

**MARK SCHEME for the October/November 2010 question paper  
for the guidance of teachers**

**9396 PHYSICAL EDUCATION**

**9396/33**

Paper 3 (Theory), maximum raw mark 90

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

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**Section A**  
**Exercise and Sport Physiology**

**1 (a) (i) 6 marks in total**

**sub max 1**

- 1 ATP / PC system / PC system

**sub max 5 marks from**

- 2 Anaerobic pathway / without O<sub>2</sub>
- 3 Uses phosphocreatine as a fuel / high energy phosphate compound
- 4 Creatine kinase is the controlling enzyme
- 5 PC is broken down to P + C + E
- 6 This is an exothermic reaction / energy is released
- 7 Energy is used in an endothermic reaction
- 8 To re-synthesise ADP + P + E → ATP
- 9 The reaction takes place in the sarcoplasm

**(ii) 4 marks in total**

**sub max 2 marks from**

- 1 Very fast / simple reaction / PC small compound found in cell
- 2 Reaction does not require the presence of oxygen
- 3 No by-products are produced

**sub max 2 marks**

- 4 Only small amounts of PC so limited threshold
- 5 Only one ATP re-synthesised for each PC / small energy yield

**(iii) 4 marks in total**

**sub max 2 marks from**

- 1 Creatine supplementation
- 2 Ingesting 20 g / 25 g of creatine per day for 5 to 7 days
- 3 Better to take creatine combined with glucose
- 4 Creatine is naturally found in the diet but only in small quantities

**sub max 2 marks from**

- 5 Helps maintain ATP concentrations more during maximum effort
- 6 Improves high intensity performance and repetitive bouts of high intensity work even more
- 7 Does appear to promote gains in lean body mass during training

**(b) (i) 3 marks from**

- 1 Used to develop explosive power
- 2 Exercises include hops, bounds and jumps
- 3 Usually a fast eccentric muscle action is closely followed by a concentric muscle contraction / stretch-shortening cycle
- 4 A muscle will contract with more force if it is stretched first / elastic recoil
- 5 Only well conditioned athletes should perform plyometrics because of the high forces generated / could be too demanding

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**(ii) 3 marks from**

- 1 Training is of a high intensity and relies on the alactic energy system therefore improves this energy system
- 2 This form of training recruits more than the usual number of motor units
- 3 It recruits type IIb fibres that training at a lesser intensity fails to do
- 4 Improves synchronisation of motor unit innervation / all units contract at once
- 5 Golgi tendon threshold is increased/does not limit force production as much therefore greater strength gains
- 6 Maximum force output is achieved in a shorter amount of time / power output is improved

**(c) 4 marks from**

- 1 Increases the release of oxygen from the blood delivering more oxygen to the muscle tissue
- 2 Increases muscle temperature and increases elasticity reducing risk of injury
- 3 Increases blood flow to the muscle delivering more fuels e.g. glucose
- 4 Neuromuscular coordination is improved
- 5 Muscle viscosity is decreased improving mechanical efficiency
- 6 Reduced likelihood of experiencing DOMS

**(d) (i) 3 marks in total  
(PNF)**

- 1 Performer moves joint to resistance point
- 2 Stretch stimulates the stretch receptors
- 3 The performer then performs an isometric contraction against resistance
- 4 Stimulates the golgi tendon organs
- 5 Muscle is relaxed and immediately stretched again
- 6 Muscle momentarily over rides the stretch reflex

**(ii) 3 marks in total  
(adaptations)**

- 1 Increased residual length of ligaments
- 2 Increased residual length of tendons
- 3 Increased residual length of muscles
- 4 Resetting of muscle spindle / changes in stretch reflex

**[Total: 30]**

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**Section B**  
**Psychology of Sports Performance**

**2 (a) 5 marks from 5 of:**

**(Personality sub max 3)**

- 1 Innate personality characteristics / natural traits / enduring
- 2 Drive to achieve success / high achievers
- 3 Outcome orientated / approach behaviour / competitive
- 4 Want a challenge/ excitement / takes risks
- 5 Persistent on task / sticks to the job in hand
- 6 Take responsibility for actions / like feedback / likes evaluation
- 7 Not afraid of failure

**(Situational factors sub max 2)**

- 7 Competition affects achievement motivation
- 8 Probability of success
- 9 Incentive value of success / high level match
- 10 Home / Away effects / familiarity / hostility / new situations / unexpected
- 11 Level of danger (perceived)
- 12 Presence of others / encouragement / praise from others

**(b) 4 marks total:**

- 1 Select those who are 'team players'
- 2 Environment of compromise / players to respect one another / to listen.
- 3 Have a clear view of aims / goals / mission / share the same goals / similar reasons for playing
- 4 Participants to share behavioural norms / similar outlook / beliefs
- 5 Give credit for personal success / highlight individual performance
- 6 Do not overplay team goals / aims / set appropriate goals
- 7 Co-ordination practice / team building exercises
- 8 Encouragement / social support / encourage friendship / teambuilding
- 9 Reinforce / praise cohesive / motivated behaviour / reward teamwork
- 10 Punish / drop non-team / un-cohesive players
- 11 Encourage group identity / belonging
- 12 Clarify / give individual responsibility / roles
- 13 Strong / effective leadership that encourages teamwork
- 14 Split team up into smaller subgroups / combat the Ringelmann effect by dividing into small groups / having goals for sub-sets / smaller groups.

**(c) 3 marks for:**

- 1 Goals should be specific / directly linked to an outcome
- 2 Goals should be measurable / an objective aspect that is measured
- 3 Goals should be achievable / within reach / attainable / realistic / get success
- 4 Goals should be relevant / at the right level / challenging / motivating
- 5 Goals should be time-phased / include short and long term objectives
- 6 Goals should be evaluated / use of self-assessment / reviewed
- 7 Goals should be recorded / records kept / written account / enables accountability
- 8 Goals should be agreed / shared with all parties / other team members / agreement between coach and athlete / negotiated / accepted
- 9 Goals should be positive rather than negative / motivational / give sense of worth / avoid learned helplessness / exciting

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**(d) 6 marks from**

- 1 Instinct / natural / innate tendencies
- 2 (Frustration / agg hypothesis) Frustration-aggression hypothesis / frustrating circumstances blocks your goal
- 3 (catharsis) To achieve catharsis / to feel better / to release frustration
- 4 (Aggressive cue hypothesis) Aggressive cue hypothesis / signals / cues / stimuli cause aggression
- 5 Because cue is identified with expected / desired behaviour
- 6 (Operant / conditioning / S-R / Associationist) Conditioned response / S-R bond that has been learned / operant conditioning
- 7 (operant / reinforcement) You get praise / reinforcement if you are aggressive
- 8 (social learning / Bandura) Social learning / need to copy
- 9 Copying more likely if same sex model
- 10 Males more likely to be physically aggressive than females
- 11 Live / realistic models more likely to be copied
- 12 To be like significant others / role models
- 13 (Socialisation) Socialisation / cultural norms and values determine your behaviour

**(e) 4 marks from**

**(Strategies)**

- 1 Relaxation / Progressive relaxation techniques (PRT) / Deep breathing
- 2 Positive thinking / negative thought stopping
- 3 Imagery
- 4 Selective attention
- 5 Setting SMARTER goals
- 6 Reinforce/recognise personal success / positive reinforcement
- 7 Practice to build motor programmes / become more physically proficient
- 8 Biofeedback

**(f) 3 marks from**

- 1 attributional retraining is changing / helping to change the reasons for failure to
- 2 Emphasise (through examples) unstable / changeable factors e.g. luck
- 3 Emphasise (through examples) internal / controllable factors e.g. effort
- 4 Put less emphasis on internal stable factors to minimise learned helplessness and maximise mastery
- 5 Use positive reinforcement / praise / reward / encouragement
- 6 Use role models / vicarious experiences
- 7 Less emphasis on end result / winning
- 8 Control arousal / calm them down or psych them up
- 9 Give success to raise confidence

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**(g) 5 marks total:**

- 1 Subjective outcomes relate to how the performer rates the performance / how well he or she has done
- 2 This affects positively or negatively the trait sport confidence (SC-Trait) (n.b. do not just accept confidence)
- 3 SC – Trait is the innate / inbuilt / natural tendency to be confident
- 4 If outcome perceived to be good then SC-Trait is increased
- 5 If outcome perceived to be poor / a failure then SC-Trait is decreased
- 6 Subjective outcome affects competitive orientation / level of competitiveness either positively or negatively
- 7 If outcome perceived to be good then competitiveness is increased
- 8 If outcome perceived to be poor then competitiveness decreases
- 9 SC-Trait and competitiveness if increased will raise state sport confidence (SC-State) / raise self-efficacy / will make performer more confident / encourage approach behaviour
- 10 SC-Trait and competitiveness if decreased will make player less confident / will result in avoidance behaviour

**[Total: 30]**

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**Section C**  
**Olympic Games: A Global Perspective**

**3 (a) 5 marks for 5 of:**

- 1 Countries can come together in sport
- 2 In an atmosphere of competition not politics
- 3 Personal friendships are forged world wide
- 4 Belief that sport can over-ride / overcome world wide differences
- 5 Olympics are a forum for international co-operation and tolerance
- 6 Sport may lead to recognition of cultural diversity in world
- 7 Use of symbols / symbolic nature of the Olympics

**(b) 7 marks for 7 of:**

- 1 Olympic sport has become a powerful political tool / weapon
- 2 Acts as a shop window for their country
- 3 To conquer other countries is a sign of power
- 4 Capitalist v communist regime
- 5 Host country can force beliefs on visiting nations
- 6 Politics is part of the social structure in the world
- 7 Many examples of political interference in Olympics / Hitler 1936
- 8 Olympic stage can be used to make political statements / propaganda / black salute in Mexico 1986
- 9 Olympic Games awarded to a country as political reconciliation
- 10 Sport used by countries to influence others e.g. Ping pong diplomacy between USA and China
- 11 Very difficult to split sport and politics

**(c) 6 marks for 6 of:**

- 1 Women were not allowed to take part or watch at Olympia
- 2 Death penalty for those who did / women dressed as men to be present
- 3 Competitors competed nude to prevent women from being present at Olympia
- 4 Women held their own games at Heraia / 776 BC / 4 yearly pattern
- 5 One event / a footrace / divided into different age groups
- 6 Similar events at Delphi / Isthmia / Corinth
- 7 De Coubertin excluded women from 1894 – first modern Olympics
- 8 Two events for women introduced in Paris games 1900
- 9 Early restraints on women taking part were modesty / position of women in society / female perceived as weaker sex
- 10 Numbers of women taking part / events for women has gradually increased
- 11 Media coverage of women's events increasing / presenting women in sporting manner
- 12 Emergence of attractive image / yet sporting prowess
- 13 Some Muslim countries still bar women in public / cultural differences still a feature in discrimination / religion still discriminates
- 14 Move to exclude these countries from taking part in Olympics / 24 countries no women in teams in 1992
- 15 Women's boxing still not an Olympic sport
- 16 Still very few women as members of IOC but increasing / IOC slow to change
- 17 Increasing number involved in decision making
- 18 Present issues are lack of women holding senior posts in Olympic sports organisations

(d) 8 marks for 8 of:

<b>United States of America</b>		<b>Peoples Republic of China</b>	
1	Federal government with state autonomy.	2	State controlled system / centralised structure
3	PE important up to 12 yrs: Then sport takes over	4	Highly structured whole country PE curriculum
5	Athletes cultivated outside school	6	Athletes cultivated in schools
7	Schools belong to state high school sport federations. Pupils not selected out for sport	8	Secondary sports schools / schools of sport and physical culture
9	Skills / fitness testing / qualified PE specialist	10	Emphasis on gymnastics / games / Martial arts
11	Extra curricular high profile / funding / coaches	12	Extra-curricular – during and after school
13	Scholarships into collegiate programme	14	Young children selected out / sent to National Squads.
15	Intercollegiate sport highly organised	16	University sport highly organised
17	Large numbers involved / high wastage level	18	High prestige of success / may involved in sport
19	Olympic reserve selected from education system	20	Military involvement in sport
21	Main 4 sports / big business / sports players marketed	22	Asian games as an avenue for international competition
23	High regard for recreation	24	Sophisticated work place sports structure

(e) 4 marks for 4 of:

- 1 Sale of broadcasting rights / media
- 2 Private enterprise to build facilities
- 3 Sponsorship
- 4 Licensing
- 5 Private investment / donations
- 6 Ticket sales
- 7 Government / taxes

[Total: 30]