

## 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**  
**C400/2206**

**You can use:**  
• a calculator



Please write clearly in black ink.

Centre number

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Candidate number

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First name(s)

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Last name

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Date of birth

D	D	M	M	Y	Y	Y	Y
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#### 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 (\*).
- This document has **16** pages.

#### ADVICE

- Read each question carefully before you start your answer.

FOR EXAMINER USE ONLY	
Question No	Mark
Section A: 1-10	/10
Section B: 11	/7
12	/6
13	/7
14	/3
15	/6
16	/7
17	/5
18	/3
19	/4
20	/2
Section C: 21	/10
<b>Total</b>	<b>/70</b>

**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?

(a) Red blood cells

(b) White blood cells

(c) Arterioles

(d) Plasma

[1]

**2** Which one of the following describes the movements possible at the radio-ulnar joint?

(a) Flexion and extension

(b) Medial and lateral rotation

(c) Pronation and supination

(d) Adduction and abduction

[1]

**3** Which one of the following describes the role of an antagonist muscle?

(a) Muscle that causes movement

(b) Muscle that assists the agonist

(c) Muscle that stabilises a joint

(d) Muscle that opposes movement

[1]

4 Which one of the following is **not** a by-product of energy production?

(a) Pyruvic acid

(b) Lactic acid

(c) CO<sub>2</sub>

(d) H<sub>2</sub>O

[1]

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

(a) Right ventricle

(b) Vena cava

(c) Pulmonary vein

(d) Pulmonary artery

[1]

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

(a) Adrenaline triphosphate

(b) Adrenaline triphosphorus

(c) Adenosine triphosphorus

(d) Adenosine triphosphate

[1]

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?

(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.

[1]

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.

Bone	Axial or Appendicular
Ribs	.....
Clavicle	.....
Sternum	.....

[3]

- (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**.

Joint	Joint movement
Right elbow	.....
Right shoulder	.....
Lumbar vertebrae	.....

**[3]**

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

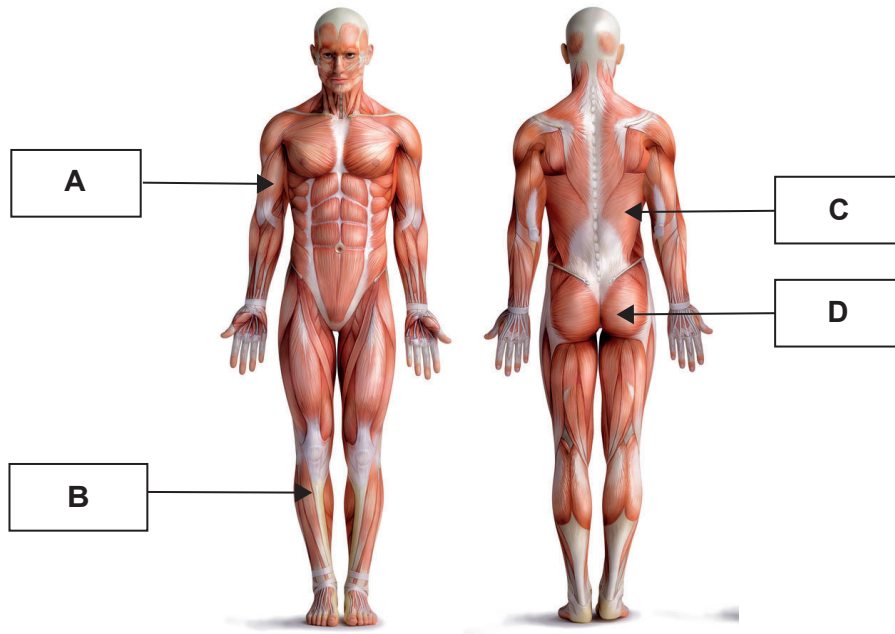


Fig. 13

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

A .....

B .....

C .....

D .....

[4]

(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.

.....

.....

.....

.....

.....

.....

.....

.....

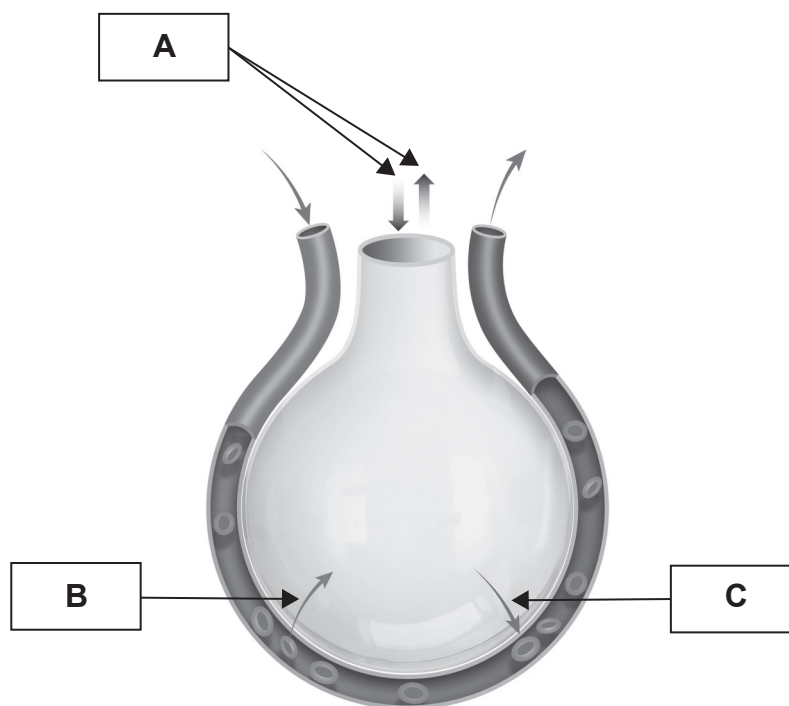
.....

[3]





**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.

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.

[5]

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]**





**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).

A vertical line on the left side of the page is followed by 25 horizontal dotted lines, providing a ruled area for writing answers.



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