



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme

June 2003

GCE

Sport and Physical Education

Unit PED1

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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 positive transfer – enhancement (equiv) of performance of skill being learned as a result of previous learning; *(NB. accept agility)*
 2 e.g. – backhand dropshot being essentially same action in both activities;
 3 negative transfer – impairment (equiv) of performance of skill being learned as a result of previous learning;
 4 e.g. – use of fixed wrist in tennis having negative effect on squash stroke that requires flexible wrist;
 5 bilateral transfer - limb to limb transfer;
 6 e.g. - developing weaker side strokes based on stronger side learned skills;

6 marks

- (ii) 1 practice/experience of original task;
 2 realistic practice situations;
 3 similar stimulus
 4 similar response;
 5 similar movement patterns;
 6 avoid situations where new task requires reacting to old stimulus;
 7 coach making performer aware of transfer potential;

any 3 for 3 marks

- (b) 1 more oxygen inspired (less expired) – O₂ is taken in/used;
 2 more carbon dioxide expired (less inspired) – CO₂ is produced/removed;
 3 greater differences during exercise/smaller difference at rest;
 4 more air taken in during exercise

any 3 for 3 marks

- (c) (i) 1 tidal volume/volume explained;
 2 inspiratory reserve (volume)/volume explained;
 3 expiratory reserve (volume)/volume explained;

3 marks

- (ii) 1 large surface area of alveoli/capillary density;
2 thin (epithelial) membrane/one cell thick;
3 short distance for diffusion/nearness of capillaries;
4 large differences in concentration (gradients);
5 rapid removal of gases from area/effective blood system;
6 layer of moisture;
7 slow movement/compression of red blood cell;

any 3 for 3 marks

2.

- (a) (i) 1 6600 (6.6)/evidence of addition of all 5 values;
2 $\text{cm}^3 \text{min}^{-1}$; $\text{dm}^3 \text{min}^{-1}$ /litres per min;

2 marks

- (ii) 1 increased heart rate;
2 increased stroke volume;
3 increased strength of contraction;
4 increased rate of firing of SAN;
5 increased diastolic filling;
6 release of adrenaline;
7 increased CO_2 /lower pH/chemoreceptors;
8 decreased parasympathetic (vagus) impulses/increased sympathetic impulses;

any 2 for 2 marks

- (b) 1 SAN initiates heart beat/sends impulses;
2 intrinsic/myogenic/pacemaker;
3 spread of impulses through atria;
4 atria contracts/systole;
5 role of valves as non-conducting material;
6 impulse reaches AVN;
7 initiation of impulse down interventricular septum/reduced delay of spread of impulses;
8 Bundle of His;
9 Purkinje fibres conducting impulses;
10 ventricular systole/contraction;
11 period of diastole/relaxation for filling;
12 release of (nor) adrenaline from SAN

any 6 for 6 marks

- (c)(i) 1 schema are a store of generalised/fundamental motor programmes;
 2 set of ‘rules’ to help us make decisions/relationships;
 3 Recall schema;
 4 Recognition schema;
 5 initial conditions;
 6 e.g. information about limb positions/environmental conditions;
 7 response specifications/movement requirements/outcome;
 8 e.g. demands of movement – height/speed/etc;
 9 sensory consequences;
 10 e.g. feedback information concerning performance/KP/KR;
 11 response outcome;
 12 comparison of actual and intended outcome/feedback;
 13 variability of practice helps develop schema by experiencing different
 situations;
 14 this gives better chance of making a correct response in novel/new situations;
any 6 for 6 marks
- (ii) 1 vary conditions by changing initial conditions/appropriate example;
 2 build up set of experiences;
 3 response specifications/movement requirements/outcomes
 4 e.g. weight of implement/flight of ball;
 5 Use of discovery style/not command/
 6 Teach fundamental skills before sport specific
any 2 for 2 marks
- 3.**
- (a) 1 Touch/feeling/tactile;
 2 Vision/eyes/sight;
 3 Hearing/ears/audition;
 4 Kinesthesia/proprioception/body awareness;
any 3 for 3 marks
- (b) 1 detection/encoding of stimuli;
 2 comparison to memory stores;
 3 recognition of stimuli;
 4 DCR as abbreviations
 5 selective attention/discrimination/interpretation;
any 3 for 3 marks
- (c) 1 receives information from senses/STSS;
 2 Information from LTM;
 3 compares characteristics to LTM stores;
 4 decisions made/thinking/problem-solving/working memory;
 5 receives information/motor programme concerning actions from LTM;
 6 initiates motor programme;
 7 Receives feedback;
any 3 for 3 marks

(d)

| | Type of joint | Action | Agonist | Type of contraction |
|-------|-----------------|---------------|---------------------|---------------------|
| Hip | Ball and socket | | Gluteals/hamstrings | Eccentric |
| Knee | Hinge | Flexion | Quadriceps | |
| Ankle | | Dorsi-flexion | Gastrocnemius | Eccentric |

9 marks

4.

- (a)(i) 1 stamina – ability to delay the onset of fatigue/equiv.
2 important because of duration of games/e.g. of time; 2 marks

- (ii) 1 msft/bleep test; submax 1 mark
2 paced 20 metre shuttles;
3 Increasing speed/decreasing time/beeps get faster/progressive;
4 Until unable to maintain pace/maximal;
5 Shuttle achieved determines stamina; submax 3 marks
4 marks

or

- 6 Queens college/Harvard step test; submax 1 mark
7 paced stepping onto and off bench;
8 specific rhythm/height;
9 certain duration;
10 heart rate achieved determines stamina; submax 3 marks
4 marks

or

- 11 Coopers/12 min run test; submax 1 mark
12 Run as far/fast as possible;
13 Around track ;
14 maintain pace;
15 Distance/time achieved determines stamina; submax 3 marks
4 marks

or

- 16 PWC170/cycle test; submax 1 mark
17 Cycle at known workload;
18 Increasing workload every three minutes;
19 maintain pace;
20 Heart rate achieved determines stamina; submax 3 marks
4 marks

or

- 21 direct measurement/gas analysis test; submax 1 mark
22 Run/cycle/etc at increasing workload;
23 On machine;
24 maximum exertion;
25 oxygen consumed indicates stamina; submax 3 marks
4 marks

- (b) (i) 1 hypertrophy/equiv.
 2 increased stroke volume;
 3 increased force/strength of contraction/ejection fraction;
 4 greater diastolic filling/starlings law;
 5 Increased maximum cardiac output;
 6 Lower resting/exercising heart rate/bradycardia/athletes heart;
 7 Increased capillarisation; *submax 3 marks*
- (ii) 1 little or no change to lung volumes with training;
 2 increased ability to extract oxygen/greater percentage of alveoli used/increased efficiency;
 3 Increased capillarisation; *submax 2 marks
 max 4 marks*
- (c) 1 A – internal and intrinsic - kinaesthesia/proprioception/feeling action;
 2 B – internal and extrinsic – not possible
 3 C – external and intrinsic - seeing/hearing own actions/KR;
 4 D – external and extrinsic – seeing/hearing outside agency/coach/crowd/rewards/ KP/KR;
 (NB - KR only to be credited once) *4 marks*

(d) (either point from line to gain mark)

| <i>cognitive</i> | <i>autonomous</i> |
|------------------------|------------------------|
| 1. Primarily extrinsic | 2. Primarily intrinsic |
| 3. KR | 4. KP |
| 5. General | 6. More specific |
| 7. Must be immediate | 8. Can be delayed |

4 marks

5.

- (a) (i) 1 triceps;
 2 concentric/isotonic;
 3 extension/flexion to extension; *3 marks*
- (ii) 1 1st class/order lever;
 2 correct labels – effort/fulcrum/load or eq;
 3 correct order – fulcrum/pivot/joint in middle; *3 marks*



- (b) 1 validity – measures what it’s supposed to measure;
 2 test only measures free-throw shooting in certain situations;
 3 not measure of other abilities/skills;
 4 shooting under pressure/passing/dribbling/etc;
 5 hence/conclusion not a valid test;
any 3 for 3 marks

- (c) (i) 1 positive - when a stimulus increases the probability of a desired response;
2 e.g. – success at a skill/praise from coach/etc
3 negative - when the stimulus is withdrawn when the desired response occurs;
4 e.g. – removal of noise from crowd at increasing success of visiting player;
5 punishment – Giving a stimulus to prevent a response occurring;
6 e.g. – being shouted at by coach/rest of team;

6 marks

- (ii) 1 trial and error learning;
2 successful response reinforces/associated with stimulus/strengthen S-R bond;
3 Shaping/altering environment to progress towards success;
4 e.g. - use of rewards/praise to reinforce learning/performance;

any 3 for 3 marks