

Modified Enlarged 24 pt
OXFORD CAMBRIDGE AND RSA
EXAMINATIONS

Thursday 19 May 2022 – Morning

**Level 3 Cambridge Technical in Sport and
Physical Activity**

05826/05827/05828/05829/05872

**Unit 1: Body systems and the effects of
physical activity**

**Time allowed: 1 hour 30 minutes plus your
additional time allowance**

You can use:
a calculator

Please write clearly in black ink.

**Centre
number**

--	--	--	--	--

**Candidate
number**

--	--	--	--

First name(s) _____

Last name _____

**Date of
birth**

D	D	M	M	Y	Y	Y	Y
---	---	---	---	---	---	---	---

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS

Use black ink. You can use an HB pencil, but only for graphs and diagrams.

Answer ALL the questions.

Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.

Where appropriate, your answer should be supported with working. Marks might be given for using a correct method, even if your answer is wrong.

INFORMATION

The total mark for this paper is 70.

The marks for each question are shown in brackets [].

Quality of written communication will be assessed in the question marked with an asterisk (*).

ADVICE

Read each question carefully before you start your answer.

SECTION A

Answer ALL the questions. Put a tick (✓) in the box next to the ONE correct answer for each question.

1 Which one of the following components of blood transports oxygen around the body? [1]

(a) Red blood cells

☐

(b) White blood cells

☐

(c) Arterioles

☐

(d) Plasma

☐

2 Which one of the following describes the movements possible at the radio-ulnar joint? [1]

(a) Flexion and extension

☐

(b) Medial and lateral rotation

☐

(c) Pronation and supination

☐

(d) Adduction and abduction

☐

3 Which one of the following describes the role of an antagonist muscle? [1]

(a) Muscle that causes movement

☐

(b) Muscle that assists the agonist

☐

(c) Muscle that stabilises a joint

☐

(d) Muscle that opposes movement

☐

4 Which one of the following is NOT a by-product of energy production? [1]

(a) Pyruvic acid

☐

(b) Lactic acid

☐

(c) CO₂

☐

(d) H₂O

☐

5 Which one of the following carries deoxygenated blood into the right atrium? [1]

(a) Right ventricle

☐

(b) Vena cava

☐

(c) Pulmonary vein

☐

(d) Pulmonary artery

☐

6 Which one of the following is the full name for ATP? [1]

(a) Adrenaline triphosphate

☐

(b) Adrenaline triphosphorus

☐

(c) Adenosine triphosphorus

☐

(d) Adenosine triphosphate

☐

7 Consider the following statements:

A The patella is a sesamoid bone.

B The scapula is a flat bone.

C Phalanges are short bones.

Which one of the following statements is correct? [1]

(a) A and B are true.

☐

(b) A and C are true.

☐

(c) B and C are true.

☐

(d) A, B and C are true.

☐

8 Give a typical value for breathing frequency at rest per minute.

_____ **[1]**

9 Define the term 'cardiac output'.

_____ **[1]**

10 Which energy system can break down fats to produce energy?

_____ **[1]**

SECTION B

Answer ALL the questions.

- 11 (a) Complete the table to state whether each bone is part of the axial or appendicular skeleton. [3]**

Bone	Axial or Appendicular
Ribs	
Clavicle	
Sternum	

(b) Describe how the skeleton performs each of the following functions:

Mineral storage _____

Movement _____

Protection _____

Support _____

[4]

12 Joints are classified according to the amount of movement that they allow.

(a) State the THREE classifications of joint and give an example of each in the human body.

1 _____

Example: _____

2 _____

Example: _____

3 _____

Example: _____

[3]

- (b) FIG. 12 shows an athlete preparing to throw a javelin.

FIG. 12



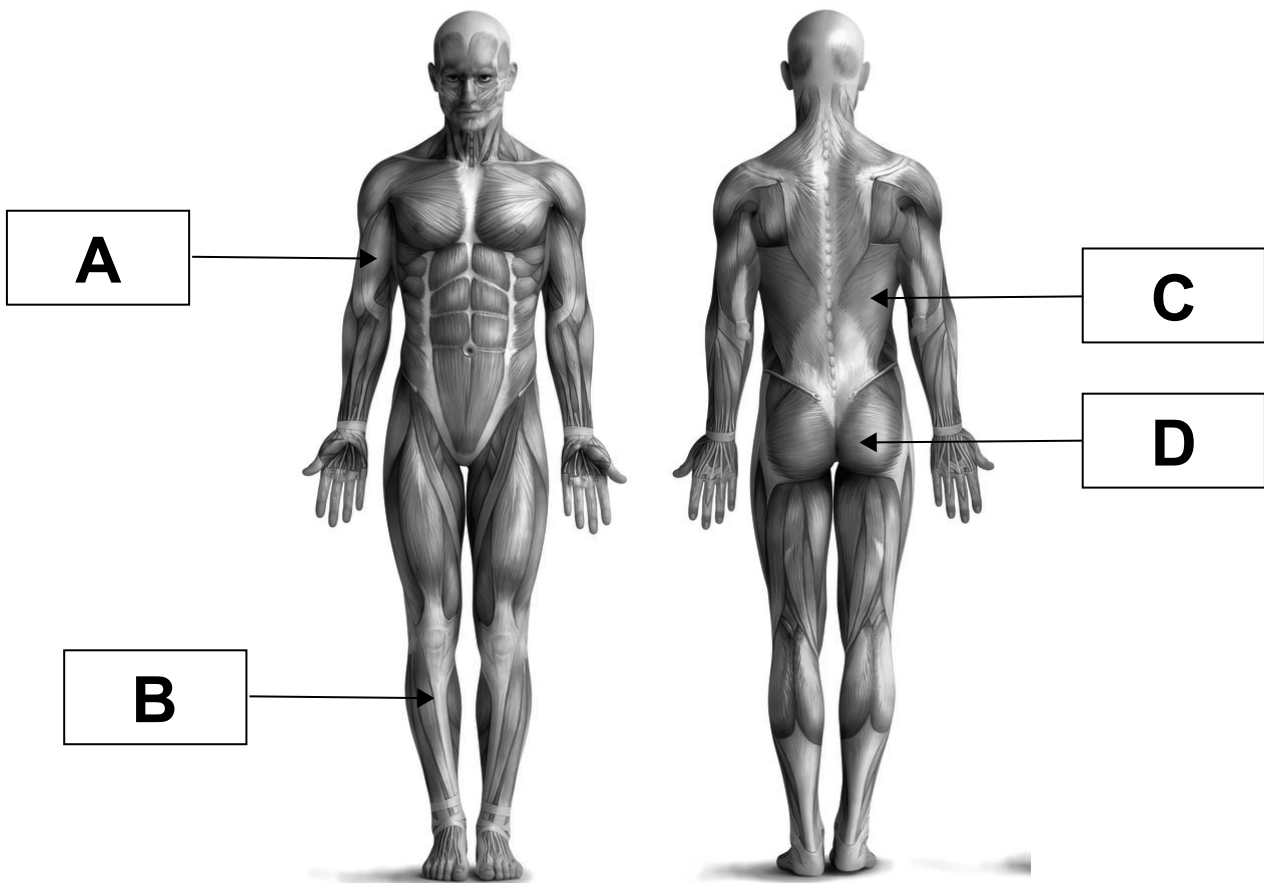
Complete the table to identify the type of movement that has occurred to achieve the joint positions shown in FIG. 12. [3]

Joint	Joint movement
Right elbow	
Right shoulder	
Lumbar vertebrae	

BLANK PAGE

13 (a) FIG. 13 shows the major skeletal muscles of the body.

FIG. 13



Identify the muscles labelled A, B, C and D.

A _____

B _____

C _____

D _____

(b) Describe what happens to a muscle during each of the following types of muscle contraction:

Concentric _____

Isometric _____

Eccentric _____

[3]

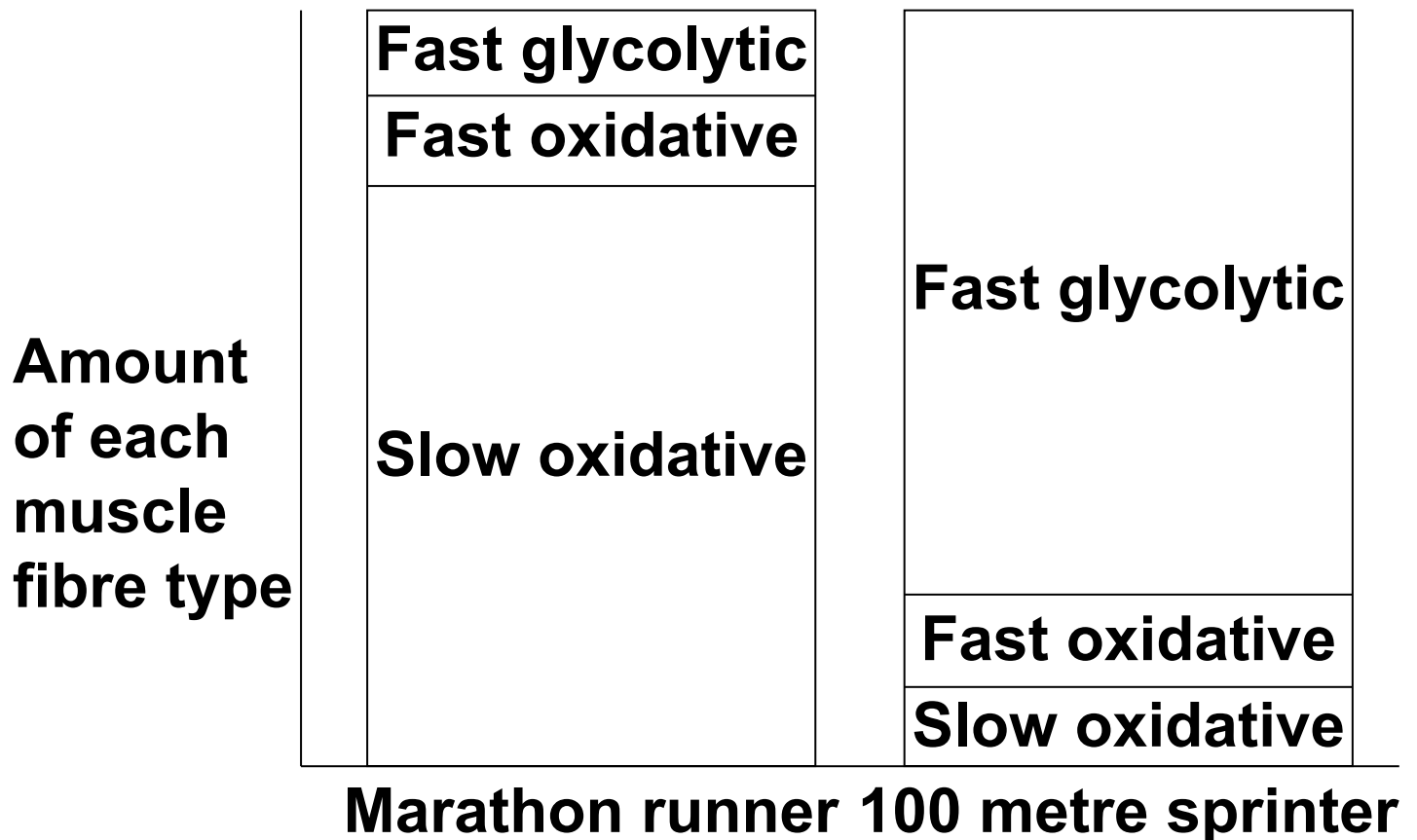
14 Describe the effects of a warm up on the muscular system.

[3]

BLANK PAGE

15 FIG. 15 shows the amount of each muscle fibre type in the muscles of two elite athletes.

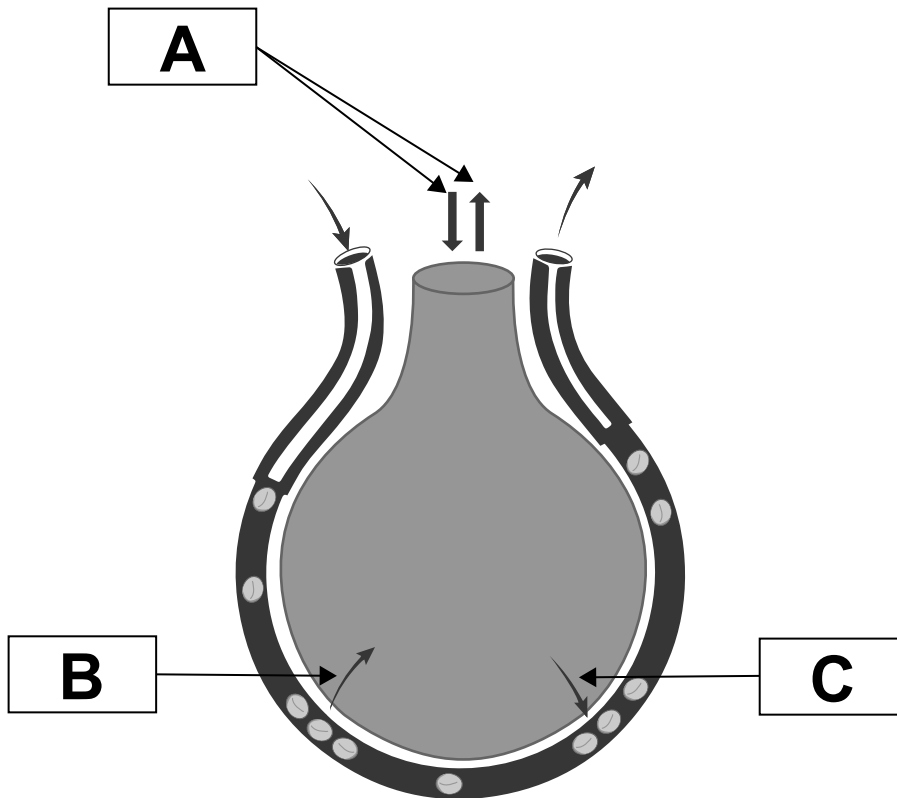
FIG. 15



[6]

16 FIG. 16 shows the process of gaseous exchange at one alveolus (air sac) within the alveoli.

FIG. 16



(a) Identify the gases labelled A, B and C.

A _____

B _____

C _____

[3]

(b) Explain how differences in partial pressures allow gaseous exchange to take place at the alveoli.

[4]

17 Complete the paragraph below about part of the respiratory system. [5]

**Air enters the _____
where mucus membranes
_____ the air.**

**It then enters the _____
which is a passage to the larynx and
digestive system.**

**The _____
prevents food entering the airways. After
passing through the larynx, air enters
the _____
which has rings of cartilage that keep the
airway open at all times.**

18 Describe the long-term effects of regular physical activity on the following:

Tidal volume _____

Breathing frequency _____

Resting minute ventilation _____

[3]

19 Describe the ATP-PC energy system, also known as the alactic system.

[4]

20 The recovery process for each energy system involves different processes and timescales.

Outline ONE process involved in the recovery of the ATP-PC system and state how long it takes for full recovery.

Process _____

Timescale _____

[2]

SECTION C

21* Explain how and why blood is redistributed around the body during exercise.

Your answer should include:

Vascular shunt mechanism

Role of arterioles

Role of pre-capillary sphincters. [10]

END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional answer space is required, you should use the following lined pages. The question numbers must be clearly shown in the margins – for example, 11(a) or 13(b).

[illegible]



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 Copyright Team, OCR (Oxford Cambridge and RSA Examinations), The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of Cambridge University Press & Assessment, which is itself a department of the University of Cambridge.

© OCR 2022

Version 5