

Tuesday 14 May 2019 – Afternoon

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
C400/1906



You may use:

- a calculator

Please write clearly in black ink.

Centre number

Candidate number

First name(s) _____

Last name _____

Date of Birth

INSTRUCTIONS

- Use black ink.
- Answer **all** the questions.
- Write your answer to each question in the space provided.
- If additional answer space is required, you should use the lined page(s) at the end of this booklet. The question number(s) must be clearly shown.

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 consists of **16** pages.

FOR EXAMINER USE ONLY	
Question No	Mark
Section A: 1-10	/10
Section B: 11	/4
12	/7
13	/8
14	/8
15	/7
16	/3
17	/2
18	/4
19	/2
20	/5
Section C: 21	/10
Total	/70

Section A

Answer **all** the questions. Put a tick (✓) in the box next to the **one** correct answer for each question.

1 Which of the following athletic events relies predominantly on the lactic acid energy system?

(a) 400 m hurdles

(b) 1500 m

(c) 100 m

(d) Triple jump

[1]

2 Which of the following are bones which form part of the appendicular skeleton?

(a) Sternum and femur

(b) Humerus and ribs

(c) Scapula and clavicle

(d) Sternum and ribs

[1]

3 Which of the following is the joint type found between the lumbar vertebrae?

(a) Fused

(b) Condylloid

(c) Saddle

(d) Gliding

[1]

4 Which of the following muscles does **not** act at the hip joint?

(a) Adductor longus

(b) Teres major

(c) Gluteus medius

(d) Iliopsoas

[1]

5 Which of the following muscle fibre types would be most beneficial for a shot putter?

(a) Slow oxidative

(b) Fast oxidative

(c) Slow glycolytic

(d) Fast glycolytic

[1]

6 Which of the following is the correct timescale for the restoration of phosphocreatine stores?

(a) 20 – 30 seconds

(b) 2 – 3 minutes

(c) 20 – 30 minutes

(d) 1 – 2 hours

[1]

7 Which of the following statements about the structures of the respiratory system is **incorrect**?

(a) The trachea branches off into the left and right bronchi

(b) Bronchioles contain smooth muscle and no supporting cartilage

(c) The pharynx is also known as the voice box

(d) The epiglottis prevents food from entering the trachea

[1]

8 Which of the following is the correct order of blood flow through a section of the heart?

(a) Right atrium – right ventricle – tricuspid valve – pulmonary artery

(b) Right atrium – left atrium – left ventricle – right ventricle

(c) Right atrium – bicuspid valve – left atrium – left ventricle

(d) Right atrium – tricuspid valve – right ventricle – pulmonary artery

[1]

9 Name the structure that regulates the flow of blood into the capillaries.

.....[1]

10 Calculate the minute ventilation of an individual with a breathing frequency of 20 breaths per minute and a tidal volume of 700 ml.

.....[1]

Section B

Answer **all** the questions.

11 Fig. 11.1 shows an image of a skeleton.

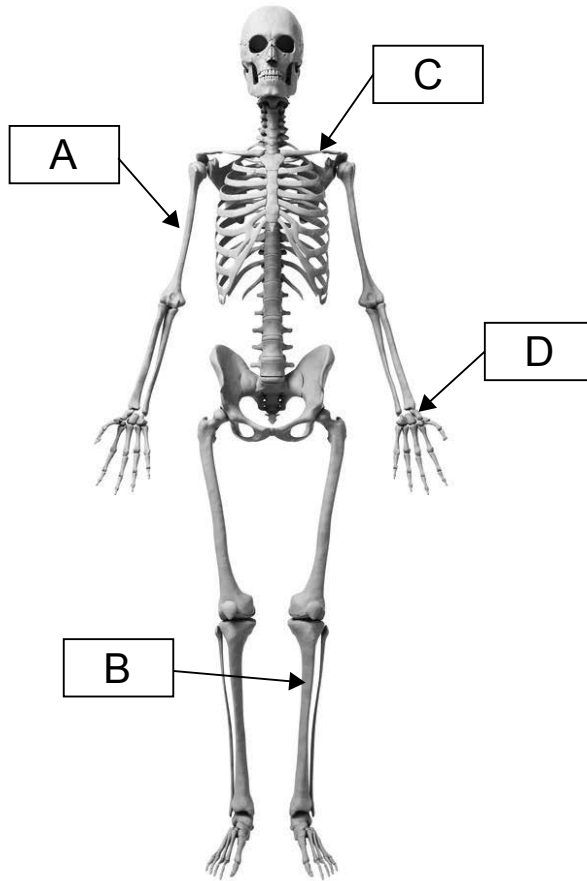


Fig. 11.1

Identify the bones labelled **A**, **B**, **C** and **D**.

- A
- B
- C
- D

[4]

- 12 The following paragraph describes the functions of the skeleton. Complete the paragraph by filling in the missing words.

The skeleton is created to perform several functions. It protects vital, for example the protects the brain.

Long bones also manufacture in their These bones also provide a useful store of

The skeleton is jointed to allow and also gives the body and support.

[7]

- 13 Fig.13.1 shows a performer in the **upward** position of a bench dip.



Fig. 13.1

- (a) Identify the joint positions at the hip, knee and elbow.

Hip

Knee

Elbow

[3]

(b) Complete the table below for the elbow during the **downward** phase of the bench dip.

Muscle function	Muscle acting	Type of contraction
Agonist	Eccentric
Antagonist
.....	Erector spinae

[5]

14 Fig. 14.1 shows a butterfly swimmer in action.

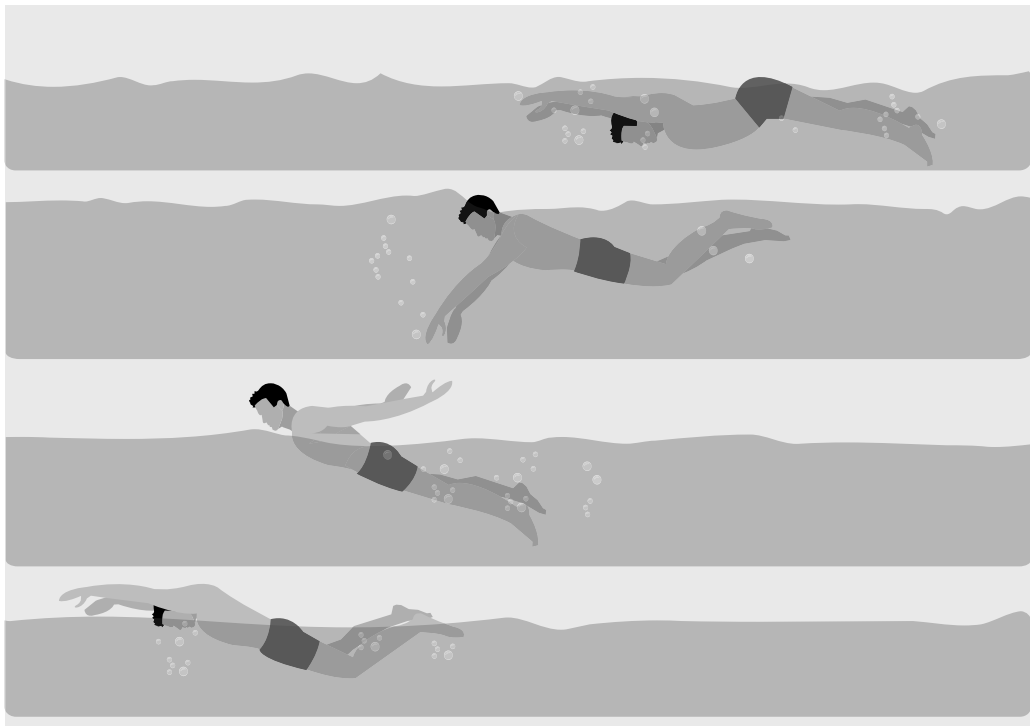


Fig. 14.1

(a) Name **three** muscles that act at the shoulder joint to assist the arm action of the swimmer during the butterfly stroke.

- 1.....
- 2.....
- 3.....

[3]

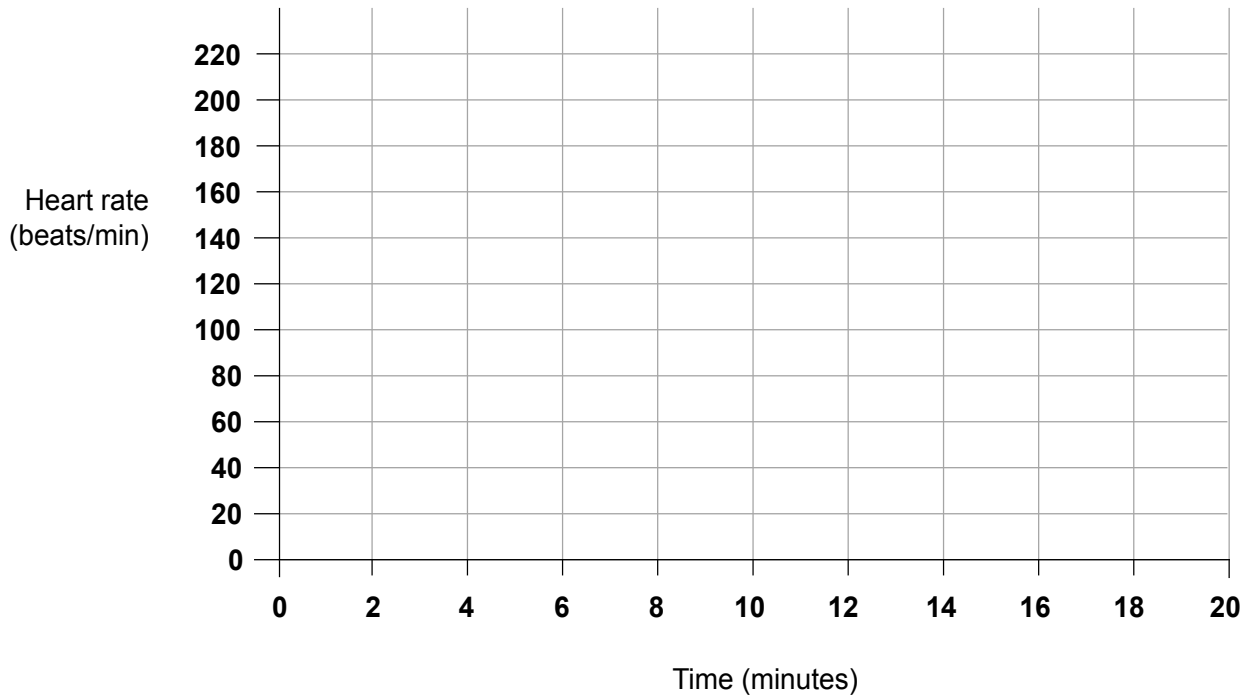
(b) Explain how different intensities of exercise will determine which muscle fibre type will be used by a performer in a sporting activity of your choice.

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..... [3]

(c) Describe **two** negative short-term effects of exercise on the muscular system.

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..... [2]

- 15 (a) Sketch a line graph, using the grid below, to show the heart rate of a 20-year old individual who runs for 17 minutes at a steady pace on a treadmill, and then runs as fast as possible for the final 3 minutes.



[4]

- (b) Explain why the stroke volume of a trained athlete differs from the stroke volume of an untrained individual.

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..... [3]

- 16 Complete the table below to identify the blood vessels described.

Blood vessel	Description
.....	Receive blood from the capillaries at low pressure.
.....	Carry blood under the highest pressure. Their walls extend and recoil under this pressure.
.....	Contain pocket valves to assist blood flow.

[3]

17 Describe the function of platelets and red blood cells.

Platelets

Red blood cells.....

[2]

18 During exercise additional muscles are used to increase tidal volume, helping a performer breathe more deeply.

Explain how the contraction of the following muscles assists this process.

Sternocleidomastoid

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Rectus abdominus

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[4]

19 Describe the changes in tidal volume during recovery after exercise.

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[2]

Section C

21* A marathon runner relies predominantly on the aerobic energy system during a race.

Describe the aerobic energy system and explain why it provides the majority of the energy needed during the race.

[10]

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END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional answer space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s) – for example 11 or 15(b).

A large rectangular area containing 25 horizontal dotted lines for writing answers. A solid vertical line is on the left side of the page.

A series of horizontal dotted lines for writing, spanning the width of the page.



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