UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level

MARK SCHEME for the October/November 2011 question paper

for the guidance of teachers

9396 PHYSICAL EDUCATION

9396/12   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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UNIVERSITY *of* CAMBRIDGE
International Examinations

Section A

Anatomy and Physiology

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

Knee joint

Joint type	Movement occurring	Working muscle
1. hinge	2. extension	3. rectus femoris/vastus medialis/ vastus intermedius/ vastus lateralis *not accept quadriceps

Hip joint

Joint type	Movement occurring	Working muscle
4. ball and socket	5. flexion	6. ilio psoas/adductor brevis/adductor magnus

[6]

(b) 5 marks in total

sub max 3 from: shoulder joint	sub max 3 from: hip joint
1 the socket on the scapula (the glenoid fossa) is small and shallow making the joint less stable/greater ROM 2 the joint capsule is very loose (allowing separation between the two bones) and is less stable 3 the head of the humerus (is not as ball like as the head of the femur), therefore it does not sit as deeply into the glenoid fossa so is less stable 4 the shoulder joint is stabilised by the rotator cuff muscles but these are not as strong as the muscles surrounding the hip/it is relatively easy to dislocate the shoulder joint	5 the socket on the pelvis (the acetabulum) is deep and cuplike in shape making the joint more stable 6 a rim of fibro cartilage adds depth to the acetabulum/adding to stability of socket 7 the head of the femur is very spherical and fits snugly into the acetabulum which aids stability 8 this limits range of movement. 9 the joint is supported by (five) ligaments, (in particular the iliofemoral ligament (the Y ligament) is extremely strong and helps stability) 10 the hip joint is surrounded by large muscle group that aid stability, e.g. gluteus maximus
11 both joints are ball and socket joints and their structural arrangement allows for more types of movement than other joints and a greater ROM.	

[5]

(c) 6 marks in total

sub max 5 marks from:

1   cardiac cycle lasts approx. 0.8 secs/systole 0.3 secs/diastole 0.5 secs
2   during atrial diastole blood enters both atria
3   as ventricular pressure is lower than atrial pressure (ventricular diastole)
4   the AV valves open/tricuspid, bicuspid
5   blood flows from atria to ventricles
6   atria contract
7   AV valves close/tricuspid, bicuspid
8   ventricles contract (ventricular systole)
9   as pressure builds SL valves open
10   blood moved out of the heart into the aorta/pulmonary artery
11   SL valves close

sub max 1 mark from:

12   less time for filling during diastole as HR increases
13   ventricular filling becomes active process
14   diastolic phase shortens   [6]

(d) 4 marks in total

1   <u>de-oxygenated blood leaves</u> the **right ventricle**
2   via the pulmonary artery
3   **oxygenated blood** travels <u>to the</u> **left atrium**
4   via the pulmonary veins   [4]

(e) (i) 5 marks from:

1   respiratory control centre/medulla oblongata controls respiration
2   it can increase the rate of breathing
3   it can increase the depth of breathing
4   chemoreceptors/detect an increase in hydrogen ions/lowering pH/increase acidity
5   chemoreceptors/detect changes in PO_2/concentration O_2
6   chemoreceptors/detect increases in PCO_2/concentration CO_2
7   baroreceptors detect changes in blood pressure
8   proprioceptors in the muscles detect movement
9   (all) stimulate RCC/medulla oblongata to increase rate and depth
10   MO/RCC stimulates the inspiratory respiratory muscles/diaphragm and external intercostals
11   MO/RCC stimulates the expiratory respiratory muscles/abdominal muscles/internal intercostals   [5]

   (ii) 4 marks from:

     1   during inspiration the volume of the lungs needs to be expanded **further**
     2   so that the pressure is **further** reduced
     3   so that **more** air enters the lungs
     4   therefore **more** muscles are stimulated
     5   sternocleidomastoid/pectoralis minor/scalenes
     6   expiration **becomes active**
     7   abdominal muscles/internal intercostals are stimulated   [4]

[Total: 30]

Section B

Acquiring, Developing and Performing Movement Skills

2 (a) max of 6 marks from:
(each must be <u>accompanied by a suitable practical example</u>)

1. (gross) large muscle movements/dynamic/ballistic movements, e.g. a long jump
2. (fine) small muscle movements/intricate movements
3. (open) affected by the environment/predominantly perceptual/externally paced, e.g. receiving a serve in tennis
4. (closed) not affected by the environment/predominantly habitual/open loop movement/internally paced, e.g. a football penalty
5. (high organisation) continuous/one sub routine becomes the beginning of the next/cannot be split into parts/sub-routines easily, e.g. cycling leg action
6. (low organisation) serial/easily split into sub-routines/made up of separate discrete elements, e.g. a triple jump [6]

(b) 4 marks for 4 from:

1. learning involves the stimulus-response (S-R) bond/association between stimulus and response/either strengthened or weakened
2. trial and error success reinforces correct action
3. involves shaping/modifying behaviour
4. reinforcement is essential for learning/reward to strengthen SR bond
5. the effect of behaviour can affect future behaviour
6. law of effect shows that if the result of behaviour is satisfying then the same behaviour is repeated
7. law of exercise shows that if the behaviour/skill is practised/rehearsed then behaviour is likely to reoccur
8. law of readiness shows that the individual must be physically/mentally ready for behavioural change [4]

(c) 3 marks for 3 from:
(<u>must have description with identification</u>)

1. positive reinforcement/praise/reward involves giving stimulus/stimuli to encourage behaviour/movement to be repeated/to strengthen the S-R bond
2. negative reinforcement involves removal of adverse stimulus
3. adverse stimulus is removed when correct action occurs – strengthens SR bond
4. punishment involves giving a stimulus/stimuli to stop undesirable behaviour/movement/to break the undesirable S-R bond [3]

(d) 4 marks for 4 from:
(example must be given for both marks)

   1   (terminal) – feedback given at the <u>end of the movement</u> that provides information (about results/performance)
   2   e.g. after a golf shot the golf coach tells you about your swing technique
   3   (concurrent) – feedback given <u>during the activity</u> that provides information about results/performance
   4   e.g. during a trampoline sequence the teacher calls out advice about the movements involved.   **[4]**

(e) 5 marks for:

(definition of arousal)
(sub max of 1 mark)
   1   intensity aspect of motivation/level of motivation/drive to achieve a goal/energised state/readiness for action/cognitive and somatic activation/or equivalent

(drive theory)
(sub max of 4)
allow diagram with axes correctly labelled for no. 2
   2   relationship between arousal and performance is linear/the greater the arousal the better the performance
   3   the dominant (learned) response is intensified/more likely to occur with high arousal
   4   (cause of high arousal could be) as intensity of competition increases learned behaviour more likely to occur
   5   P = H x D/performance is a result of habit times drive
   6   if learned response is <u>correct</u> then performance is enhanced
   7   if learned response is <u>incorrect or not fully learned</u> then performance is hindered
   8   drive theory does not explain why good performers can experience a drop in performance when arousal is high   **[5]**

(f) 5 marks for:

   1   input data/information/stimuli from display/display/environment
   2   sense organs/receptors receive the stimuli
   3   perceptual mechanism interprets/judges information
   4   DCR/SMT/STSS/SA
   5   translatory mechanism involves decision making/formulating a motor plan
   6   effector mechanism relays decisions to muscular system
   7   muscles move/response/output
   8   feedback available to give information about performance/outcome   **[5]**

(g) 3 marks for 3 from:

    1   perception interprets/judges information

    2   different individuals have different perceptions of the same stimuli/performance may differ because of different perceptions/others may be more creative therefore perceptions are individualised

    3   perception filters/selects information/enabling irrelevant information to be ignored//enables focus and selective attention/concentration/detection of appropriate stimuli

    4   to make sense of it to the individual

    5   perception codes information

    6   perception includes use of the memory

    7   the more experiences/the more information/the performer can draw/comparison with other information/the better the perception

    8   recognition of appropriate movement patterns/motor programmes from LTM

    9   perception uses schema to refine/inform processing – to make performance effective [3]

[Total: 30]

Section C

Contemporary Studies

3 **(a)** **(i)** 4 marks for 4 of:

      1   spontaneous
      2   fun/enjoyment
      3   childlike activity
      4   freedom of choice
      5   freedom of time
      6   choice of space
      7   non-serious/non competitive
      8   intrinsic value/self fulfilling
      9   non-productive/result not important
     10 negotiated   [4]

    (ii) 3 marks for 3 of:

      1   solve problems/make decisions
      2   co-operate and make friends with others/social
      3   acquire physical skills
      4   practice real life situations/learn about life/imaginative
      5   moral decisions/fair/judgements
      6   health/fitness
      7   socialisation   [3]

  (b) **(i)** 6 marks in total.
          2 marks for 2 of: active leisure

      1   keeping fit/healthy
      2   taking part in outdoor activity/use of examples
      3   finding a life time activity
      4   activity done in free time/time away from obligations

          2 marks for 2 of: appreciation and respect for the natural environment

      1   beautiful scenery/in touch with natural world
      2   away from urban environment
      3   value/wish to preserve environment
      4   concern about conservation issues

          2 marks for 2 of: adventure and risk to the individual

      1   unpredictability of natural environment/danger
      2   feelings of challenge/worry/fear
      3   beginner: avoid real risk by careful planning/adhere to safety codes/risk assessments/subjective danger/perceived risk
      4   expert: objective danger/real risk
      5   feel good factor/sense of achievement   [6]

(ii) 4 marks for 4 of:

1 developments in technology/inventions/equipment
2 equal opportunities/legislation/funding/facilities
3 organisations/policies/agencies set up to help disabled/campaigns
4 more coaches/helpers/support for disabled/role models
5 increased understanding of benefits of activity for disabled/media help
6 greater understanding of capabilities of disabled   [4]

(c) 6 marks for 6 of:
(<u>must relate to a country</u>)
max 4 marks if no country identified

1 description of Government policies/initiatives/schemes/relating to talent ID and talent development
2 description of pathways in place to achieve excellence/organisation of sport
3 provision for funding/grants/sponsorship/scholarships
4 provision of facilities/local/regional/national/equipment/technology
5 provision/education of coaches
6 provision of centres of excellence/schools/universities/academies
7 provision of medical/sport science support
8 description of policies/showing attitudes towards excellence
9 wider participation base/school programmes/give more reaching top of pyramid   [6]

(d) 7 marks in total:

1 lowering crime rate
2 social control/involvement of individuals in worthwhile activity
3 improve health and fitness of the community
4 reduce cost of health care
5 improve pride in community/image
6 improve integration/races
7 acquire physical skills
8 produce more elite performers
9 provide employment/more income
10 happiness/mental fitness
11 creating/improving/infrastructure   [7]

[Total: 30]