



## **General Certificate of Education**

# **Health and Social Care**

## **8626/8629**

**HC13**

# **Mark Scheme**

*2009 examination – January series*

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available to download from the AQA Website: [www.aqa.org.uk](http://www.aqa.org.uk)

Copyright © 2009 AQA and its licensors. All rights reserved.

#### COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

1ai)	Ref to VO <sub>2</sub> max being – a measure of aerobic fitness (1) being the maximum volume of oxygen (1) taken in and used (1) per minute (1) millilitres of oxygen per kilogram (of bodyweight) (1)	max 4	4 marks
aii)	Ref to stamina – as endurance AW (1) muscles (1) withstanding fatigue AW (1)	max 2	2 marks
aiii)	Ref to mobility – ability to move (1) with speed (1) balance (1) and/or endurance AW (1) flexibility (1) depends on strength of the individual (1)	max 4	4 marks
b)	Ref to regular exercise helping Nikke to slow AW rate of body system deterioration (1) by maintaining/slowing loss of: muscle strength (1) stamina (1) muscle tissue AW loss (1) flexibility AW (1) by stretching ligaments (1) tendons (1) bone strength (1) by slowing loss of calcium (1) cardiac output (1) in terms of stroke volume AW (1) respiratory function AW (1) in terms of lung capacity (1) and metabolic rate (1) reduces/keeps stable blood pressure (1) reduces blood cholesterol (1) and so reduces risk of atherosclerosis (1) heart disease (1) stroke AW (1)	max 8	8 marks
c)	Ref to Nikke benefiting – socially – meeting/interacting with people (1) - emotionally – feeling good about herself (1) weight loss (1) psychologically/mentally – maintaining good concentration/clear thinking (1)	max 2	2 marks
2a)	Ref to a warm down – allows lactic acid (1) produced by anaerobic respiration (1) to be oxidised (1) preventing discomfort AW (1) reduces blood pooling (1) in veins (1) prevents dizziness (1) by maintaining elevated heart rate (1) allows slow reduction in muscle temperature (1) prevents muscle/body tissue damage (1) allows mental relaxation (1)	max 8	8 marks
b)	Ref to: medical checks/expert advice (1) in order to prevent injury/prevent overexertion (1) obtain appropriate clothing/footwear (1) in order to prevent injury/keep warm/prevent overheating/allow sweating/comfort/freedom of movement (1) use appropriate equipment (1) in order to prevent injury/avoid accidents (1)		4 marks
c)	Ref to Carbohydrates (1) sugars/starches (1) stored as glycogen (1) converted to glucose (1) for energy supply/respiration (1) to supply muscle contraction (1) fats (1) which contain triglycerides (1) converted to free fatty acids for energy (1) needs more oxygen than Carbohydrates to do this (1) for exercise over long periods glycogen and fats used (1) shorter exercise periods, glycogen alone usually sufficient (1)		8 marks
3ai)	Re BMI Adult A – Obese AW (1) Adult B – Underweight (1) Adult C – Overweight (1) Adult D – Normal (1)	Ignore average	4 marks
aii)	Ref BMI – does not indicate body fat AW (1) ‘muscular’ individual may have high BMI yet be very fit (1)	Ignore “build”	2 marks

- bi) Resting pulse Adult A – high/above normal range suggests unfit/least fit (1)  
 Adult B – in normal range/suggests fit/similar to D (1)  
 Adult C – below normal range/relatively very fit/fittest (1)  
 Adult D – in normal range/suggests fit/similar to B (1)  
 4 marks
- bii) Recovery rate Adult A – least fit of others (1)  
 Adults B & C – similar fitness (1) fitter than A/ not  
 as fit as Adult D (1)  
 Adult D – fittest of all 4 (1)  
 Allow 1 mark for applied explanation – faster recovery to resting rate –  
 the fitter the individual or vice versa (1) 4 marks
- biii) Perceived exertion records: Adult A finds exercise more demanding than  
 others AW (1) as rise greatest between gentle and moderate/ 8 point rise (1)  
 Adults B/C find exercise demand similar (1) both 5 point rises/similar rise  
 in effort level (1) Adult D finds exercise demands light AW (1) as only  
 3 point rise/low values on 20 point scale (1)  
 Allow 1 fitness point 6 marks
- 4a) Ref to: skill/fitness level AW (1) overcome by beginners classes/exercise  
 at home/exercise with a friend (1) facility locations (1) exercise at home/  
 walking – jogging/energetic housework (1) work/family commitments/  
 time (1) overcome by walking to work/exercise with family (1)  
 culture (1) single gender gym sessions(1) max 2 + 2 4 marks
- b) Ref to: a very gentle exercise to start AW (1)with small progression steps  
 increasing demand AW (1) suitable suggestion for activities – walking/  
 swimming/cycle or similar (1) following screening/examination by GP (1)  
 ideal exercise includes all fitness elements AW (1) minimum high  
 intensity work (1) concentrate rhythmic/low intensity activity (1) max 4 4 marks
- c) Relevant diseases include heart disease/cardiovascular disorders/  
 cerebral infarction – stroke AW/ type 2 diabetes (not type 1)/diseases  
 associated with obesity.  
 Relevant points may include – genetics may make some individuals  
 more at risk of developing certain diseases and disorders  
 - lifestyle factors/choices affects level of risk  
 - regular exercise benefits relating to lung capacity/cardio vascular function  
 - atherosclerosis/blood cholesterol/weight loss (physiological detail)  
 - metabolic/respiratory rate using up sugar/maintaining blood sugar levels  
 - some risks of damage due to overexertion/'addiction' to exercise  
 - individuals vary – no prevention of disease/disorder guarantees

Band 1 - 1 – 4 marks

Candidates here will produce generally vague responses lacking in both depth and detail e.g. mentioning 1/2 diseases or disorders with little physiological detail. For 3/4 marks should include at least three different points of relevance albeit in limited detail.

Band 2 5 – 8 marks

Generally candidates will produce more detailed responses. For 5/6 marks covering 2/3 diseases/disorders in some detail. For 7/8 marks at least 3 diseases/disorders covered in good detail with no significant errors or omissions.

**Band 3 9-12 marks**

Top band answers will be very detailed covering at least 4 diseases/disorders for 9/10 marks.

For 11/12 marks should also include very good physiological detail e.g. relating to atherosclerosis and LDL.

12 marks

**HSC HC13 JANUARY 2009**

	AO1	AO2	AO3	AO4
1ai	4			
aii	2			
aiii	4			
b		8		
c		2		
2a	3		3	3
b	2			2
c	4		2	2
3ai			2	2
aii			2	2
aiii			2	2
aiv			4	2
b		2		
4a		2	2	
b		4		
c	4		3	5
TOTALS	22	18	20	20
%	27.5	22.5	25	25

PAPER TOTAL: 80 = 100%