

**Wednesday 22 May 2019 – Morning**

## **LEVEL 3 CAMBRIDGE TECHNICAL IN HEALTH AND SOCIAL CARE**

**05831/05832/05833/05871**

**Unit 4: Anatomy and physiology for health and social care**

**Time allowed: 2 hours plus your additional time allowance**

**You may use:  
no materials required**

**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 100.**

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

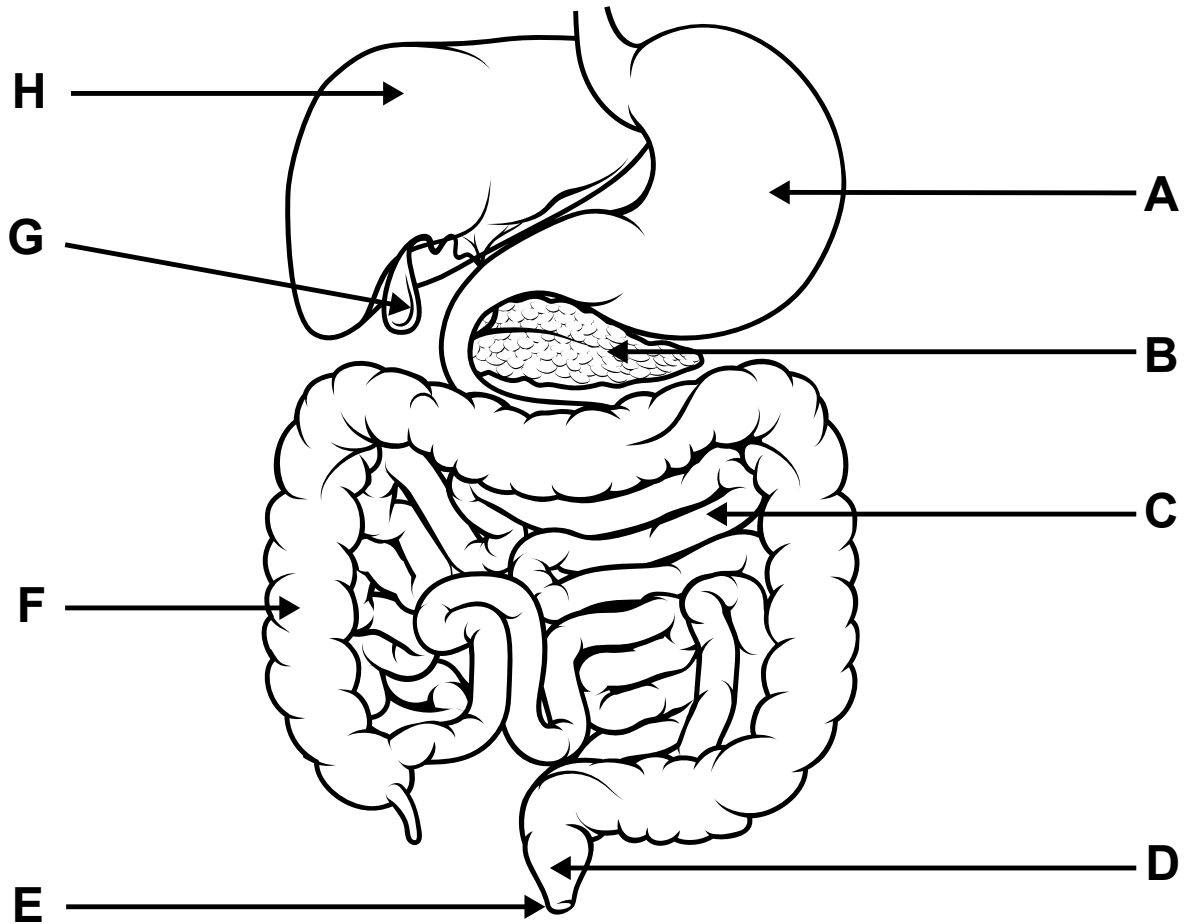
**Quality of extended response will be assessed in questions marked with an asterisk (\*).**

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Answer ALL the questions.

1 FIG. 1.1 shows part of the digestive system.

FIG. 1.1



- (a) Complete the table by matching the correct letter to each structure.

Use FIG. 1.1 to help you answer the question. [4]

Structure	Letter
anus	
pancreas	
stomach	
large intestine	
gall bladder	G

- (b) The gall bladder has a duct that releases fluid into the small intestine.

(i) Name this duct.

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

- (ii) What is the role of the FLUID that is released from the gall bladder?

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

**(i) State one OTHER symptom of gallstones.**

**(ii)\* Describe the possible causes of gallstones, and how they can lead to abdominal pain.**

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

**(d) The liver is also part of the digestive system.**

**Complete the sentences about the functions of the liver.**

**Use words from the list.**

**Each word can be used once, more than once, or not at all. [5]**

<b>assimilation</b>	<b>platelets</b>	<b>detoxification</b>
<b>absorption</b>	<b>deamination</b>	<b>erythrocytes</b>
<b>glycogen</b>	<b>starch</b>	<b>protein</b>

**After food has been digested, the liver plays an important role in removing glucose from the blood, and converting it into \_\_\_\_\_ , which can be stored inside cells. This is an example of \_\_\_\_\_ .**

**The liver has many other functions, including the breakdown and recycling of worn out \_\_\_\_\_ , and the removal of the amino group from amino acids, which is known as \_\_\_\_\_ .**

**Poisonous substances such as alcohol are also broken down in the liver by the process of \_\_\_\_\_ .**

- (e)\* Type 2 diabetes may occur when liver cells no longer respond to insulin, and stop removing glucose from the blood.**

**Explain the advised treatments and lifestyle changes for people diagnosed with Type 2 diabetes.**

[illegible]



**2 Structures within the respiratory system allow the body to take oxygen in, and remove carbon dioxide.**

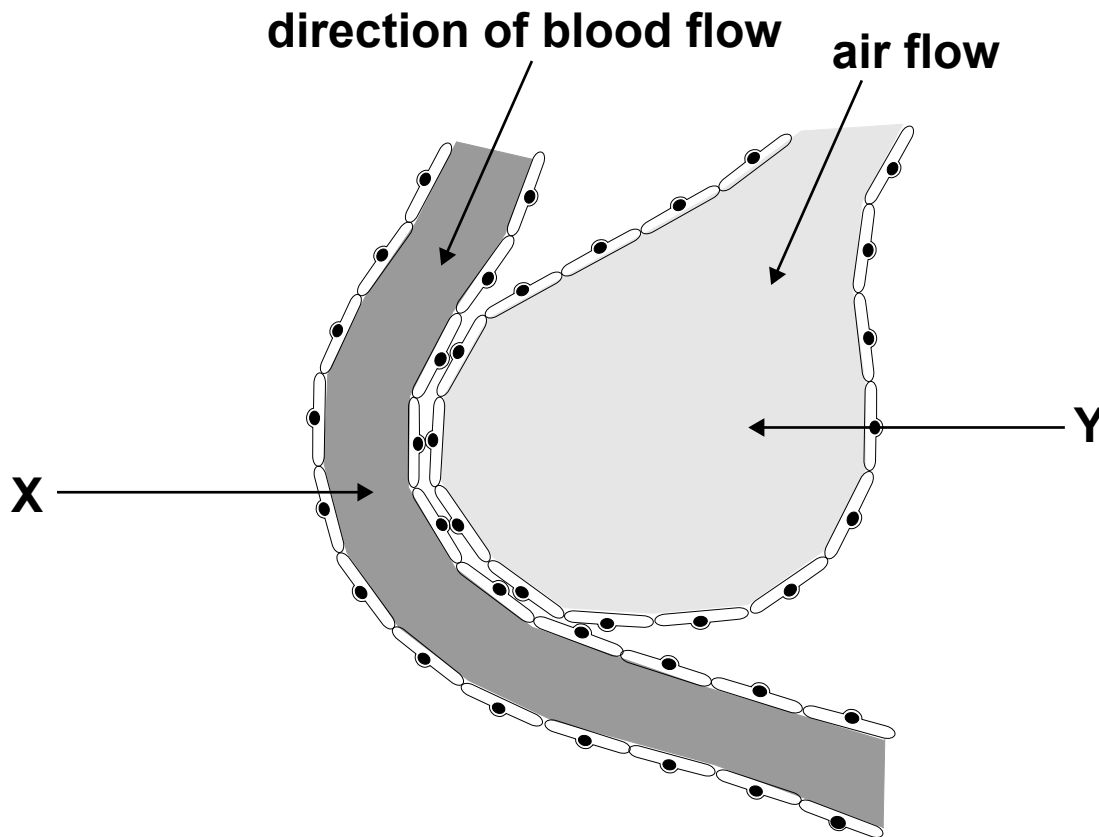
**(a) Complete the table by matching the correct structure to each description. [3]**

**bronchus      intercostal      diaphragm      pleural**  
**trachea      bronchiole**

<b>Description</b>	<b>Structure</b>
<b>The airway that extends from the mouth to the lungs, also known as the windpipe.</b>	
<b>A membrane that covers each lung and provides a lining for the rib cage.</b>	
<b>A muscle that separates the chest cavity (thorax) from the digestive system.</b>	

(b) FIG. 2.1 shows an alveolus and a capillary.

FIG. 2.1



- (i) State ONE way in which the structure of the alveolus is adapted for its role in gaseous exchange.

**(ii) Describe how gases are exchanged between X and Y, as blood flows in the capillary.**

**Use FIG. 2.1 to help you answer the question.**

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**[3]**

**(c) Ben has emphysema.**

**(i) Which statement about emphysema is correct?**

**Tick (✓) ONE box. [1]**

**High blood pressure is a risk factor for emphysema.**

☐

**Animal fur can trigger emphysema.**

☐

**Emphysema damages alveoli.**

☐

**Smoking cigarettes is not linked to emphysema.**

☐

**(ii)\* Ben has been advised of possible treatments to help manage the symptoms of emphysema, including:**

**using an inhaler**

**going to a rehabilitation programme**

**having surgery**

**Evaluate TWO possible treatments for emphysema.**

**You may choose from the treatments listed above or any other treatments studied. [8]**

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**3 The table below has statements about the structure and function of the brain.**

**(a) Complete the table by writing next to each statement, TRUE or FALSE. [5]**

<b>Statement</b>	<b>True or False</b>
<b>The brain is protected by tough membranes called the meninges.</b>	
<b>The cerebellum is divided into two halves called the cerebral hemispheres.</b>	
<b>The function of the hypothalamus is to control vital processes such as breathing.</b>	
<b>One of the functions of the frontal lobes is coordinating speech and language.</b>	
<b>The corpus callosum connects the two sides of the brain.</b>	

**(b) Stefan has had a STROKE. After several weeks of rehabilitation in hospital, he is ready to return home.**

**Health care professionals provide Stefan and his family with information about the impact of having a stroke on his care needs and his lifestyle.**

**(i)\* Discuss possible impacts of the stroke on Stefan's LIKELY care needs and his lifestyle.**

[illegible]

- (c) Stefan is told that a likely risk factor for his stroke was his high blood pressure.

Name ONE other risk factor for strokes.

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[1]

- (d) Stefan's mother, Stella, has developed CATARACTS.

(i) Name the part of the eye affected by cataracts.

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[1]

(ii) Describe the physiological cause of cataracts.

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[2]

- (e) The pituitary is an endocrine gland.

(i) What is the correct location of the pituitary?

Tick (✓) ONE box. [1]

In the brain

☐

In the kidneys

☐

In the neck

☐

In the pancreas

☐



**(ii)\* Describe the function of the thyroid gland OR the adrenal glands.**

**[6]**

**4 The heart is part of the cardiovascular system.**

**(a) Answer the following questions about the heart.**

**Use terms from the list.**

**Each term can be used once, more than once,  
or not at all.**

<b>tricuspid</b>	<b>aorta</b>	<b>vena cava</b>	<b>bicuspid</b>
<b>coronary</b>	<b>pulmonary</b>	<b>semi-lunar</b>	

**(i) Name the VALVE that prevents blood from  
leaving the heart and flowing back into the  
ventricles.**

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

**(ii) Name the ARTERY that supplies the heart  
muscle with nutrients.**

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

**(iii) Name the type of VEIN that brings blood back  
into the right atrium of the heart.**

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

**(iv) Name the ARTERY that carries deoxygenated  
blood.**

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

**(b)\* Describe the sequence of events that take place in the heart during the CARDIAC CYCLE.**

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[5]

**(c) Trevor has coronary heart disease (CHD) and is recovering from a heart attack.**

**(i) Identify TWO possible causes of CHD.**

**1** \_\_\_\_\_

\_\_\_\_\_  
**2** \_\_\_\_\_

\_\_\_\_\_  
[2]

**(ii) Identify ONE method for monitoring Trevor's heart, following his heart attack.**

**Explain your answer.**

**METHOD** \_\_\_\_\_

\_\_\_\_\_  
**EXPLANATION** \_\_\_\_\_

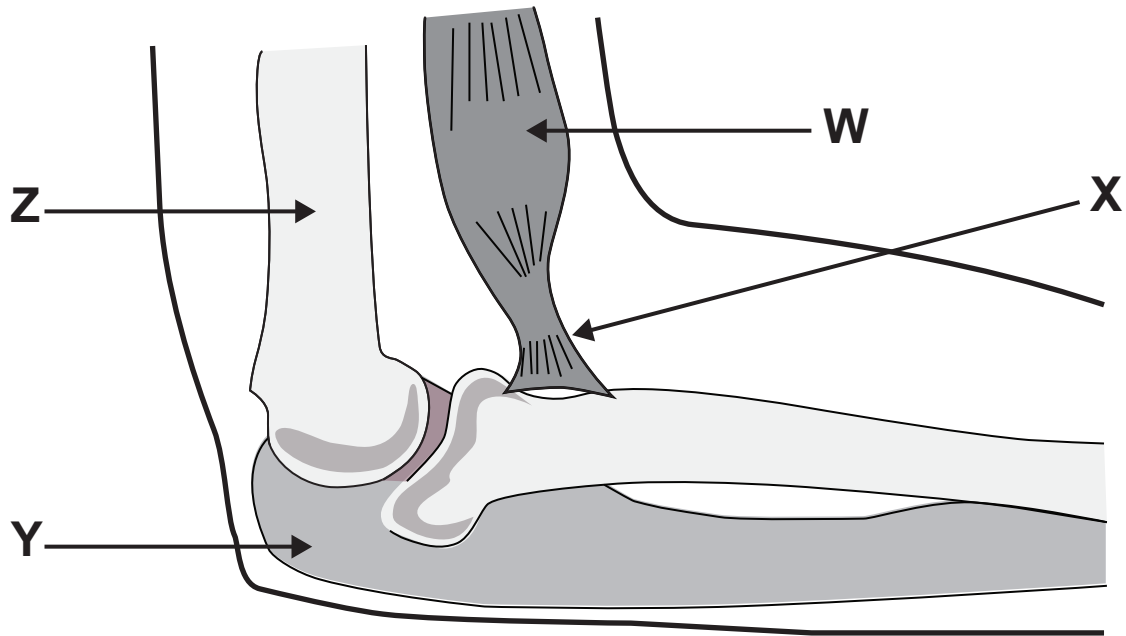
\_\_\_\_\_  
[2]

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5 FIG. 5.1 shows the elbow joint.

(a)

FIG. 5.1



(i) Which term correctly describes the joint shown in FIG. 5.1?

Tick (✓) ONE box. [1]

- |                 |                          |
|-----------------|--------------------------|
| Ball and socket | <input type="checkbox"/> |
| Pivot           | <input type="checkbox"/> |
| Hinge           | <input type="checkbox"/> |
| Sliding         | <input type="checkbox"/> |

(ii) Identify the parts labelled W, X, Y and Z in FIG. 5.1.

Use words from the list.

Each word can be used once, more than once,  
or not at all.

ligament

bone

cartilage

tendon

muscle

W = \_\_\_\_\_

X = \_\_\_\_\_

Y = \_\_\_\_\_

Z = \_\_\_\_\_

[4]

- (b) Dorothy is 84 years old and has been taken to hospital after fracturing her elbow during a fall. She senses pain in her fractured elbow due to the action of NEURONES.

Complete the sentences about neurones.

Use terms from the list.

Each term can be used once, more than once, or not at all. [5]

dendron	dendrite
motor	sensory
synapse	neurotransmitter
hormone	nucleus
Schwann cell	axon

When pain is detected by receptors, a nerve impulse is triggered in a \_\_\_\_\_ neurone and transmitted towards the central nervous system.

Neurones have a long \_\_\_\_\_, which is usually surrounded by a myelin sheath, and a cell body which contains the \_\_\_\_\_ of the neurone.

The gap between neurones is called a \_\_\_\_\_, and impulses can only move across the gap using a chemical known as a \_\_\_\_\_.



**(c)\* A test finds that Dorothy has osteoporosis.**

**Describe the possible CAUSES of Dorothy's osteoporosis, and its EFFECTS on her musculoskeletal system.**

[illegible]

**(d) Dorothy also suffers from hearing loss.**

**Suggest TWO reasons why osteoporosis may also cause hearing loss.**

1 \_\_\_\_\_

2 \_\_\_\_\_

[2]

(e) Identify TWO possible treatments for hearing loss.

1 \_\_\_\_\_

2 \_\_\_\_\_

[2]

(f) The semi-circular canals in the ear are NOT involved in hearing.

State the function of the semi-circular canals and explain how they carry out this function.

FUNCTION: \_\_\_\_\_

EXPLANATION: \_\_\_\_\_

[3]

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 – for example 1(a) or 2(a).**

[illegible]







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