



General Certificate of Education  
Advanced Level Examination  
January 2011

## Health and Social Care

## HC13

**Unit 13 The Role of Exercise in Maintaining Health and Well-Being**

**Thursday 27 January 2011 1.30 pm to 3.30 pm**

**For this paper you must have:**

- a 16-page answer book.

### **Time allowed**

- 2 hours

### **Instructions**

- Use black ink or black 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 your answer book. Cross through any work that you do not want to be marked.

### **Information**

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You will be marked on your ability to:
  - use good English
  - organise information clearly
  - use specialist vocabulary where appropriate.

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Answer **all** questions

There are 20 marks for each question.

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**Question 1**

Leroy and Tom are healthy adult males who start to train regularly. They have their  $VO_2$  max measurements recorded each month. Leroy's  $VO_2$  max is higher than Tom's on each occasion it is measured.

- 0 | 1** Explain what  $VO_2$  max measures. Include in your answer the units of measurement. *(5 marks)*
- 0 | 2** What do Leroy's  $VO_2$  max measurements indicate about his fitness in comparison to Tom's  $VO_2$  max measurements? *(1 mark)*
- 0 | 3** Explain the long-term physiological effects of regular training on Leroy and Tom and how their  $VO_2$  max measurements will be affected. *(8 marks)*
- 0 | 4** Explain, using an example, what is meant by dynamic strength (power). *(3 marks)*
- 0 | 5** Muscle strength is one of the two main factors which contribute to high mobility. Name the other main factor and briefly explain how it contributes to mobility. *(3 marks)*

**Question 2**

- 0 | 6** Explain how regular exercise can contribute to the emotional and social well-being of individuals. *(6 marks)*
- 0 | 7** With reference to physiological processes, explain the benefits of warm-down programmes after strenuous exercise. *(5 marks)*
- 0 | 8** Discuss the extent to which regular exercise may help combat the effects of ageing. Refer to physiological processes in your answer. The quality of written communication will be assessed in this question. *(9 marks)*

**Question 3**

The following data were obtained from three healthy 25-year-old adult females.

	Female X	Female Y	Female Z
Resting pulse rate (bpm)	69	85	71
Pulse rate after 5 minutes of exercise (bpm)	104	147	97
Recovery time to resting pulse rate (mins)	6	6	3
Body Mass Index (BMI)	22	34	21

- 0 9** Compare the three females in terms of resting pulse rates. *(3 marks)*
- 1 0** Compare the three females in terms of pulse rates after 5 minutes of exercise and recovery time to resting pulse rate. *(5 marks)*
- 1 1** Compare the three females in terms of Body Mass Index (BMI). *(3 marks)*
- 1 2** Describe how resting pulse rate and recovery time to resting pulse rate can be measured using a watch. *(7 marks)*
- 1 3** Give **one** strength and **one** limitation of using pulse rates as a measure of fitness. *(2 marks)*

**Question 4**

Rick is 47 years old and is recovering from a serious illness. He has been advised to exercise regularly but the only facility is a gym which is ten miles away. The distance is a barrier to regular exercise for Rick.

- 1 4** Suggest **two** different ways how Rick may overcome this barrier. *(2 marks)*
- 1 5** Apart from illness and distance, give **two** other common barriers to regular exercise. *(2 marks)*
- 1 6** Describe a suitable exercise programme for Rick. *(6 marks)*
- 1 7** Explain how regular exercise may help to prevent **three** named major diseases or disorders. Refer to physiological processes in your answer. The quality of written communication will be assessed in this question. *(10 marks)*

**END OF QUESTIONS**

**There are no questions printed on this page**