

General Certificate of Education
June 2007
Advanced Level Examination



HEALTH AND SOCIAL CARE
Unit 13 The Role of Exercise in Maintaining Health
and Well-being

HC13

Thursday 14 June 2007 1.30 pm to 3.30 pm

For this paper you must have:

- a 12-page answer book.

Time allowed: 2 hours

Instructions

- Use blue or black ink or ball-point pen.
- Write the information required on the front of your answer book. The *Examining Body* for this paper is AQA. The *Paper Reference* is HC13.
- Answer **all** questions.
- Do all rough work in the answer book. Cross through any work you do not want to be marked.

Information

- The maximum mark for this paper is 80.
- The marks for questions are shown in brackets.
- You are reminded of the need for good English and clear presentation in your answers. Quality of Written Communication will be assessed in answers written in continuous prose.

Answer **all** questions.

Each question carries 20 marks.

- 1** Naomi is an 18-year-old female with a low VO_2 max. She feels very stressed at work and decides to begin training using an aerobic exercise programme.
- (a)
 - (i) Give **two** factors, other than age and sex, which may affect Naomi's VO_2 max. *(2 marks)*
 - (ii) Explain what is meant by VO_2 max. *(4 marks)*
 - (b) Describe the likely short-term physiological effects of training on Naomi's body. *(5 marks)*
 - (c) Explain how maintaining the aerobic exercise programme may benefit Naomi in terms of:
 - (i) stress control *(7 marks)*
 - (ii) endurance. *(2 marks)*
- 2** Adrian is a healthy 56-year-old. He exercises regularly. Before each exercise session, Adrian performs a warm-up.
- (a) Explain how a warm-up will help to prepare Adrian's body for exercise. Refer to physiological processes in your answer. *(8 marks)*
 - (b) Explain how regular exercise will help Adrian to combat ageing. Refer to physiological processes in your answer. *(12 marks)*

3 The following data were obtained from four healthy 20-year-old males.

	Adults measured			
Measurement	Adult W	Adult X	Adult Y	Adult Z
BMI	18	21	32	23
Peak flow (dm ³ /min)	475	560	580	310
Resting pulse (bpm)	66	55	85	63
Recovery time to resting pulse after identical exercise (mins)	4	3	6	4

(a) Compare the relative fitness levels of the four male adults in terms of the:

- (i) BMI calculations (4 marks)
- (ii) peak flow recordings (4 marks)
- (iii) resting pulse rates (4 marks)
- (iv) recovery times after identical exercise. (4 marks)

(b) Spirometry can be used to monitor tidal volumes and minute ventilation during exercise.

- (i) Explain what is meant by tidal volume. (2 marks)
- (ii) Explain how minute ventilation is calculated. (2 marks)

4 Rhona is a young single parent with two pre-school children. She has little spare cash after paying for necessities for herself and the children. She does not exercise and finds that housework quickly tires her.

- (a) Identify **three** barriers to exercise in Rhona's life and suggest **one** different way to overcome each barrier. (6 marks)
- (b) Suggest **four** principles of good exercise practice and safety, other than warming up before exercising, that Rhona should observe. Give **one** different reason to explain why each is important. (8 marks)
- (c) Explain how regular exercise may help Rhona:
 - (i) socially (3 marks)
 - (ii) to raise her self-esteem. (3 marks)

END OF QUESTIONS

There are no questions printed on this page