

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International Advanced Level

MARK SCHEME for the October/November 2015 series

9396 PHYSICAL EDUCATION

9396/31

Paper 3, maximum raw mark 90

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Section A
Exercise and Sport Physiology

1 (a) (i) 6 marks for:

- 1 Energy – the capacity/ability to perform work;
- 2 Energy – joules/kilojoules/calories/kilocalories;
- 3 Work – force × distance moved;
- 4 Work – joules/newtonmetres;
- 5 Power – the rate at which work is done/work ÷ time/strength × speed;
- 6 Power – watts/nms⁻¹;

[6]

(ii) 4 marks for 4 of:

- 1 The products of one reaction are used in another reaction;
- 2 The first reaction is exothermic/produces energy/ATP → ADP + P + energy;
- 3 PC → P + C + energy;
- 4 The second reaction is endothermic/uses energy;
- 5 ADP + P + energy → ATP;

[4]

(b) 4 marks for 4 of (mark first 2 components chosen only):

Component	Definition	Method of evaluation
Balance	1 The ability to maintain equilibrium/centre of mass over base of support;	2 Stork stand/balance board/beam balance;
Co-ordination	3 The ability to put motor programmes in the correct order to produce effective movement;	4 Alternate hand wall toss test/double ball bounce/juggling;
Agility	5 The ability of the body to change direction at speed/a combination of speed and co-ordination;	6 Illinois agility test/hexagon test/T-test/W-test;
Reaction time	7 The time between a stimulus being detected and the first movement in response to it;	8 Ruler drop test/kwik-stik/batak board/on-line computer programmes;

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- (c) (i) 6 marks for 6 of (must be applied to continuous training for a marathon runner):
- 1 (Specificity) Programme must be aerobic/involve (predominantly) running/relate to the event;
 - 2 (Progression) A gradual increase in intensity of training over time/distance/speed run;
 - 3 (Overload) Body must be put under stress for adaptations to occur;
 - 4 (Frequency) At least 4 times per week;
 - 5 (Intensity) 70–85% of max HR;
 - 6 (Duration) > 30 minutes;
 - 7 (Reversibility) Avoid periods without training (or benefits will be lost);
 - 8 (Moderation) Incorporate rest periods into programme/watch out for overuse injuries;
 - 9 (Variance) Change programme to avoid boredom/maintain motivation;
 - 10 (Testing) Incorporate regular testing to monitor improvements/run full marathon distance at race speed;

[6]

- (ii) 6 marks for 6 of:
- 1 Splits training into specific blocks/macrocycle **and** mesocycle **and** microcycle;
 - 2 (Macrocycle) is the long term goal;
 - 3 (Macrocycle) ensures that optimum physiological adaptations occur/athlete can produce PB at Games (NB not 'peak performance for Games' – wording used in question);
 - 4 Mesocycle) is intermediate training block/ 1–4 months;
 - 5 (Mesocycle) has a specific objective e.g. improving aerobic capacity/improving running technique;
 - 6 (Microcycle) is short term training block/ 1–4 weeks;
 - 7 (Microcycle) splits training into smaller units to maintain motivation/specific training session;
 - 8 (Microcycle) breaks up training units to allow rest/recovery/avoid overuse injuries;
 - 9 (Tapering) reducing training in the week leading up to the event;

[6]

- (iii) 4 marks for:
- Pre-competition meal:
- 1 Predominantly/high in (complex) carbohydrates/carbs/low GI foods;
 - 2 At least 2 hours before event/night before event;

- Post-competition meal:
- 3 Predominantly/high in (complex) carbohydrates;
 - 4 Within 2 hours of completing event;

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Section B
Psychology of Sport Performance

- 2 (a) (i) 2 marks for (must describe both extremes for a mark):
- 1 (extroversion) Outgoing or sociable or lively or active **and** (introversion) Shy or unsociable or reserved or passive;
 - 2 (neuroticism) Unstable or unpredictable or moody or restless or anxious **and** (stability) Reliable or predictable or even-tempered or calm;
- [2]

- (ii) 2 marks for 2 of:
- 1 Profiling results are unreliable/too vague/not valid/do not relate to sports performance;
 - 2 Results cannot be generalised/people act differently in different situations;
 - 3 Results are subjective/interpreted differently by different people/stereotyping;
 - 4 Performer's behaviour changes due to profiling/performers give answers that put them in a good light/performers lie/too many demand characteristics;
- [2]

- (b) 2 marks for (must explain each type and give a sporting example for 1 mark):
- 1 (prescribed) Leader is imposed on group/appointed by higher authority e.g. England cricket captain appointed by ECB;
 - 2 (emergent) Leader is selected from the group/chosen with support of group members e.g. football player within team is made captain because of expertise/experience;
- [2]

- (c) 6 marks for (must use at least 2 sporting examples to access more than 2 marks):

1	(Situational characteristics)	Task difficulty/size of group/time available/nature of activity/nature of opposition e.g. rock climbing dangerous so autocratic style needed;
2	(Leader characteristics)	Personality/skill level/experience of leader/leader's preferred leadership style e.g. leader prefers to use autocratic style so will use it to coach gymnastics;
3	(Member characteristics)	Motivation/age/gender/experience/skill level of the group members e.g. women's netball team need democratic style;
4	(Required behaviour)	Type of behaviour the leader uses is appropriate to the task e.g. leader uses an autocratic style because canoeing is a risky activity;
5	(Actual behaviour)	The behaviour that the leader chooses to use e.g. football manager uses democratic style to allow team to decide who will take part in penalty shoot-out in cup final;
6	(Preferred behaviour)	The type of behaviour that the group would prefer the leader to use e.g. a small group of female rock climbers may prefer a more democratic style;

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- (d) (i) Task complexity – max 2 marks for 2 of (must use practical examples):
- 1 If task is complex/fine/open then low arousal better e.g. badminton serve;
 - 2 Because performer needs to focus/concentrate on several cues or performer may get distracted/miss important cues if over-aroused;
 - 3 If task is simple/gross/closed then high arousal better e.g. weight lifting;
 - 4 Because little decision-making is needed or more strength/speed/power can be generated at higher arousal;
- Ability level – max 2 marks for 2 of (must use practical examples):
- 5 High ability/autonomous do better/can cope with higher arousal e.g. long jumper getting crowd to clap to motivate him/her;
 - 6 Because they have better attentional control/focus/selective attention;
 - 7 Low ability/novices/cognitive do better with low arousal e.g. practising a tennis serve in isolation rather than in a competitive match;
 - 8 Because they will be distracted/attention too narrow/unable to concentrate/focus if arousal too high;
 - 9 Intermediate/associative do best with moderate arousal;
- [4]
- (ii) Trait – max 2 marks for 2 of:
- 1 Anxiety that is natural/innate/genetically determined/part of personality;
 - 2 Felt in all/most situations/stable characteristic;
 - 3 Anxiety that is enduring/(relatively) permanent;
- State – max 2 marks for 2 of:
- 4 Anxiety that arises in a specific situation/environment/learned response;
 - 5 Anxiety that is temporary/can change during a game/tournament/event;
 - 6 Linked to high arousal;
- [4]
- (iii) 4 marks for 4 of:
- 1 Fear of failure/performing badly;
 - 2 Fear of being evaluated/judged/evaluation apprehension;
 - 3 Importance of event;
 - 4 Fear of injury/danger;
 - 5 Fear of being embarrassed;
 - 6 Quality of opposition/poor officiating/unfamiliar environment/OEQ **external factors**;
- [4]

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- (e) 6 marks for 6 of (max 4 for only +ve or –ve comments):
- 1 (+ve) Olympic hosts tend to win more medals than they did in Games before and after hosting;
 - 2 (+ve) Teams tend to win more home games than away;
 - 3 (+ve) Cheering of supporters increases motivation / confidence of home athletes;
 - 4 (+ve) Home advantage is more noticeable in early rounds of a competition;
 - 5 (+ve) Home teams / performers tend to adopt a more attacking style of play;
 - 6 (+ve) Elite / autonomous / extrovert performers perform better in front of a crowd;
 - 7 (+/–ve) Proximity of crowd / the closer the crowd / the greater the noise, the greater the effect;
 - 8 (+/–ve) Supporters create an expectation of success / pressure to win;
 - 9 (+/–ve) Increase in performers' self-consciousness / familiarity of environment;
 - 10 (–ve) Distraction conflict theory states that increased arousal can lead to making more mistakes;
 - 11 (–ve) Home performers can 'choke' from thinking too much;
 - 12 (–ve) Greater negative effect on home performers as importance of event increases;
 - 13 (–ve) Away performers tend to commit more fouls / rule infringements;
 - 14 (–ve) Introverts tend to perform worse in front of a crowd;

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Section C
Olympic Games: a global perspective

- 3 (a) 4 marks for 4 of:
- 1 Striving for excellence in sport/to be the best **or** pressure to do well;
 - 2 Competing against the very best athletes in the world;
 - 3 Making progress against personal goals/reaching personal objectives/giving ones best;
 - 4 Respect for one another / rules / fair play / the environment;
 - 5 A combination of a strong **body, will** and **mind**;
- [4]

- (b) (i) 3 marks for 3 of:
- 1 Government subsidies/lottery;
 - 2 **Donations** from private companies;
 - 3 (Corporate) sponsorship;
 - 4 TV rights/media;
 - 5 Ticket sales;
 - 6 IOC;
- [3]

- (ii) 3 marks for 3 of:
- 1 Loss of income;
 - 2 Coaching;
 - 3 Training facilities;
 - 4 Living expenses/food and accommodation;
 - 5 Travel;
 - 6 Kit/equipment;
- [3]

- (iii) 4 marks for 4 of (must give at least 1 negative and 1 positive comment for full marks):

Negative impact	Positive impact
1 Travel restrictions / traffic congestion;	2 Improved transport infrastructure;
3 Financial cost to local / national economy;	4 Economic benefits from hosting Games / employment for local people;
5 Funding diverted away from grass roots sport;	6 Games will encourage local people to take up sport and use facilities created;
7 Facilities built for Olympics become white elephants;	8 Legacy plans for world class facilities to be available to local people;
9 Relocation of 300 000 people (Beijing);	10 Creation of improved affordable housing developments;
11 Increased taxes to pay for part of costs;	

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(c) 6 marks for 6 of (must make comparative point for each mark):

	USA		China
1	Decentralised system/ minimal govt involvement;	2	Centralised system/ heavy government involvement;
3	No govt control of sports organisations/ athletes;	4	Govt controls/ regulates activities of sports organisations/ athletes;
5.	Limited funding (from US Olympic Committee);	6	Huge financial investment;
7	No talent search/ID;	8	Talent search/ID at age of 4/at very early age;
9	Individual has free choice of sporting activity;	10.	No individual choice once selected/ individuals 'belong' to state;
11	High school is pathway to excellence;	12	Specialist sports schools;
13	Lombardian/ win ethic/ competitiveness prevails in all junior sporting programmes (except some intra-mural sports);	14	Extremely harsh training regimes;
15	Scholarship system to University/ College/ importance of Olympic trials in selection (for some events);	16.	Most promising students transferred to professional schools/ municipal teams/ national teams;
17	(Historically) most medals won in athletics and swimming, but all sports contested;	18	(Historically – since 1984) targeted less popular sports/ sports contested by fewer countries;
19	Title IX increased female participation in 1970s (although considerable female medal success evident since 1920s);	20	(Historically) targeted women's sports;
21	Focus on all sports;	22	(Today) focus on all sports;

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(d) 5 marks for 5 of:

- 1 Amateurism was (traditionally) based on playing for the love of the sport ...;
- 2 ... and no monetary gain;
- 3 Amateurism encompassed the belief in fair play/following the spirit as well as the rules of the sport;
- 4 Gentleman amateur was (traditionally) a social class/upper class distinction;
- 5 WC lacked time/money to compete at Olympic Games;
- 6 Excluded WC because – amateurism meant no serious training/having a coach;
- 7 Excluded WC because – amateurism prevented competing against professionals/ receiving payment for loss of earnings while playing;
- 8 E.g. Jim Thorpe stripped of gold medals because he had played professional baseball;
- 9 E.g. Paavo Nurmi barred for (excessive) travel expenses;
- 10 E.g. Jesse Owens had amateur status withdrawn after taking up commercial offers;

[5]

(e) 5 marks for 5 of:

- 1 (Definition) sports in which there is an unfair advantage to performer from spending heavily to achieve success (true of all sports)/sports in which top performers are very rich from earnings in their sport e.g. USA basketball team or tennis players/the equipment needed to participate is very expensive e.g. sailing or dressage;
- 2 Olympic ideal of sport for all;
- 3 Olympic ideal was to participate for no financial gain/monetary reward;
- 4 Olympic ideal was about equal opportunity for rich and poor;
- 5 Competition in wealth sports is inherently unfair as dependent on ability to finance sport;
- 6 Olympic ideal of striving for excellence means competing against best in world;
- 7 Participants want to compare themselves against the best as measure of progress;
- 8 Gold medals in any sport are generally won by country that puts most funding into the sport;
- 9 How would IOC determine which wealth sports should be dropped?;
- 10 Professionals now a key part of the success of the Games;
- 11 Would corporate sponsorship/media rights be so lucrative to IOC if some sports were dropped?;
- 12 Some would argue it is good for superstars to live, support and associate with other sportsmen in a national team;
- 13 Football tournament is U23 competition so why not extend this to other sports?;
- 14 Credit one example that raises profile of sport e.g. USA Dream Team in basketball, tennis players;
- 15 Dropping wealth sports would deny the opportunity for these performers to participate in Games;
- 16 Dropping wealth sports allows room for other sports to be included in Games;

[5]