

CAMBRIDGE TECHNICALS LEVEL 3 (2016)

Examiners' report

HEALTH AND SOCIAL CARE

05830–05833, 05871

Unit 4 January 2023 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.

A full copy of the question paper and the mark scheme can be downloaded from OCR.

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Unit 4 series overview

This exam was in line with previous exam series. Candidates continue to perform well, providing responses to all questions. The level of response (LOR) questions were well answered, with candidates regularly achieving Level 2 responses. The questions on impact on daily life are becoming a particular strength of most candidates. However, as with previous exam series, only a minority of candidates were able to achieve Level 3 responses. The primary reason for this is not fully developing points or have limited understanding of the biological causes of some diseases. Also, some candidates do not address the stem of the question, resulting in them providing information that is irrelevant or missing key aspects of the question.

As with previous series some candidates used the additional pages to continue their responses, with most indicating that they had done so. However, some candidates do not clearly indicate which question their extra work links too. Candidates should use the exam question when producing additional work on the extra pages. It was clear that candidates had sufficient time to complete the paper, as very few questions were left unanswered.

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"> answered all questions achieved at least three quarters of the marks available for the short answer point-based questions provided at least Level 2 responses for all LOR questions planned and structured their responses for the LOR questions, ensuring that there was a well-developed line of reasoning which is clear and logically structured. 	<ul style="list-style-type: none"> did not answer all the questions achieved half or fewer of the marks available for the short answer point-based questions misunderstood the stem of some questions, providing information that was not required e.g. giving non-lifestyle factors (age) for the LOR question on gallstones, or discussing impact on lifestyle for the LOR question on hypertension.

Question 1 (a)

- 1 The components of the nervous system are responsible for coordinating nerve impulses in the body.

(a) Match each component with its function by drawing a line between the boxes.

One has been completed for you.

Component	Function
Autonomic nervous system	Connected to the brain by nerves. Allows communication between the brain and the body.
Central nervous system	Consists of sensory and motor neurons that transmit nerve impulses to and from the brain and spinal cord.
Peripheral nervous system	Consists of the brain and spinal cord. Takes a main role in control and coordination of most body functions.
Spinal cord	Regulates body functions that are not consciously controlled such as breathing and heart rate.

[3]

This was generally well answered, with most candidates achieving full marks. Some candidates confused the autonomic and peripheral nervous systems.

Question 1 (b) (i)

- (b) The brain is part of the nervous system.

Choose from the list of components below to answer the following questions about the roles of the brain.

cerebellum

cerebral cortex

corpus callosum

frontal lobes

hypothalamus

medulla

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

- (i) State **one** component that has a role in the regulation of body temperature and thirst.

..... [1]

Some candidates did not provide the correct response. Medulla was the most frequent incorrect response.

Question 1 (b) (ii)

- (ii) State **two** components that have a role in decision-making and processing information.

1

2

[2]

Frontal lobes was the common correct response. Most candidates identified at least one correct component.

Question 1 (b) (iii)

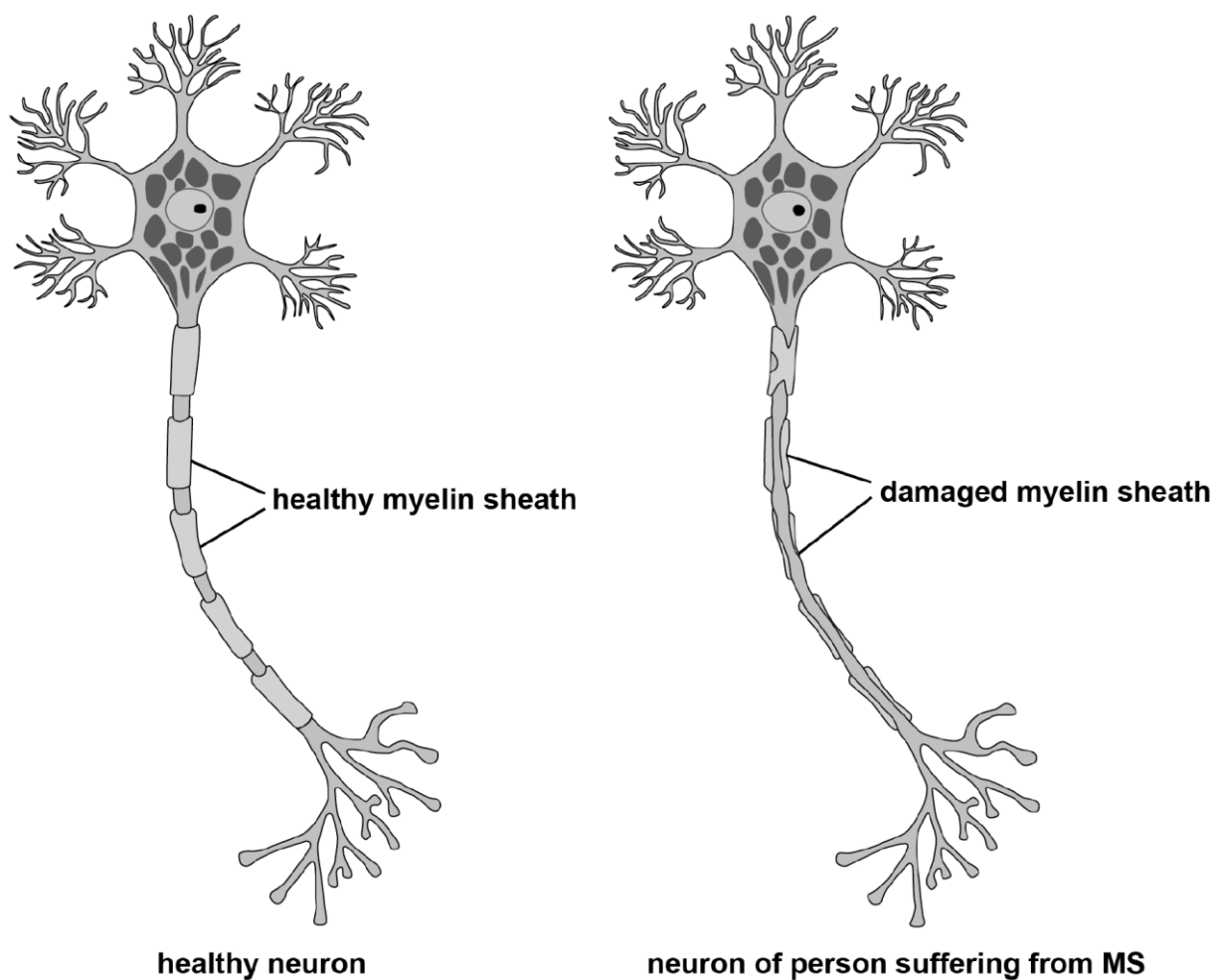
- (iii) State **one** component that has a role in automatic functions such as breathing and swallowing.

..... [1]

Many candidates correctly identified medulla as the component. Hypothalamus was a common incorrect response.

Question 1 (c) (i)

- (c)** The diagram shows a healthy neuron and a neuron from a person suffering from multiple sclerosis (MS).



- (i)** Describe the structure of a healthy myelin sheath.

.....

.....

.....

..... **[2]**

Some candidates wrote about the function of the myelin sheath rather than the structure. Very few candidates achieved 2 marks on this question.

Question 1 (c) (ii)*

- (ii)* Describe **two** symptoms of MS **and** explain why the damage caused to the myelin sheath can lead to these symptoms.

.....

.....

.....

.....

.....

..... [8]

A common theme arising with this question was candidates listing symptoms rather than describing them. A minority of candidates were able to accurately explain why the damage caused these symptoms.

Assessment for learning



Candidates should be taught how to describe symptoms rather than simply stating them. List like responses will prevent candidates from accessing Level 2 or Level 3.

Question 2 (a) (i)

- 2 (a) The pituitary and the pancreas both have roles as endocrine glands.

- (i) The pituitary gland is located beneath the hypothalamus in the brain.

Which **one** of the following is a role of the pituitary gland?

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

Role of the pituitary gland	Tick (✓) one only
produces the hormone, adrenaline	
produces the hormone, thyroxine	
regulates other endocrine organs	
regulates the nervous system	

[1]

This was generally well answered, with most candidates ticking the correct box. 'Produces the hormone, thyroxine' was a common incorrect response.

Question 2 (a) (ii)

- (ii)** The pancreas has a role in controlling the levels of glucose in the blood.

Outline how the pancreas controls blood glucose levels.

[3]

Most candidates achieved marks on this question, and some achieved full marks. Candidates tended to focus on the role of insulin and overlooked glucagon.

Question 2 (b) (i)

- (b)** Mia is 45 years old and has Type 1 diabetes, a malfunction of the pancreas. She was diagnosed with this condition as a child.

- (i) Give **two** symptoms of diabetes.

1
2 [2]

This was well answered with thirst and excessive urination being common correct answers.

Question 2 (b) (ii)*

(ii)* Discuss at least **two** impacts of diabetes on Mia's lifestyle.

.....

.....

.....

.....

.....

..... **[8]**

Impacts on lifestyle continue to be the most well answered level of response questions. Many candidates achieved Level 2 responses. To achieve Level 3 candidates need to comprehensively cover the impacts e.g. cover more aspects of impact.

Question 2 (c)

(c) Mia's diabetes was caused by her body's immune system destroying cells in her pancreas.

Name **one** other type of diabetes and state the cause of this type of diabetes.

Name

Cause

..... **[2]**

The majority of candidates correctly responded with Type 2 diabetes. The correct cause was not always provided, with many candidates stating risk factors i.e. obesity, rather than causes. Causes refers to the biology of the disorder e.g., cells becoming insulin resistant.

Question 2 (d)

- (d) The pancreas also has roles in the digestive system.

Complete the table below by deciding whether each statement about the digestive roles of the pancreas is **True (T)** or **False (F)**.

Statement	True (T) or False (F)
Pancreatic juices are secreted through the pancreatic duct.
Produces digestive enzymes that are secreted into the stomach.
Produces hydrochloric acid to kill bacteria.

[3]

'Produces hydrochloric acid to kill bacteria' was the most common correct answer. The most common incorrect answer was 'the pancreas produces digestive enzymes that are secreted into the stomach'.

Question 2 (e) (i)

- (e) Bile is a fluid that is produced in the digestive system.

- (i) Which **one** of the following organs produces bile?

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

Organ that produces bile	Tick (✓) one only
gall bladder	
liver	
small intestine	
stomach	

[1]

Many candidates identified the liver as producing bile. A large number of candidates incorrectly identified the gall bladder, which stores bile, not produces it. Few candidates responded with small intestines and the stomach.

Question 2 (e) (ii)

(ii) Describe **two** functions of bile.

1

.....

2

.....

[2]

Its role in digestion of fat was required to be credited marks for this question. Candidates achieved 2 marks, with 'neutralising chyme' and 'emulsifying fat' as part of their response. 'Helps digest food' was a common response, which would be seen as too vague to be credited any marks..

Question 2 (f) (i)

(f) Gallstones are a malfunction of the digestive system involving bile.

(i) Give **two** symptoms of gallstones.

1

2

[2]

Most candidates achieved 2 marks for this question. Common correct responses included abdominal pain, nausea and jaundice.

Question 2 (f) (ii)*

- (ii)* Explain the possible causes for the formation of gallstones. Include both lifestyle risk factors and biological causes in your response.

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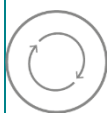
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.....

..... [6]

Many candidates explained impact on lifestyle, rather than lifestyle risk factors. A Level 3 response required an explanation of the biological causes (i.e. chemical imbalance of bile, crystallisation and stones forming which can then block the bile duct) and risk factors (i.e. obesity, physical inactivity and excessive alcohol consumption). Only a minority of candidates were able to do this. Some candidates explained risk factors like age and being female, these would not be attributed to lifestyle.

Assessment for learning



Develop understanding of the biological causes of diseases like gallstones, so that candidates can succinctly explain how the disease develops.

OCR support



OCR has provided [supplementary information for Unit 4](#) on our website.

Question 3 (a)

3 Blood vessels are components of the circulatory system.

- (a)** Complete the passage about the structure of blood vessels by choosing the most appropriate word(s) from the list below.

arteries **capillaries** **high** **low**
muscle **thicker** **thinner** **tissue** **veins**

Arteries and veins have walls containing smooth and elastic fibres. Generally, veins have walls and wider lumens than arteries. Blood flowing through veins is under pressure. Valves are found in to keep blood flowing in the right direction.

[4]

Many candidates achieved full marks on this question. Some gave multiple incorrect responses: tissue, thicker, high and arteries were common incorrect responses.

Question 3 (b)*

- (b)*** Ali has high blood pressure (hypertension).

Discuss at least **two** possible impacts of high blood pressure on Ali's health and the lifestyle changes he could make to reduce the effects of hypertension.

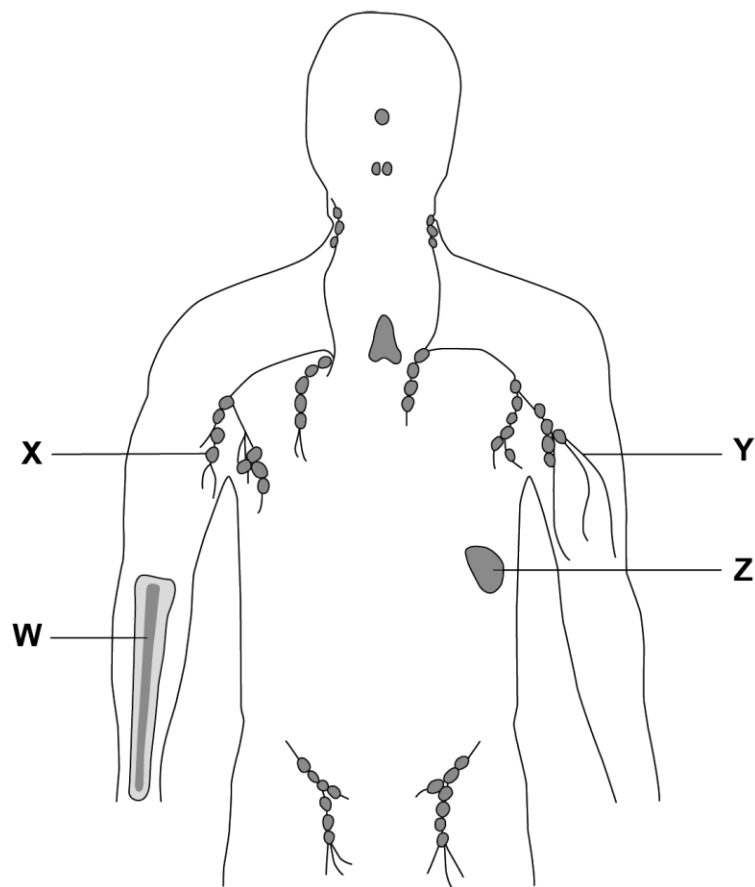
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[6]

When discussing impacts, candidates need to cover the physiological impacts e.g. strokes and heart attacks. Many candidates discussed impacts on lifestyle, for example regular doctor's appointments, which wasn't creditable. The lifestyle changes aspects were generally well answered but it is important that candidates are specific, for example low fat and low salt diet, rather than healthy diet.

Question 3 (c) (i)

(c) The diagram shows the lymphatic system.



(i) Complete the table below by selecting the correct letter that identifies the structures of the lymphatic system.

One has been done for you.

Structure	Letter
bone marrow	W
lymph node	
lymph organ	
lymph vessel	

[3]

Most candidates correctly identified all three structures, with lymph organ the most common correct response.

Question 3 (c) (ii)

- (ii) One of the roles of the lymphatic system is to produce blood cells.

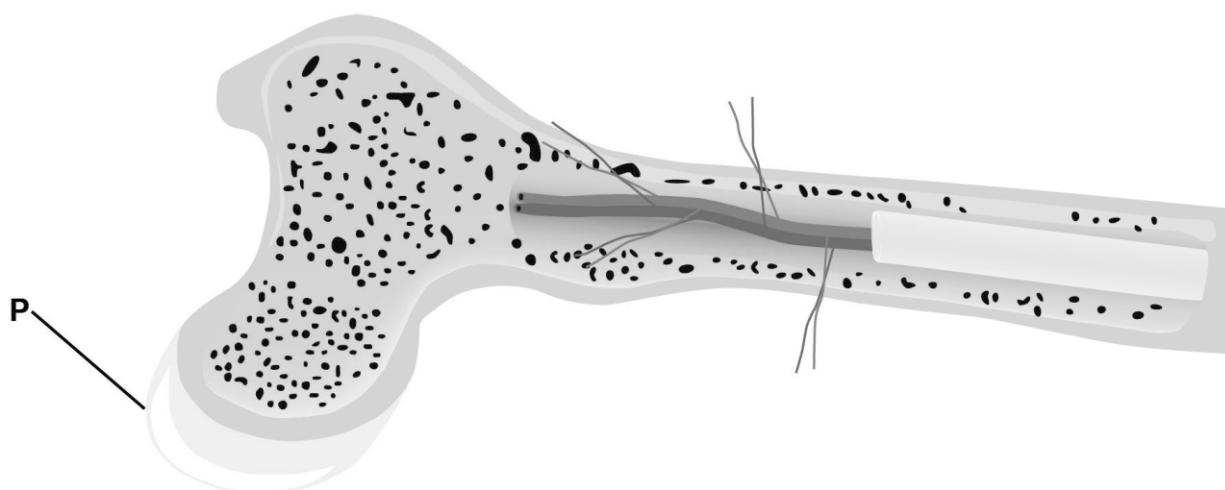
State **one other** role of the lymphatic system.

..... [1]

It was not uncommon for this question to be left unanswered. The most common correct response was identifying its role in fighting infection.

Question 3 (d) (i)

- (d) The diagram below shows a section of bone from the arm.



- (i) Identify the type of bone **section** shown in the diagram.

..... [1]

A minority of candidates identified the section of bone was vertical. Transverse and identifying a specific bone e.g. femur were common incorrect responses.

Question 3 (d) (ii)

- (ii) The structure labelled **P** helps to reduce friction in a joint.

Identify structure **P**.

..... [1]

Most candidates correctly identified the structure was cartilage.

Question 3 (e) (i)

- (e) Beth has osteoporosis. Scans have shown changes in her bone tissue.

- (i) Identify **one** cause of osteoporosis.

..... [1]

A well answered question with many candidates providing a correct response. Some candidates confused osteoporosis for osteoarthritis.

Question 3 (e) (ii)

- (ii) Give **two** ways in which her bones could have changed as osteoporosis progressed.

1

.....

2

.....

[2]

Most candidates achieved at least 1 mark, with many gaining 2 marks. Lack of bone density and easily fractured were frequent responses.

Question 3 (e) (iii)*

(iii)* Analyse the use of **two** possible treatments for managing Beth's osteoporosis.

.....

.....

.....

.....

.....

..... [6]

Some candidates answered this question well achieving a Level 3 mark. Physiotherapy and high calcium diet/calcium supplements were common responses. Those reaching Level 3 were able to make qualitative comments on the effectiveness of these treatments.

Question 4 (a)

4 The eye is part of the sensory system.

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

ciliary muscle

conjunctiva

cornea

iris

suspensory ligament

tear gland

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

Description	Structure
Changes the shape of the lens to enable the eye to focus.	
Produces fluid to clean and lubricate the front of the eye.	
Thin membrane that covers and protects the surface of the eye.	
Transparent front part of the eye.	

[4]

Some candidates were able to identify all four structures correctly, while the majority of candidates obtained at least 1 mark for this question. Tear gland was the most common correct response, while many candidates incorrectly identified the suspensory ligament as the structure that changes the shape of the lens.

Question 4 (b)*

(b)* The following structures are also part of the eye:

- Retina
- Lens

Explain how changes, damage or deterioration occurs in these structures, leading to **named** eye malfunctions.

.....

.....

.....

.....

.....

..... [6]

Few candidates achieved a Level 3 response for this question. Candidates explained about the impact of malfunctions rather than how changes, damage or deterioration of the retina or lens leads to these malfunctions. It is vital that candidates address the stem of the question. Of the two structures, the lens was the better answered aspect for most candidates.

Question 4 (c) (i)

(c) Deafness is a malfunction of the ear that can be caused by ageing.

(i) Give **one other** cause of deafness.

.....

..... [1]

Most candidates provided a correct response. Where candidates gave the response 'loud noise', they needed to be more specific, identifying that the loud noise was for a prolonged period of time.

Question 4 (c) (ii)

(ii) State **two** effects of deafness on lifestyle.

- 1
-
- 2
-

[2]

Many candidates could not be credited marks on this question as their responses were too vague. Responses like 'can't communicate' are not making sufficient links to lifestyle. Candidates need to be develop these responses to be able to explain the effect it would have on a person's lifestyle, for example 'may struggle to hear what people are saying, resulting in frustrating when having conversation with friends'.

Question 4 (c) (iii)

(iii) Give **one** possible treatment for deafness.

-
- [1]

Nearly all candidates provided a correct response to this question. Hearing aids, cochlea implants and removal of ear wax were common correct responses.

Question 5 (a) (i)

5 During gaseous exchange, oxygen moves out of the alveoli into the capillaries. It is then transported in the blood to body tissues for cellular respiration.

(a) (i) Describe **two** features of the alveoli walls that enable gaseous exchange to be efficient.

1

.....

2

.....

[2]

Most candidates achieved at least 1 mark on this question. Thin walls and large surface area were the most frequent correct responses.

Question 5 (a) (ii)

(ii) Explain how a diffusion gradient enables oxygen to move out of the alveoli and into the capillaries.

.....

.....

.....

..... **[2]**

Few candidates achieved 2 marks on this question. The most common response achieving a mark was that 'oxygen moves from area of high concentration to low concentration.' Not using the term concentration within candidate responses resulted in marks not being given. Some candidates used terms like 'levels' or 'volume' which were not creditable.

Question 5 (a) (iii)

(iii) Name the part of the blood that transports the oxygen to body tissues.

..... [1]

This was very well answered, plasma being the most common incorrect response.

Question 5 (b) (i)*

(b) Tom has emphysema.

(i)* Analyse at least **two** methods that can be used for monitoring respiratory malfunctions, such as emphysema.

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

The majority of candidates could identify monitoring methods with peak flow, spirometry and MRI scans being the most common responses. Only a minority of candidates were able to analyse these methods.. To achieve Level 3 candidates were required to accurately explain the methods and go on to make comments on the effectiveness.

Assessment for learning



Candidates need to develop their ability their understanding of the command verb 'analyse'. In addition, for monitoring methods there is a requirement that details of how the methods are performed and what they indicate is required.

Question 5 (b) (ii)

- (ii) Give **one** cause of emphysema and outline the possible effects on Tom's respiratory system.

.....

.....

.....

.....

.....

..... [3]

Nearly all candidates identified smoking as a cause of emphysema, but many of them did not go on to correctly outline the effects on the respiratory system. The majority of candidates who did, focused on damage to the alveoli and reduced gaseous exchange.

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