ball colour/speed of delivery;  
6 Concentration levels/distractions/selective attention/stimulus overload;  
7 Playing environment – wicket surface/weather;  
8 Physical fitness/injury;  
9 Duration of the movement/reaction time;  
10 Arousal/drugs/state of mind/anxiety;  
11 PRP/deception of delivery from bowler. 4 marks
- (d) 1 Mental rehearsal;  
2 Selective attention/watching the action;  
3 Practice reacting to specific stimuli/grooving the response/strengthen the S-R bond;  
4 Improve physical fitness;  
5 Anticipation of stimulus/early identification cues;  
6 Concentration on preliminary movements before the actual movement itself. 3 marks

5 (a)

	<b>Knee</b>	<b>Ankle</b>
<b>Joint action</b>	1 <i>Flexion</i>	4 <i>Dorsi Flexion</i>
<b>Muscle contraction</b>	2 <i>Eccentric</i>	5 <i>Eccentric</i>
<b>Major muscle</b>	3 <i>Quadriceps</i>	6 <i>Gastrocnemius</i>

- (b) 1 Power – the work done per unit of time/the product of speed and strength;  
 2 Serve/Smash/Spike/jumping to block;  
 3 Mark standing reach/height on wall/target;  
 4 Height achieved above stretch by single jump;  
**or**  
 5 Standing long jump/broad jump;  
 6 Measure from line to heels/distance achieved;  
**or**  
 7 Margaria test – running up stairs;  
 8 Time taken for number of steps;  
**or**  
 9 Wingate test;  
 10 Speed of cycling in a given time. 3 marks
- (c) 1 Perception – make sense of incoming information/interpret sensor information/  
 use of selective attention;  
 2 e.g the ball has left the opposition server's hand/equiv;  
 3 Translation – To decide what is happening and what to do about it/recognise the  
 input and make a decision on the action to be taken/decision  
 making by short and long term memory interaction;  
 4 E.g. the ball is at chest height I will use a set/volley/equiv;  
 5 Effector control – Put a motor programme into effect/doing the movement;  
 6 Send impulses to the muscular system in order for the movement to be carried out;  
 7 E.g hands high/viewfinder/extend the legs. 6 marks  
*(1 mark for the description and 1 mark for the appropriate example)*
- (d) 1 Intensity of the stimulus/e.g's;  
 2 Motivate and arouse the performer;  
 3 Transfer to help explanation;  
 4 Direct attention to one aspect of performance/cue identification/highlight/ focus  
 cues;  
 5 Learn to ignore irrelevant stimulus;  
 6 Appropriate example for one of the above. 3 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*