

**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 plus your additional time allowance**

**You may use:  
a calculator**

**Modified Enlarged 18 pt**

**Please write clearly in black ink.**

**Centre  
number**

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**Candidate  
number**

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**First name(s)** \_\_\_\_\_

**Last name** \_\_\_\_\_

**Date of  
Birth**

D	D	M	M	Y	Y	Y	Y
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## **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 (\*).**

**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? [1]

(a) 400 m hurdles

(b) 1500 m

(c) 100 m

(d) Triple jump

2 Which of the following are bones which form part of the appendicular skeleton? [1]

(a) Sternum and femur

(b) Humerus and ribs

(c) Scapula and clavicle

(d) Sternum and ribs

**3 Which of the following is the joint type found between the lumbar vertebrae? [1]**

**(a) Fused**

**(b) Condylloid**

**(c) Saddle**

**(d) Gliding**

**4 Which of the following muscles does NOT act at the hip joint? [1]**

**(a) Adductor longus**

**(b) Teres major**

**(c) Gluteus medius**

**(d) Iliopsoas**

**5 Which of the following muscle fibre types would be most beneficial for a shot putter? [1]**

**(a) Slow oxidative**

**(b) Fast oxidative**

**(c) Slow glycolytic**

**(d) Fast glycolytic**

**6 Which of the following is the correct timescale for the restoration of phosphocreatine stores? [1]**

**(a) 20 – 30 seconds**

**(b) 2 – 3 minutes**

**(c) 20 – 30 minutes**

**(d) 1 – 2 hours**

**7 Which of the following statements about the structures of the respiratory system is INCORRECT? [1]**

**(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**

**8 Which of the following is the correct order of blood flow through a section of the heart? [1]**

(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

**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.**

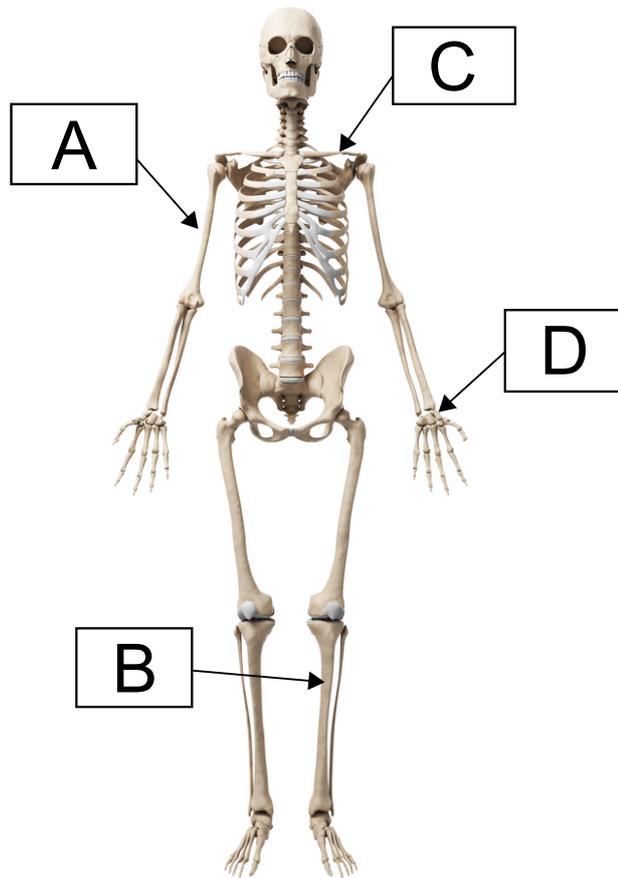
\_\_\_\_\_ [1]

**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 \_\_\_\_\_

- 12 The following paragraph describes the functions of the skeleton. Complete the paragraph by filling in the missing words. [7]

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.

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. [3]

Hip \_\_\_\_\_

Knee \_\_\_\_\_

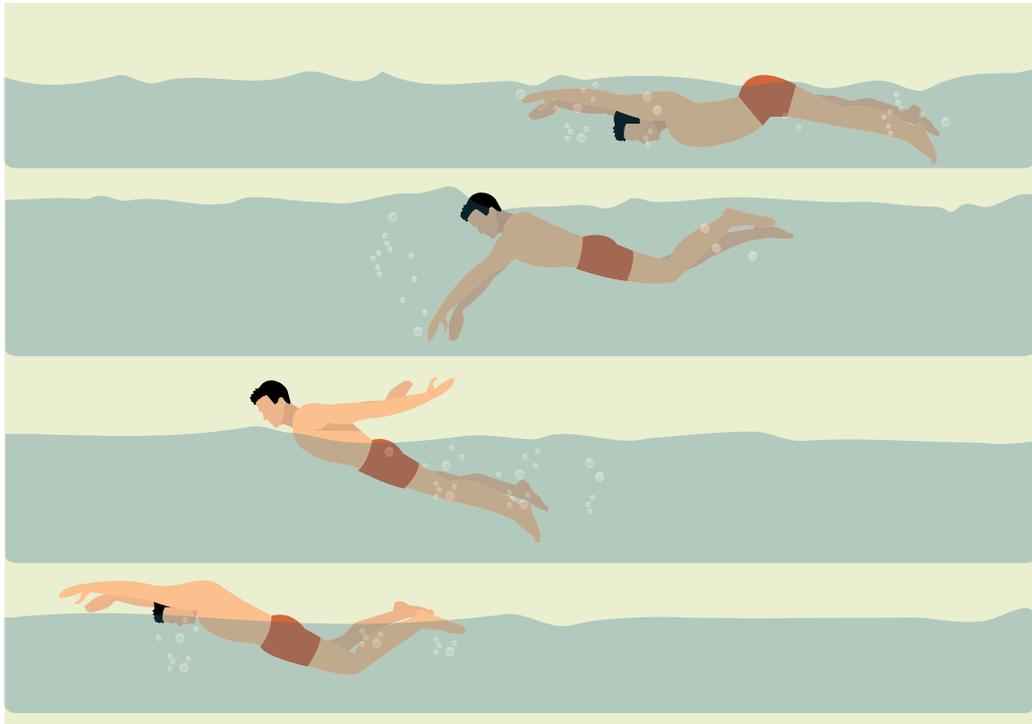
Elbow \_\_\_\_\_

(b) Complete the table below for the elbow during the **DOWNWARD** phase of the bench dip. [5]

<b>Muscle function</b>	<b>Muscle acting</b>	<b>Type of contraction</b>
<b>Agonist</b>		<b>Eccentric</b>
<b>Antagonist</b>		
	<b>Erector spinae</b>	

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

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2

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3

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[3]



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**15 (a) Sketch a line graph, using the grid opposite, 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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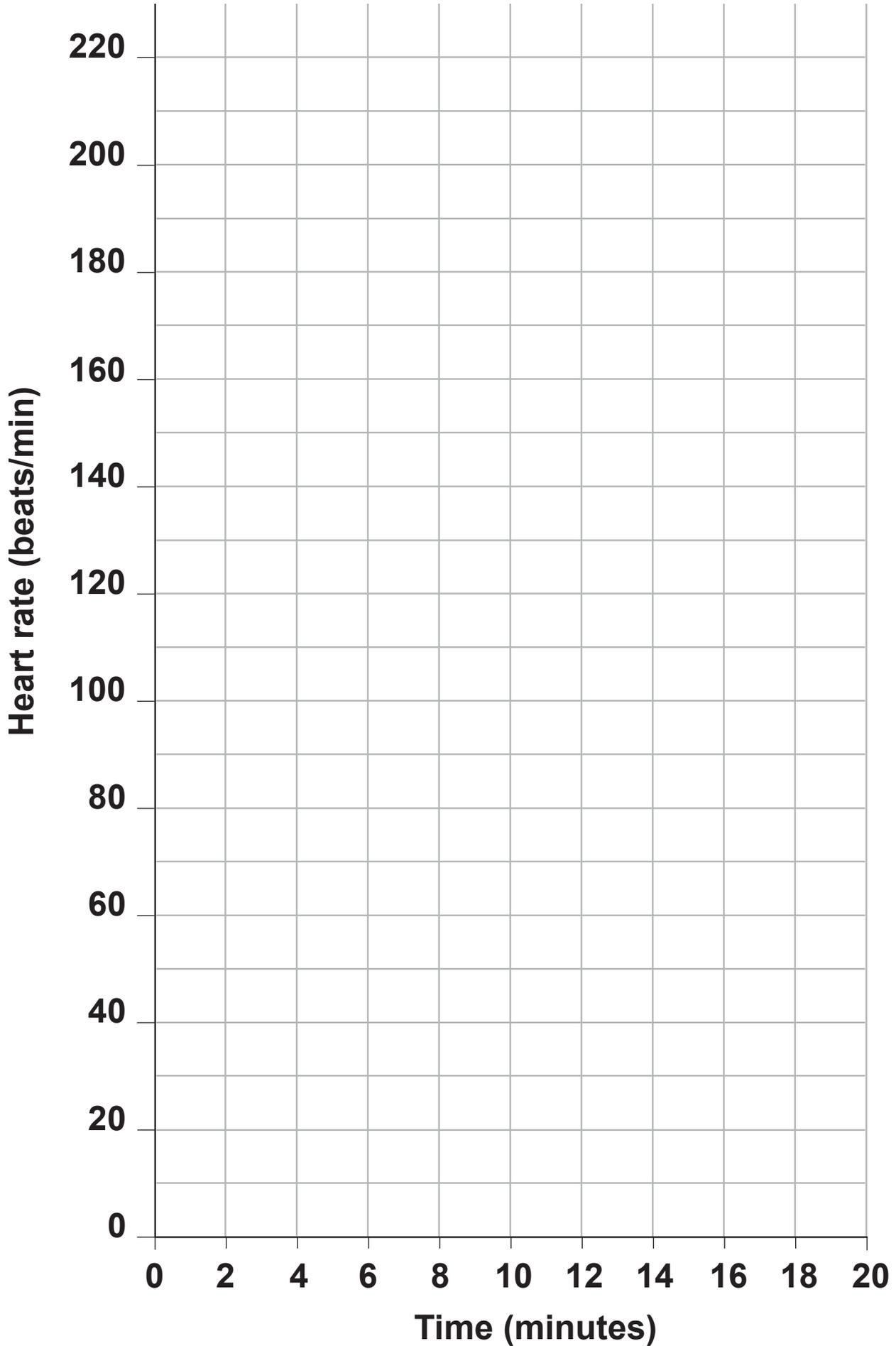
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[3]



**16 Complete the table below to identify the blood vessels described. [3]**

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

**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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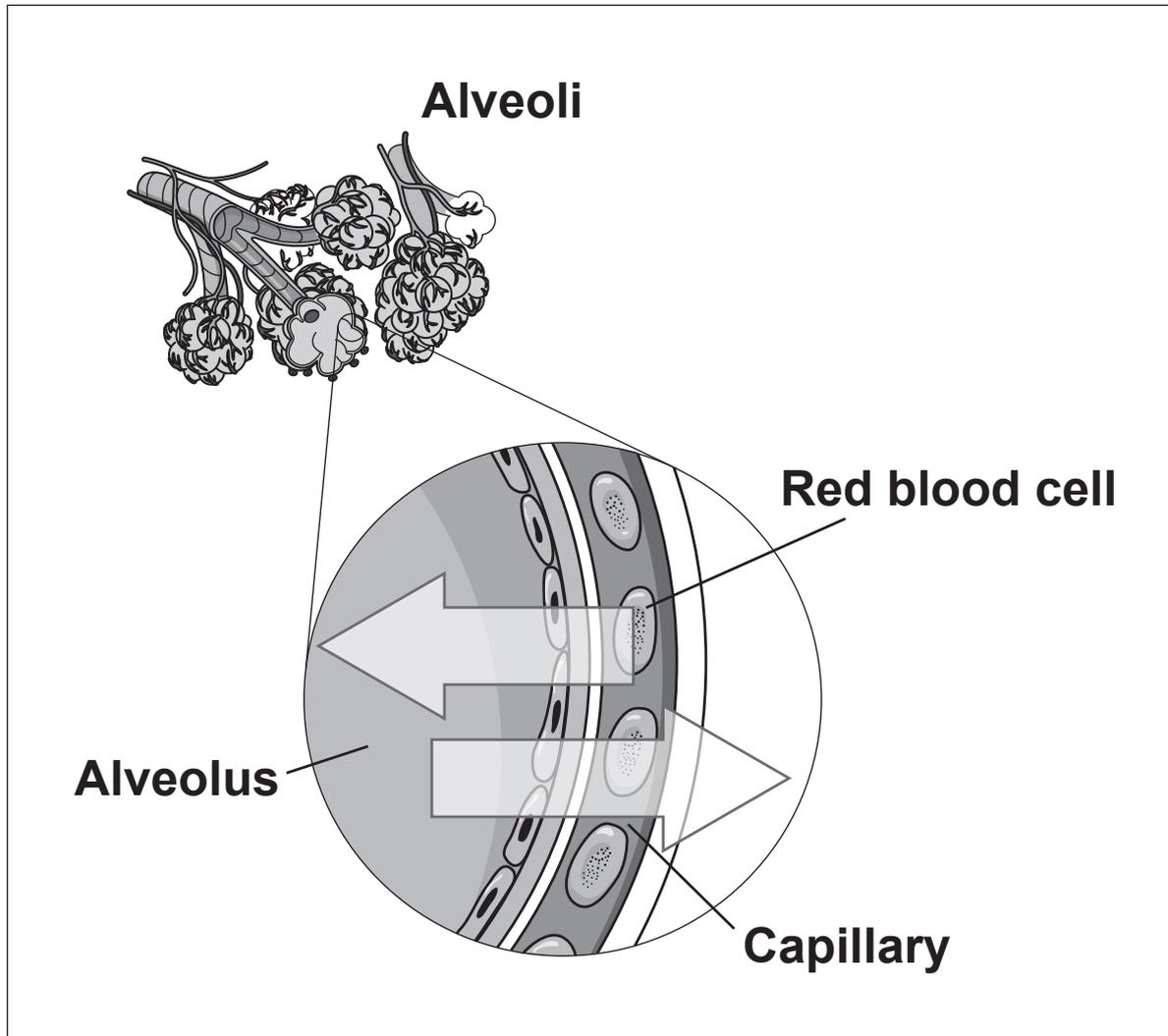
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**[2]**

20 Fig. 20.1 shows an image of the capillary networks at the alveoli.

Fig. 20.1



















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