UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS **GCE Advanced Subsidiary Level**

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for the guidance of teachers

9396 PHYSICAL EDUCATION

9396/13

Paper 1 (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

Anatomy and Physiology

1 (a) 6 marks in total

elbow joint

Joint type	Movement occurring	Working muscle
1. hinge	2. extension	3. triceps brachii/anconeous

shoulder joint

Joint type	Movement occurring	Working muscle
4. ball and socket	5. flexion Not lateral flexion Not horizontal flexion	6. pectoralis major/anterior deltoid

(b) 6 marks in total

Sub max 4 marks from:

Joii	nt feature	Fur	nction
1.	joint capsule	2.	forming a capsule round the joints adds stability
3.	ligaments	4.	by securing the bones of a joint together it adds significantly to joint stability
5.	medial/lateral (collateral) ligament	6.	keep the femur and tibia from moving from side to side
7.	pads of fat	8.	improve the fit of articulating bones
9.	meniscus	10.	deepen the joint
11.	patella	12.	prevents hyperextension of knee joint
13.	anterior/posterior cruciate ligaments in addition the ACL	14.	hold the femur and tibia together
		15.	also prevents hyperextension of the knee

Sub max 2 marks

16. the femur is balanced on top of the tibia making it very unstable as a joint

- 17. vulnerable to side impact which damages the medial ligament (e.g. tackle in football)
- 18. twisting/pivoting action puts strain on the ligaments
- 19. sudden stopping and changes of direction put strain on the ligaments.

[6]

		2	
Page 3	Mark Scheme: Teachers' version	Syllabu er	
	GCE AS LEVEL – October/November 2011	9396	
	arks from:	Cambric	
1.	1. adrenaline/noradrenaline is released (from the adrenal glands)		
2.	stimulates the SA node		
3.	3. increasing heart rate		
4.	the conduction process speeds up when the heart muscle	temperature increases	
5.	warm heart muscle myocardium distends further		

- (c) 5 marks from:
 - adrenaline/noradrenaline is released (from the adrenal glands)
 - 2. stimulates the SA node
 - 3. increasing heart rate
 - 4. the conduction process speeds up when the heart muscle temperature increases
 - 5. warm heart muscle myocardium distends further
 - 6. allowing greater filling of the heart with blood/increased end diastolic volume
 - increase in stretch stimulates the SA node 7.
 - 8 venous increases during exercise, stretching cardiac muscles stimulating SA node. [5]
- (d) 4 marks in total

(take first two mechanisms)

Sub max 2 marks

- 1. the skeletal/muscle/pump mechanism
- 2. the contraction of skeletal muscles puts pressure on/squeezes the vein walls helping to force blood back to the heart

Sub max 2 marks

- 3. valves in the veins
- 4. prevent back flow and keep blood flowing in one direction back to the heart

Sub max 2 marks

- 5. the respiratory pump mechanism
- 6. changes in pressure in the thoracic cavity put pressure on the abdominal veins helping to force blood back to the heart

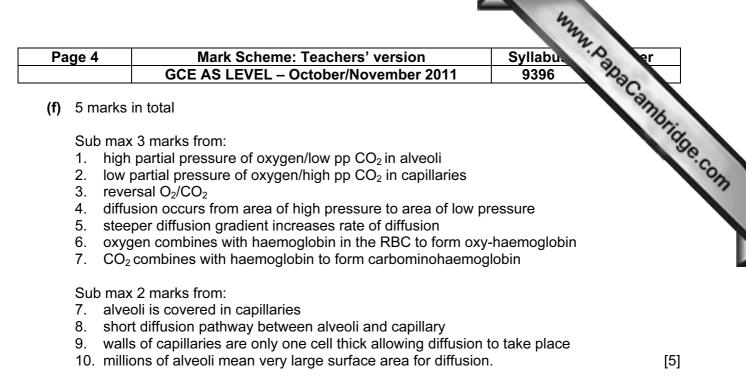
Sub max 2 marks

- 7. venous tone
- 8. partial contraction of the smooth muscle in the vein wall helps to force blood back to the heart

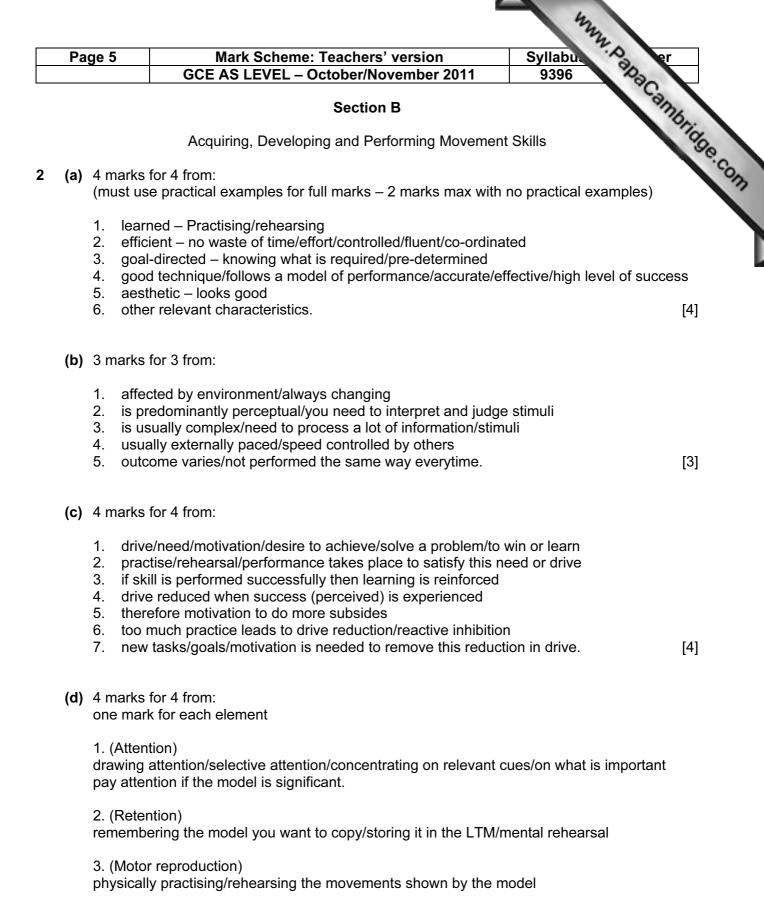
Sub max 2 marks

- 9. gravity
- 10. from veins flowing from above the heart helps force blood back to the heart. [4]
- (e) 4 marks from:
 - both myoglobin and haemoglobin have an affinity/will combine with oxygen 1.
 - 2. at the lungs oxygen combines with haemoglobin/forms oxy-haemoglobin
 - 3. haemoglobin can carry four molecules of oxygen when fully saturated
 - 4. haemoglobin carries oxygen to the muscle tissue
 - oxygen diffuses into cell because of the diffusion gradient/diffusion from high to low 5.
 - 6. myoglobin acts as a temporary store/transporter of oxygen to the mitochondria/site of aerobic respiration
 - 7. myoglobin higher affinity for O₂ than haemoglobin
 - 8. Bohr shift explained.

[4]



[Total 30]



4. (Motivation)

having the drive/need/will to copy, attend, retain, practice the model/copying the role model/significant other. [4]

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Page 6	Mark Scheme: Teachers' version	Syllabu er
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(e) 4 marks	for 4 from:	Cambridge.con
2 marks max for each memory store		age
(STM)		-On
2 marks	for:	~
	1. limited capacity that can only retain 5–11 pieces of info at any one time	

(STM)

- 1. limited capacity that can only retain 5–11 pieces of info at any one time
- 2. used to retain information under about a minute old
- you can watch for cues/immediate info as you are playing and remember them in the 3. short term to be able to respond
- 4. capacity can be increased by chunking/organising information to enable greater storage.
- 5. feeds info into LTM that is deemed relevant/meaningful
- 6. receives information from LTM (that is used in perception)/the work place/space/engine room of the memory process/working memory

(LTM)

2 marks for:

- 7. limitless capacity so stored information can be used over long period of time
- 8. used to retain info over 1 min old
- 9. you can remember info related to your strengths and weaknesses/your motor programmes/what you have learned
- 10. you can remember your opponents' strengths and weaknesses
- 11. retrieval more likely if you use the information regularly/refreshing your LTM will help retrieval
- 12. store of past experiences.

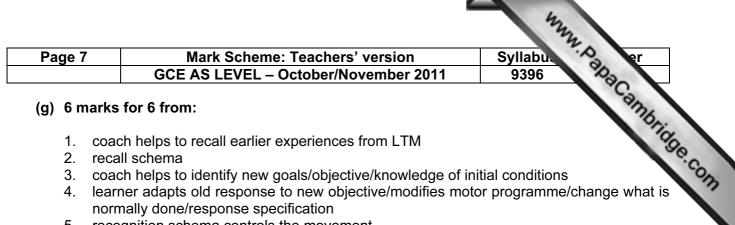
[4]

(f) 5 marks for 5 from:

(must use a practical example to score full marks. 3 marks max with no practical example)

- internal feedback is available during/after movement 1.
- 2. called kinaesthesis/proprioception
- this informs about position and quality of performance 3.
- information goes to central control mechanism/perceptual process 4.
- 5. errors are detected/corrected
- comparison between memory trace and perceptual trace 6.
- 7. good movement is reinforced/S-R bond strengthened
- 8. changes initiated by effector system
- 9. muscular system adjusts/changes in movement take place
- 10. level 2 control involves sub-conscious/automatic control
- 11. level 3 control involves conscious control/involves attentional processes.

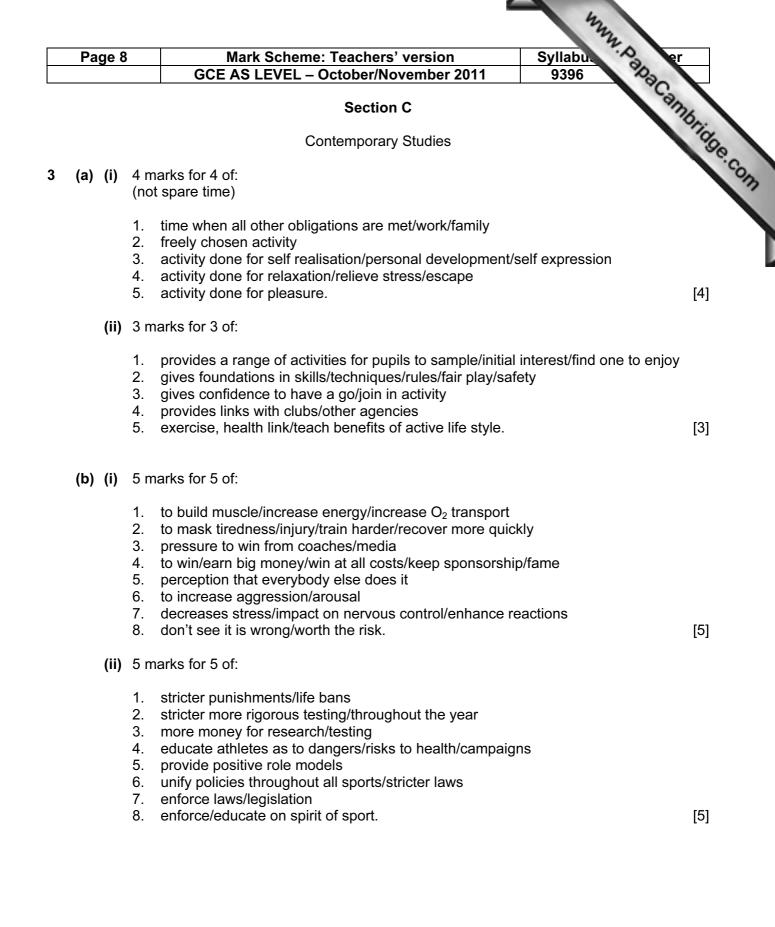
[5]



- 5. recognition schema controls the movement
- 6. perform motor action
- 7. intrinsic feedback
- 8. extrinsic feedback/KR/response outcomes
- 9. amends performance again to achieve goal
- 10. learner practices in a variety of situations/coach manipulates situations/e.g. small sided games
- 11. sensory consequences/kinaesthetic feedback/check whether movement feels right/ judge whether to modify the movement
- 12. coach identifies transferable elements e.g. grip/stance
- coach sets problem learner has to identify solution.

[6]

[Total: 30]



Page 9	Mark Scheme: Teachers' version	Syllabu. er	
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(c) 5 m	narks for 5 of:	Cannot .	
1.	to promote a nation through sporting success/shop window	effect	
2.	 nation building/respect of other countries/promote positive relations with other countries/promote positive relat		
3.	use as a political weapon/statement about activities in othe	r countries	
4.	to express political ideologies		

- (c) 5 marks for 5 of:
 - to promote a nation through sporting success/shop window effect 1.
 - nation building/respect of other countries/promote positive relations with other countries 2. pride
 - 3. use as a political weapon/statement about activities in other countries
 - 4. to express political ideologies
 - 5. economic/more money/tourism/increase investment
 - to improve fitness/health 6.
 - 7. create infrastructure/sports facilities/transport/housing/regional regeneration
 - 8. gain popularity/votes/unify states
 - 9. opportunity for citizens to fulfil potential
 - 10. feel good factor
 - 11. increased participation.
- (d) 8 marks for 8 of:

must have explanation - list not acceptable

1.	(Socio-economic status)	amount of disposable income/employment
2.	(Class)	still class structure in sport
2.	(Gender)	men more likely to participate than women
		stereotyping of women
		female appropriate sports
3.	(Age)	is there provision for over 60's/young people?
4.	(Race/religion/culture/ discrimination)	some ethnic groups still discriminate
		religion may inhibit e.g. dress code
		stereotyping e.g. black athletes may be sprinters
		self discrimination
5.	(Ability)	talent ID/pathways in place
6.	(Disability)	less access/self esteem/sport not for them
7.	(Family/peers/friends)	influences can be positive or negative/level of support
8.	(Previous experience)	enjoyed-disliked PE/previous success/self esteem/self confidence
9.	(Geography)	where you live may limit opportunity
10.	(Government attitudes)	policies/political influences in country
11.	(Role models)	presence/influence

[5]

