



**General Certificate of Education**

**Health and Social Care  
8621/8623**

**HC13**

**Mark Scheme:**

*2008 examination – January series*

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**HC13 JANUARY 2008 MARK SCHEME**

- 1ai) Maximal oxygen uptake/maximal aerobic power/VO<sub>2</sub> max 1 mark
- aii) Any 3 of: Majid's age/genetics AW/(absence/presence respiratory) disease  
Allow amount of exercise performed  
Not fitness max 3 3 marks
- b) Ref to Michael developing 'feeling good' AW(1) with raised self esteem/  
self concept (1) raised self confidence (1) ref to chemical (1) stimulated/  
released into brain (1) by nerve endings (1) allow named example  
endorphins/endomorphins/enkephalins/serotonin (1) stimulating motivation AW/  
mood changing (1) max 7 7 marks
- c) 1. Ref to: ability of neuro muscular system AW (1) to overcome  
resistance (1) with high speed of contraction (1) allow suitable example –  
throwing/jumping/sprinting (1) max 3 3 marks
2. Ref to: endurance AW (1) muscles (1) withstanding fatigue AW (1) 3 marks
3. Ref to: ability to move AW (1) dependent on strength (1) stamina (1)  
flexibility (1) speed (1) balance (1) max 3 3 marks
- Total 20 marks
- 2ai) Ref to warm downs – preventing discomfort AW/soreness/stiffness (1) maintaining  
elevated/gradually reduce heart rate AW (1) allows lactic acid (1) to be oxidised/metabolic rate  
maintained (1) reducing blood pooling (1) in veins (1) prevents dizziness (1) allows muscle  
temperature to drop slowly (1) preventing muscle damage (1) allows mental  
relaxation (1) gradually reduce ventilation rate AW (1) max 9 9 marks
- 2aii) Ref to – medical checks/expert advice (1) to prevent over exertion/  
injury (1) 2 marks
- Ref to – selecting appropriate clothing/footwear (1) to prevent accidents/  
maintain comfort/ease of body to keep warm, lose heat/allow ease of  
movement/sweat loss (1) 2 marks
- Ref to – selecting appropriate monitoring equipment (1) to prevent  
over exertion/to work within personal limits (1) 2 marks
- max 2 + 2 4 marks
- b) Ref to – (Energy equation) food intake AW (1) supplies energy (1) generally  
from carbohydrate/fat (1) convert to glucose (1) energy "used up by" regular exercise AW (1) in  
respiration of tissues (1) to allow movement (1) ref to joules /calories (1)  
balance – weight maintained (1) input greater than output or vice versa  
weight positive balance AW gained (1) ref exercise increases metabolic  
rate (1) easier to maintain weight/achieve negative balance AW (1) max 7 7 marks
- Total 20 marks

- 3ai) Ref to: Person A outside 'normal' range AW/below/very fit  
 Person B in normal range (1)  
 Person C in normal range (1)  
 Person B/Person C may be less fit/fitter (1)  
 max 3 3 marks
- aii) Ref to: Person B least fit (1) as pulse rises most (1) does not return to resting rate after 9 minutes AW (1)  
 Persons A/C fitter than B (1) since returns pulse to resting rate by 9 minutes (1)  
 Persons A/C similar level of fitness (1)  
 Allow Person A lowest rise/rate + 25/27 bpm (1)  
 Person B highest rise/rate + 43/47 bpm (1)  
 Person C 'mid' rise/ + 28/30 bpm (1)  
 max 6 6 marks
- bi) Ref to: while person exercises AW (1) asked/records how hard/how much effort exerted AW (1) overall effort at set intervals (1) on scale 0-10/0-20/6-20 or similar (1) where 0/6 is zero or little effort/10/20 is maximum effort (1) max 4 4 marks
- bii) Ref to: as it is a subjective measure AW (1) difficult to compare values AW (1) allow example – one person's score of 6, equal to another's score of 8 for the same effort (1) same person's perceptions may also change (1) Ignore standardised. 3 marks
- c) Ref to: when exercising in groups/teams/with others (1) opportunity to interact socially (1) meet new people AW/widen social circle (1) form new friendship groups (1) develop social skills (1) max 4 4 marks
- Total 20 marks
- 4a) Ref to barriers: full time work (at computer) (1) long way from facilities (1) ref husband (1) not good at sports/physical games (1) max 3 3 marks
- May be overcome by: exercise on way/or at work (1) exercise at home – doing housework (1) (re not good sports) exercise with friend/try beginners class (1) (family) – encourage husband to exercise together (1) linked max 3 3 marks
- b) Any 2 of heart attack/disease/atherosclerosis/cerebral infarction AW/ type 2 diabetes/obesity  
 Not angina max 2 2 marks
- c) Ref to: aims of the programme/suitability of programme/examples of suitable exercises – weight bearing or not/low impact/need to consider safety features/ good practice/barriers/aerobic –muscular aspects of fitness/monitoring methods/ disease or disorders. These points can be drawn from across the other six sub sections.

**Band 1 - 1-4 marks**

Generally vague responses lacking in detail and depth, possibly covering only 1-2 different aspects for 3/4 marks should cover and least three different aspects in a little detail.

**Band 2 - 5-8 marks**

More detailed and wider ranging responses. Details explaining how and why aspects are important. For 7-8 marks should cover at least five different aspects.

**Band 3 - 9 – 12 marks**

Very detailed responses, covering much of possible range. If more limited in range coverage, will have good physiological detail of how and why aspects are important. For 11/12 marks should cover at least seven different aspects.

12 marks

Total 20 marks

Paper total 80 marks