



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme January 2003

GCE

Sport and Physical Education

Unit PED1

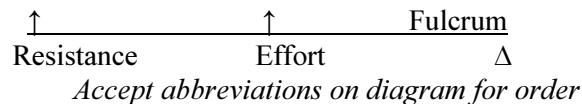
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Unit 1: Physiological and Psychological Factors which Improve Performance

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

- 1 (a) (i) Shoulder – (horizontal) flexion/(horizontal) abduction;
(ii) Elbow –flexion 2 marks
- (b) (i) Agonist – biceps;
Action – concentric/isotonic. 2 marks
- (ii) Sagittal/median plane
Transverse/horizontal axis. 2 marks
- (iii) Third class/order lever system;
correct labels (fulcrum/pivot/joint) (resistance/weight/load) (force/muscle/action);
correct order - fulcrum/effort/action in middle. 3 marks



- (c) (i) Reaction time - 0.15 (secs);
(ii) Response time - 0.35 (secs);
(iii) Movement time - 0.2 (secs). 3 marks
- (d) 1 Based on experience/knowledge/LTM/practice;
2 Early detection of cues/signals/intentions;
3 Select appropriate motor programme from memory;
4 Anticipate/move before ball hit/guess;
5 Watch ball toss/equiv;
6 Watch stance/body movements/foot placement/ equiv;
7 Watch racket swing/action/equiv; *any 3 for 3 marks*
- (e) 1 Novices lack experience/knowledge of situation;
2 Unable to detect cues/signals until too late;
3 Lack range of responses/strokes to deal with serve;
4 Unable to perform actions required/lacks skills;
5 Choose inappropriate response. *any 3 for 3 marks*

- 2 (a) (i) 800m;
Environment may change - pace/tactics/decisions made; 2 marks
- (ii) 800m/100m hurdles/100m;
Repeated actions/no distinct beginning and end; 2 marks
- (iii) 100m/high jump/long jump/shot put/javelin/100m hurdles;
Consists of/able to be broken down/practised into (discrete) parts/egs; 2 marks
- (iv) High jump/long jump/shot put/javelin;
Started when performer ready/pace of movement controlled by performer.
N.B Permit other activities if justified 2 marks
- (b) (i) 1 Amount of work/effort done;
2 Per unit time; or
3 **Combination** of strength/force/weight;
4 **and** speed 2 marks
- (ii) 1 Speed/Strength;
2 Flexibility;
3 Agility. 2 marks
- (iii) 1 Considered valid - involves strength and speed/involves time and mass/weight;
2 Not valid - not test of vertical power/does not reflect action of high jumping; *sub max 2 marks*
3 Considered reliable – test should be repeatable;
4 Considered unreliable - other factors (not power) could affect results - eg
5 Environmental conditions/motivation; *sub max 2 marks*
max of 4 marks
- (iv) 1 **Description** - Mark standing reach/height on wall/target;
2 **Measurement** - Height achieved above stretch by single jump;
or:
3 **Description** - Standing long/broad jump described;
4 **Measurement** - Measure from line to heels/distance achieved.
or:
5 **Description** – Margaria test – running up stairs
6 **Measurement** – Time taken. 2 marks

- 3 (a) (i) a – (Kinesthetic) feedback;
b - Motor commands/ programmes/information/nerve impulses;
c – Movement/effector/output. 3 marks
- (ii) 1 Perceptual trace;
2 Memory trace; *sub max of 2 marks*
3 MT/plan of action/motor programme acts as reference standard;
4 MT/ motor programme initiates movement;
5 MT/motor programme based on experience/practice;
6 PT directs current movement;
7 Store of movements/actions required;
8 Two (memory and perceptual) are compared;
9 If corresponding movement continues;
10 Mismatch produces corrections. *sub max 2 marks*
max of 4 marks
- (iii) 1 Example of quick skill; *1 mark*
2 some skills have no time/too quick/only used when **time** for feedback;
3 discreet/ballistic;
4 No corrections:
5 Not applicable to novel skills *(sub max of 2 marks)* *3 marks*
- (b) (i) 1 More oxygen consumed/used/taken in and more carbon dioxide breathed out;
2 Oxygen for energy/ muscle contraction/ respiration;
3 Carbon dioxide as a waste product/ by-product. 3 marks
- (ii) 1 Oxygen - oxyhaemoglobin/combined with haemoglobin;
2 Carbon dioxide - as bicarbonate/hydrogen carbonate (ion)/dissolved in plasma/combined with plasma proteins /as carbaminohaemoglobin. 2 marks
- (iii) 1 Increased carbon dioxide produced;
2 Increases blood acidity;
3 Detected by chemoreceptors;
4 Mechanoreceptors;
5 Increase in body temperature;
6 Impulses to medulla/respiratory centre;
7 Impulses to breathing muscles/ diaphragm/ intercostals; *(N.B Not lungs)*
any 3 for 3 marks

- 4 (a) 1 Minimisation of time/quick/fast/ efficient;
 2 Minimisation of energy;
 3 Repeatable success/consistent/ few mistakes;
 4 Flowing / smooth/ good technique/ aesthetically pleasing;
 5 Adaptable *any 3 for 3 marks*
- (b) (i) 1 Explanation – **improve** performance by **seeing/watching** model/performance;
submax 1 mark
 2 Live demonstration/ expert performance;
 3 Video of own skilled performance/ slow-motion;
 4 Video of perfect model
 5 Photograph/poster/chart/diagram of skill/ computer simulation;
 6 Modify display/chalk marks on mats. *any 3 for 3 marks*
4 marks
- (ii) 1 More reliance on intrinsic/internal/kinesthetic feedback;
 2 Less on extrinsic/external/augmented feedback/ coach/ KR;
 3 Less reliance on visual feedback;
 4 Feedback can be more detailed/specific than general/technical;
 5 More prepared to accept negative feedback/critical. *any 3 for 3 marks*
- (c) (i) 1 Volume of blood leaving the (one) ventricle;
 2 Per minute;
 3 $Q = SV \times HR / 70 \times 70 / 4900 / 4.9$;
 4 $\text{cm}^3 \text{min}^{-1} / \text{mls per min} / \text{dm}^3 \cdot \text{min}^{-1} / \text{l per min.}$ *4 marks*
- (ii) 1 Stronger/more forceful contraction/pumps harder;
 2 Greater diastolic filling/ increased venous return/more blood in heart;
 3 Cardiac output increases/ HR & SV goes up/increases;
 4 Increased peripheral resistance. *any 2 for 2 marks*
- (d) 1 Heart rate decreases;
 2 Stroke volume increases.
N.B both increase/decrease – 1 mark must accept first answer *2 marks*

- 5 (a) (i) 1 Tibia/cao;
2 Femur/cao. 2 marks
- (ii) 1 Extension;
2 Quadriceps/ rectus femoris. 2 marks
- (b) 1 Balance – method – (stork/ flamingo balance) – stance on beam/ accept alternative descriptions
2 Measurement – Timed/ accept alternative method of measurement. *Sub max 2 marks*
3 Flexibility – (sit and reach test) – accept alternative descriptions;
4 Measure distance stretched/range of movement/ e.g. goniometre and angles. *Sub max 2 marks*
4 marks
- (c) 1 Subjectivity – technical assessment of skill/how good did it look;
2 Objectivity – numerical measure of skill/how many attempts went over. 2 marks
- (d) 1 Stable/enduring characteristics;
2 same behaviour in all/different situations
3 Inherited/genetic/innate;
4 Measurable/identified/questionnaire;
5 Predicts behaviour
6 (Eysenck and) introvert-extrovert scale
7 Catell and 16PF;
8 Not very valid or reliable;
9 Lies/misinterpretation of question. *any 4 for 4 marks*
- (e) 1 Behaviour depends on personality traits;
2 and situation environment;
3 Interactionist approach;
4 Individual's behaviour varies in different situations;
5 Different situations make individuals behave differently;
6 Not all sports performers same personality;
7 No single personality associated with/required for one sport;
8 For simplistic explanation of $B = f(P.E)$. *any 4 for 4 marks*