

**CAMBRIDGE TECHNICALS LEVEL 3 (2016)**

**Examiners' report**

# **HEALTH AND SOCIAL CARE**

**05830–05833, 05871**

**Unit 4 Summer 2022 series**

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## Introduction

Our examiners' reports are produced to offer constructive feedback on candidates' performance in the examinations. They provide useful guidance for future candidates.

The reports will include a general commentary on candidates' performance, identify technical aspects examined in the questions and highlight good performance and where performance could be improved. The reports will also explain aspects which caused difficulty and why the difficulties arose, whether through a lack of knowledge, poor examination technique, or any other identifiable and explainable reason.

Where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

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## Unit 4 series overview

The overall level of response was similar to the examination series before January 2021, meaning the general standard was good, with the vast majority of candidates attempted all the questions, and answering them well. There was however a clear divide in the number of students were able to address the level of response questions. Only a minority of candidates were able to achieve Level 3 responses, this was more evident on questions with the higher order thinking skills e.g., analyse and evaluate. Questions 3b, 4dii and 4f were more challenging questions and this was reflected by the fact they were only answered well by a fraction of candidates.

As with previous series some candidates used the additional pages to continue their responses, with most indicating that they had done so. It was clear that candidates had sufficient time to complete the paper, and where questions were left blank this was almost certainly due to inability to answer the question rather than lack of time.

Candidates who did well on this paper generally did the following:	Candidates who did less well on this paper generally did the following:
<ul style="list-style-type: none"><li>• answer all questions</li><li>• achieved a high percentage of the point-based questions</li><li>• provided Level 2 or Level 3 responses on the level of response (LOR) questions</li><li>• addressed all parts of LOR questions e.g., explain the causes and risk factors.</li></ul>	<ul style="list-style-type: none"><li>• didn't answer all the questions</li><li>• bullet pointed LOR questions</li><li>• confused biological systems e.g., muddled up functions of the liver.</li></ul>

## Question 1 (a)

1 The ear is part of the sensory system.

(a) Choose from the list of structures below to complete the table about the ear.

**Eustachian tube**                      **inner ear**                      **middle ear**  
**organ of Corti**                      **round window**                      **stapes**

You may use each structure once, more than once, or not at all.

Description	Structure
A small bone that transmits sound vibrations within the ear.	
Found in the cochlea and contains rows of hair cells.	
Opening covered by a membrane that allows movement of fluid in the cochlea.	
Separated from the external ear by the ear drum.	

[4]

Very few candidates identified all structures of the ear correctly. Stapes and middle ear were the structures that were most frequently identified. A less commonly identified structure was the organ of Corti.

## Question 1 (b) (i)

(b) Impulses from the sensory organs are carried to the brain by nerves.

(i) Name the nerve that carries impulses from the **ear** to the brain.

..... [1]

This was a less well answered question. Some candidates selected responses from Question 1(a).

## Question 1 (b) (ii)

(ii) Name the nerve that carries impulses from the **eye** to the brain.

..... [1]

Most candidates were able to identify the “optic nerve” as the correct response.

## Question 1 (c)

(c) The structure of nerve cells (or neurons) is adapted for their function of carrying impulses.

Match each structure with its description by drawing a line between the boxes.

One line has been completed for you.

Structure	Description
axon	A gap between Schwann cells that helps to speed up the nerve impulse.
cell body	Long, thin part of the neuron that conducts the impulse along.
dendron	Part of the neuron that consists of Schwann cells forming an insulating layer.
myelin sheath	Part of the neuron that contains the nucleus.
node of Ranvier	Short, branched part of the neuron that receives impulses from other neurons.

[4]

This question was well answered by the candidates. Nearly all candidates scored 2 or more marks on this question, with cell body and myelin sheath correctly linked to their descriptions.

### Question 1 (d) (i)

(d) Kai has glaucoma, a malfunction of the eye.

(i) Which **one** of the following is a possible cause of glaucoma?

Put a tick (✓) in the box next to the possible cause.

Possible cause of glaucoma	Tick (✓) <b>one</b> only
Ageing.	
Air pollution.	
Alcohol misuse.	
Exposure to ultra-violet (UV) light.	

[1]

Most candidates correctly identified “ageing” as a possible cause of glaucoma. Exposure to UV light was a frequent incorrect response.

### Question 1 (d) (ii)

(ii) Glaucoma is caused by a build-up of pressure inside the eye.

Give **one** reason why pressure could build up inside the eye.

.....

..... [1]

Many candidates answered this question correctly. Those who didn't gave responses provided in Question 1(d) (i).

## Question 1 (e)

(e)\* Describe the likely symptoms and effects of glaucoma on Kai's eyesight.

.....

.....

.....

.....

.....

..... [6]

Few candidates successfully described the symptoms and effects of glaucoma. Many candidates gave vague responses about blurred vision, without linking to the loss of peripheral vision. Many candidates incorrectly discussed the impact on daily life, this was not required in this question.

### Assessment for learning



Centres should encourage their candidates to de-construct questions before writing their response; they should circle the command word and underline the key focus of the question (describe, symptoms and effects – in this instance). By doing this it may focus their response.

## Question 2 (a) (i)

2 Fig. 1 is a diagram of the heart which is part of the cardiovascular system.

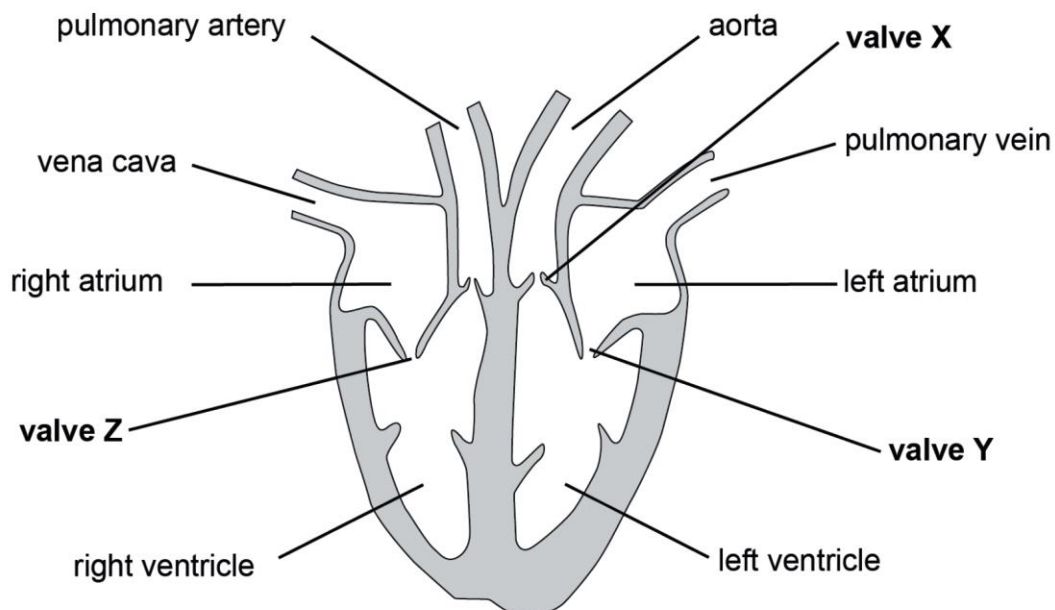


Fig. 1

(a) (i) Which of the valves X, Y or Z on the diagram of the heart is a semi-lunar valve?

..... [1]

This was a well answered question, with the majority of candidates correctly identifying X as the correct response.

## Question 2 (a) (ii)

- (ii) Choose from the components of the heart labelled on **Fig. 1** to complete the table about their role in heart function.

You may use each component once, more than once, or not at all.

One has been done for you.

Role in heart function	Component
A blood vessel that carries deoxygenated blood from the body back to the heart.	vena cava
A blood vessel that carries oxygenated blood from the lungs back to the heart.	
A blood vessel that carries oxygenated blood out of the heart to the body.	
A chamber that forces blood out of the heart towards the lungs.	
A chamber that receives deoxygenated blood returning from the body.	

[4]

Very few candidates achieved 3 or more marks for this question. Care needs to be taken to make sure that candidates understand the flow of blood through the heart, through a full cardiac cycle.

## Question 2 (b)

- (b) Coronary arteries supply the heart muscle with blood containing absorbed nutrients. Complete the passage by choosing the most appropriate word(s) from the list below.

<b>ADP</b>	<b>aerobic</b>	<b>anaerobic</b>	
<b>ATP</b>	<b>carbon dioxide</b>	<b>glucose</b>	<b>lactic acid</b>

Absorbed nutrients, such as ..... , are needed to supply energy for the contraction of heart muscle. Energy is supplied in the form of ..... which is produced during cellular respiration in the muscle cells. When plenty of oxygen is available ..... respiration takes place inside mitochondria which release ..... as a waste product.

[4]

The vast majority of candidates performed well on this question, scoring 2 to 4 marks. Some candidates confused ADP/ATP and aerobic/anaerobic. Many candidates gave lactic acid as a waste product.

## Question 2 (c) (i)

- (c) Anika has been admitted to hospital after suffering a suspected heart attack.
- (i) Give **two** symptoms that suggest a person has either suffered a heart attack or has angina.

1 .....

.....

2 .....

.....

[2]

Very well answered, with a high percentage of candidates achieving full marks on this question. Chest pains and breathlessness were common responses.

### Question 2 (c) (ii)

- (ii)\* Anika has been told that she has coronary heart disease (CHD) and that one of her coronary arteries is blocked.

Explain the possible causes and risk factors that could lead to a blocked coronary artery.

[6]

Performance on this question was mixed with candidates struggling to explain in sufficient depth to achieve Level 3. Often causes and risk factors were identified, without any real explanation. Some candidates did answer this question incredibly well, by explaining about atheromas and the impact on blood flow to cardiac tissue and how cigarettes increase the likelihood of them forming and blood clots.

### Question 2 (d) (i)

- (d) Blockages in the arteries leading to the brain can prevent flow of blood containing nutrients and oxygen causing a stroke.

- (i) Outline **one** other biological cause of a stroke.

.....

.....

.....

..... [2]

Many candidates simply discussed blood clots and atheromas again. Few knew how to outline haemorrhagic strokes.

### Question 2 (d) (ii)

- (ii) Give **two** lifestyle changes that could lower the chances of having a stroke.

1 .....

.....

2 .....

..... [2]

Very well answered, regular exercise, reducing fat within the diet and stopping smoking were frequent correct answers.

## Question 2 (e)

**(e)\*** Leo has been receiving treatment in hospital after suffering a stroke.

Analyse **two** possible treatments that could help Leo to manage his symptoms and lower the chances of suffering another stroke.

.....

.....

.....

.....

..... **[6]**

Candidates continue to confuse treatment and lifestyle changes. It is vital that for future exam series that candidates understand the difference between them.

### Misconception



Lifestyle changes are things the individual can do to improve their condition e.g., reducing stress, whereas treatments are procedures or medication provided by medical professionals e.g., angioplasty or warfarin medication.

### Question 3 (a)

- 3 Bronchi are part of the respiratory system that supplies the oxygen required for cellular respiration.

Fig. 2 shows a normal bronchus and a bronchus during an asthma attack.

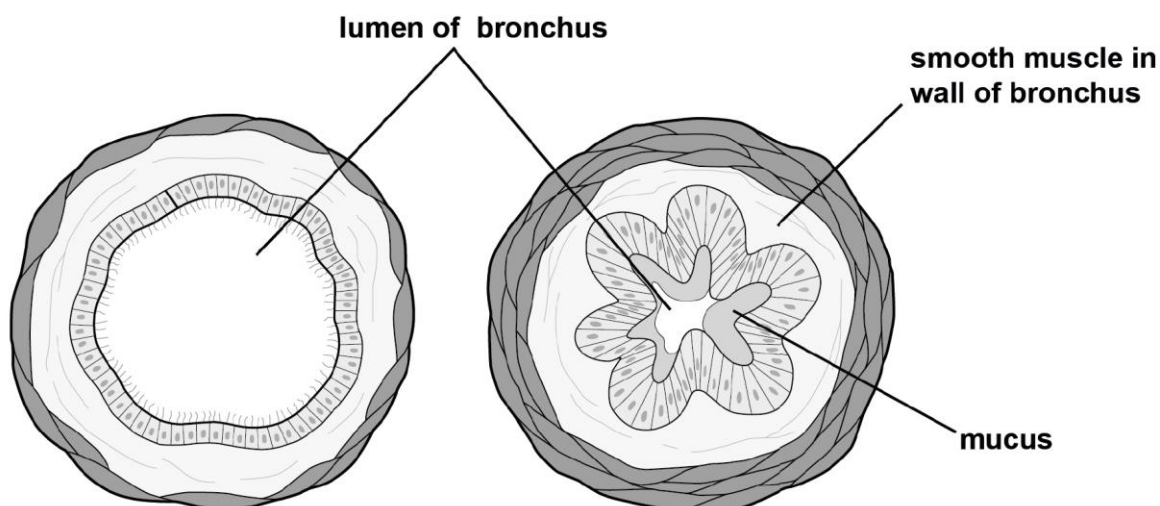


Fig. 2

- (a) Use Fig. 2 to give **four** reasons why asthma sufferers become breathless, start wheezing and feel tightness in the chest during an asthma attack.

1 .....

2 .....

3 .....

4 .....

[4]

Many responses were vague, often repeating the same reason for multiple responses. Increased mucus and narrowed lumen were the most common incorrect response.

### Question 3 (b)

**(b)\*** Charlie is 45 years old and has had asthma since he was a child.

The following treatments have been used to help Charlie manage his symptoms:

- inhalers
- drugs taken as tablets or powders
- injections.

Evaluate **two** of these treatments for managing Charlie's asthma.

.....

.....

.....

.....

.....

..... [8]

Some candidates were able to evaluate the use of inhalers, covering both the strengths and issues. However, only a small minority were able to evaluate drugs taken as tablets or powders or injections. This resulted in only a very small proportion achieving a Level 3 response. Many candidates continued to misinterpret the command verb "evaluate", they frequently describe treatments e.g., describing how inhalers work, rather than the strengths and weaknesses.

#### Assessment for learning



When teaching the treatments for malfunctions, it is recommended that strengths and weaknesses are covered.

## Question 4 (a) (i)

4 (a) Fig. 3 shows part of the digestive system.

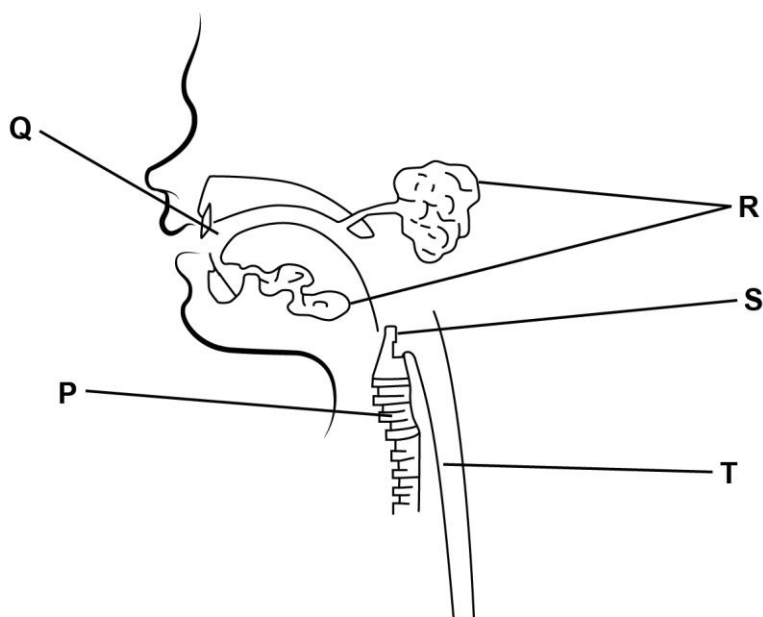


Fig. 3

- (i) Complete the table below by choosing the correct letter from Fig. 3 that identifies the structures of this part of the digestive system.

One row has been done for you.

Structure	Letter
buccal cavity	
epiglottis	S
oesophagus	
salivary glands	

[3]

This was a well answered question, with most candidates providing the correct answer.

### Question 4 (a) (ii)

(ii) Describe the structure and function of the epiglottis labelled **S** on **Fig. 3**.

.....

.....

.....

..... [2]

Again, this was a well answered question, with the majority of candidates achieving 2 marks.

### Question 4 (b)

(b) Outline the role of the part of the digestive system shown in **Fig. 3** in the breakdown of food.

.....

.....

.....

.....

.....

..... [3]

Most candidates successfully outlined mechanical and chemical digestion. Some candidates included in their response the role of the stomach, which was not creditable.

### Question 4 (c) (i)

(c) Irritable bowel syndrome (IBS) is a digestive malfunction that may occur when food moves through the digestive system too quickly.

(i) State **one** symptom of IBS.

.....

..... [1]

A well answered question, with stomach pain a common correct answer.

### Question 4 (c) (ii)

(ii) State **one** cause of IBS.

.....  
 ..... [1]

Some responses were too vague, often just listing food types without identifying that they were triggers.

### Question 4 (c) (iii)

(iii) State **one** treatment or lifestyle change for managing IBS.

.....  
 ..... [1]

Changing diet was a common response, unfortunately this was too vague. Linking the changes to the avoidance of triggers was required.

### Question 4 (d) (i)

(d) (i) Assimilation is a process carried out by the liver.

Which **one** of the following is the correct meaning of the term assimilation?

Put a tick (✓) in the box next to the correct meaning.

Meaning of assimilation	Tick (✓) <b>one</b> only
Emulsifying fat molecules so they have a larger surface area for digestion.	
Movement of digested nutrients into body cells to become part of the cells.	
Movement of digested nutrients into the blood stream.	
Removal of undigested waste from the body.	

[1]

The majority of candidates provided incorrect response to this question. Emulsifying fat molecules was the most common response.

### Question 4 (d) (ii)

- (ii)\* The liver also has breakdown functions as part of the regulatory system.

Discuss the main functions of the liver in breaking down the excess, toxic or unwanted products of metabolism.

[8]

This was the most commonly unanswered question. Some candidates gained marks for identifying functions of the liver e.g., deamination and detoxification, but the discussion of these processes was often confused.

### Question 4 (e)

- (e) The kidney is also a component of the regulatory system.

Complete the table below by deciding whether each statement about the structure and functions of the kidney is **True (T)** or **False (F)**.

Statement	True (T) or False (F)
Collecting ducts of kidney nephrons have a role in osmoregulation.	.....
Ultrafiltration takes place in the Bowman's capsule of kidney nephrons.	.....
Urea is reabsorbed back into the blood as it passes through kidney nephrons.	.....
Ureters carry urine from the kidneys to the bladder.	.....

[4]

Most candidates provided at least 2 correct responses, with "ultrafiltration takes place in the Bowman's capsule of kidney nephrons" being the most frequent incorrect response.

## Question 4 (f)

- (f)\* Ali has nephrotic syndrome. His symptoms include swelling of his legs and blood clots in his urine.

Explain the possible causes for Ali's nephrotic syndrome. Include both biological causes **and** risk factors for developing the condition.

.....

.....

.....

.....

.....

..... [6]

The majority of candidates struggled with this question, with most achieving 0 or Level 1 marks. Candidates often focused their response on the liver, rather than the kidneys. Some candidates gained credit for identifying that genetics is a risk factor. Very few candidates identified that the condition related to the loss of protein into the urine.

## Question 5 (a)

- 5 Joints occur where two bones meet and allow movement between the bones.

- (a) Name the type of joint that allows the skull to move on the spinal column.

..... [1]

Some candidates clearly had a lack of knowledge on joint types. Very few candidates gave the correct response, and many said things like "the neck".

### Assessment for learning



Candidates need to be taught the correct terminology for types of joints from the specification and be able to identify where they are in the body.

### Question 5 (b) (i)

- (b) Choose from the list below to answer the following questions about the components of a synovial joint.

You can use each component once, more than once, or not at all.

**cartilage**

**ligament**

**muscle**

**synovial capsule**

**synovial fluid**

**tendon**

- (i) State the component that contracts and relaxes to move the bones.

..... [1]

### Question 5 (b) (ii)

- (ii) State the component that lubricates and nourishes the joint.

..... [1]

### Question 5 (b) (iii)

- (iii) State the component that can act as a shock absorber.

..... [1]

..... [1]

### Question 5 (b) (iv)

The Questions 5(b)(i) to 5(b)(iv) were well answered, with the majority of candidates getting all four questions right. The most common issues were confusing ligament and tendon for Question 5(b)(iv).

### Question 5 (c)

(c)\* Beth has arthritis in her knees. She has the following symptoms:

- stiff, painful knee joints
- inability to kneel down or fully bend her knees
- grating noises when she tries to bend her knees.

Explain the likely causes for Beth's symptoms.

.....

.....

.....

.....

.....

..... [6]

Many candidates achieved a Level 2 response to this question, but few achieved a Level 3. This was due to them not making the link between the cause and the symptoms. Candidates should make sure that they address the stem of the question to achieve Level 3 responses.

### Question 5 (d)

(d) Outline **one** type of treatment used to reduce the symptoms of arthritis.

.....

.....

.....

..... [2]

Physiotherapy was a very common correct response, although some candidates only achieved 1 mark as they did not elaborate on how it reduces symptoms

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