OCR
Oxford Cambridge and RSA

GCSE Physical Education

J587/01 Physical factors affecting performance

Question Set 4
Section B: Applied Anatomy and Physiology

1 (a) Describe, using a sporting example for each, how the skeleton allows the following functions.

Protection:

Movement:

[2]

1 (b) (i)

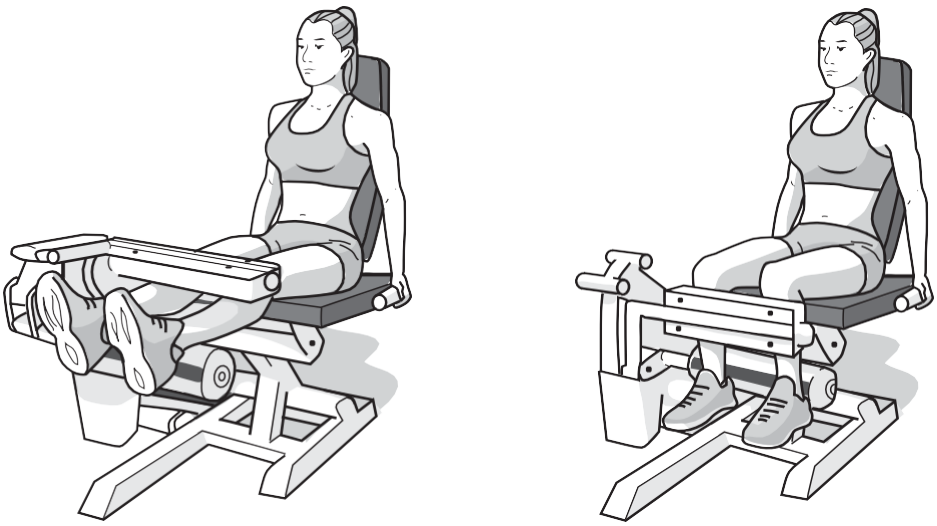

Fig. 1

Name the leg muscle that contracts during the extension phase of the exercise in **Fig. 1**. **[1]**

1 (b) (ii) Explain how the pair of muscles at the knee work together during the extension phase of the exercise in **Fig. 1.** **[2]**

1 (b) (iii) Name the **two** articulating bones at the hip during the movement in **Fig. 1.** **[2]**

1 (c) In the box below, draw and label the lever system used at the neck when heading a ball in football.

[3]

2 (a) Describe the long-term effects of a six-month training programme on the heart. **[5]**

2 (b) (i) Describe the differences between the pulmonary artery and the pulmonary vein. **[4]**

2 (b) (ii) Name the blood vessel responsible for returning deoxygenated blood back to the heart and into the right atrium. **[1]**

3 (a) Explain the short-term effects on the heart and the blood of a swimmer performing a 100m front crawl. **[5]**

3 (b) (i) A swimmer who undergoes a six-month training programme will experience muscular hypertrophy.

What is meant by the term 'muscular hypertrophy'? **[1]**

3 (b) (ii) Describe other muscular benefits the six-month training programme might have for the swimmer. **[4]**

4 **Fig. 2** below shows the respiratory rate for two hockey players before, during and after a match.

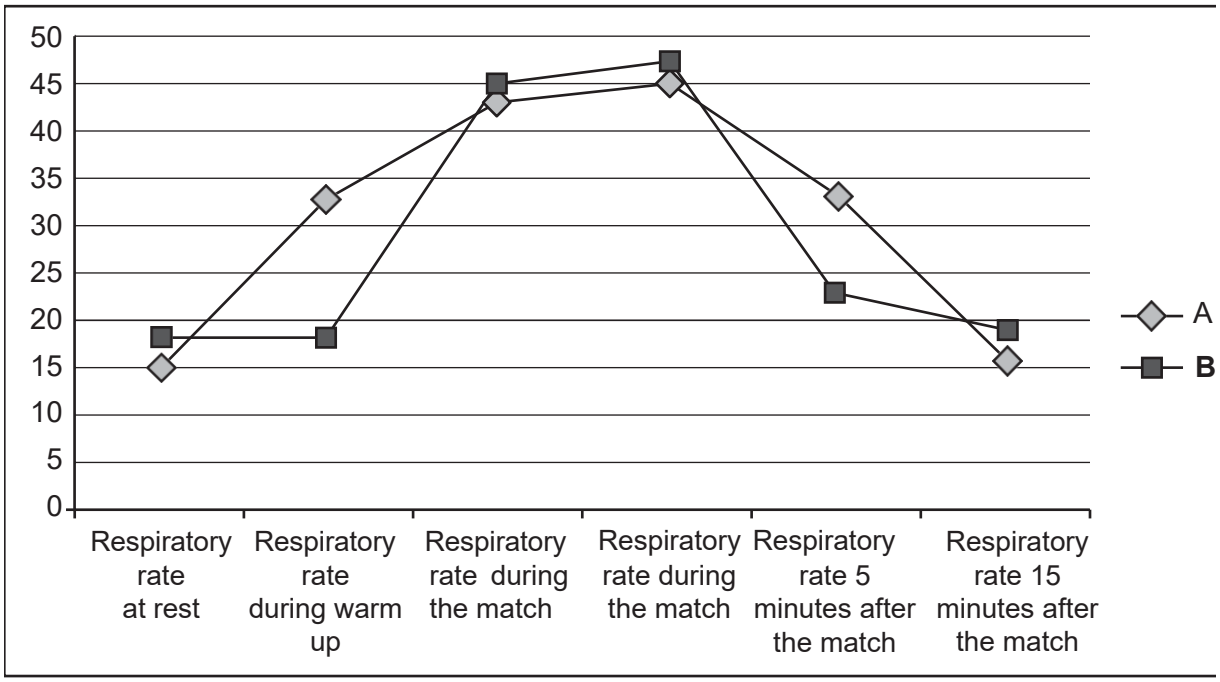

Fig. 2

4 (a) Using the information in **Fig. 2**, analyse how the two players' respiratory rates compare and why they may be different. **[3]**

4 (b) Explain the role of respiratory muscles during inspiration while player A is performing in the hockey match. **[4]**

4 (c) Analyse the effects that lactic acid could have on the performance and recovery of the hockey players. **[3]**

5 (a) Describe the long-term effects of exercise on the respiratory system and how these effects may benefit a marathon runner. **[5]**

5 (b) Using practical examples, describe the redistribution of blood during exercise. **[5]**

6 (a) (i) Name a practical example from sport of a 3rd class lever system. **[1]**

6 (a) (ii) In the box below, sketch and label a diagram of a 3rd class lever system.

[3]

6 (b) Explain the differences between a 2nd class and a 3rd class lever system and describe how they operate to produce movement in sport.

[4]

6 (c) Identify the **two** different types of movement that can take place at the shoulder joint.

1.
.....

2.
.....

[2]

Total Marks for Question Set 4: 60

Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge