

## **CAMBRIDGE TECHNICALS LEVEL 3 (2016)**

*Examiners' report*

# **HEALTH AND SOCIAL CARE**



**05830–05833, 05871**

## **Unit 4 January 2020 series**

Version 1

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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 can be downloaded from OCR.

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## Paper Unit 4 series overview

The performance of the candidates in this exam series was very good. The vast majority of candidates were able to provide high quality responses for all of the questions and complete the paper within the allocated time. Many candidates made use of the additional pages to further develop their response to good effect.

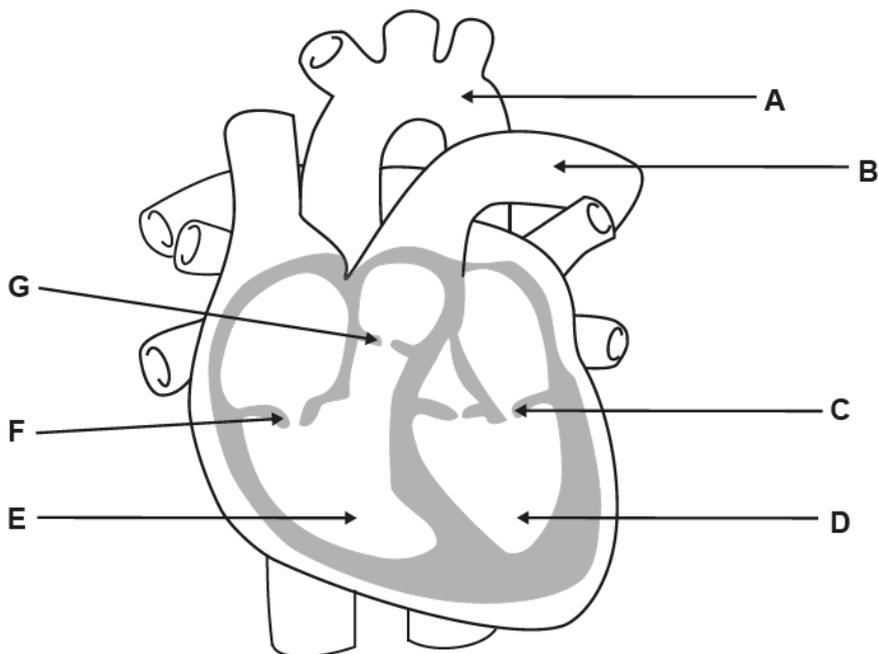
Most candidates were able to access all parts of the unit, achieving good credit in all areas. Only a small number of candidates either left questions or provided responses that did not gain any marks. An increased number of candidates demonstrated advanced knowledge and understanding throughout the entire paper. Furthermore, they were able to analyse and evaluate to a high standard than in previous examination series. With a not insignificant number achieving Level 3 responses in both question types. A small number of candidates remain challenged by the levelled response questions, and were frequently limited to Level 1 responses. Candidates should make sure they are addressing all aspects of the questions and are providing more detailed responses where required.

A common issue remains when discussing the effects of different conditions. The effects refer to the biology of what is happening in the body for example multiple sclerosis results in the destruction of myelin sheath and the development of scar tissue, which disrupts nerve impulses. Many candidates discuss the impact on well-being or daily life, which only receives very limited credit. Questions will use the terms 'well-being' or 'daily life', if these issues need addressing in the candidate's response.

Candidates continue to show some improvement on previous exam series in both knowledge and ability to answer questions.

### Question 1 (a)

1 The diagram below shows the internal structure of the heart.



(a) Complete the table using letters from the diagram.

The first one has been done for you.

Structure	Letter
bicuspid valve	C
left ventricle	
semilunar valve	
a pulmonary artery	

[3]

Most candidates were able to identify all parts of the heart correctly. Semilunar valve was the structure that was most commonly incorrectly identified.

### Question 1 (b) (i)

**(b)** Different structures in the heart help to control and regulate the cardiac cycle.

Answer the following questions about the heart.

Use structures from the list.

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

**sinoatrial node (SAN)      atrioventricular node (AVN)      Purkyne Fibres**

**(i)** Identify which structure is located in the upper wall of the right atrium of the heart.

.....[1]

### Question 1 (b) (ii)

**(ii)** Identify which structure is responsible for delaying the transmission of electrical impulses.

.....[1]

### Question 1 (b) (iii)

**(iii)** Identify which structure can be described as the 'pacemaker'.

.....[1]

### Question 1 (b) (iv)

**(iv)** Identify which structure ensures that impulses are spread rapidly through the ventricles.

.....[1]

A few candidates were able to identify all four structures correctly. However, the majority of candidates did identify some structures correctly. A common error was to confuse the functions of the sinoatrial and the atrioventricular nodes.

### Question 1 (c) (i)

**(c)** The heart is part of the cardiovascular system.

Coronary Heart Disease (CHD) is a common malfunction of the cardiovascular system.

**(i)** Identify **one** other malfunction of the cardiovascular system.

.....[1]

This question was well answered, with the correct term 'hypertension' being used and spelt correctly. A few candidates did respond with the diseases of angina and heart attack. As these are forms of Coronary Heart Disease, this was not credited.

### Question 1 (c) (ii)

**(ii)\*** Discuss the options available to monitor and treat CHD.

You should include medical treatments and lifestyle changes in your answer.

.....

.....

.....

.....

.....

**[6]**

This was a generally well answered question, with a high percentage of candidates achieving a Level 2 response. However, only a minority were credited with a Level 3 response. The main reason for this was due to not all aspects of the question being addressed. To achieve a Level 3 response, candidates needed to cover monitoring methods, medical treatments and lifestyle changes. It is important that candidates make sure that they read the question carefully and take care to cover all aspects in their response. Furthermore, some candidates did address all parts, but were inconsistent in the depth of their discussion. Many individuals discussed medical treatments extremely well, but often gave list like responses when covering monitoring and lifestyle changes. When discussing lifestyle changes candidates should be clear on how the change helps treat CHD, for example stopping smoking reduces the formation of atheroma as the endothelium on the inside of blood vessels is no longer being damaged by the toxins with cigarettes.

### Question 1 (d)

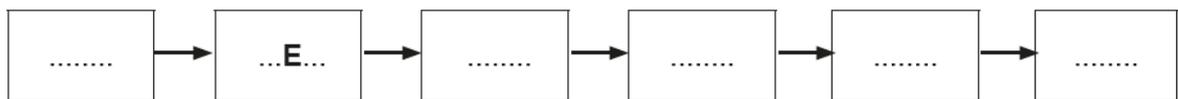
- (d) As we breathe, air travels into and out of the body through the organs of the respiratory system.

Letters **A-F** represent the organs of the respiratory system.

- A** trachea
- B** bronchi
- C** lungs
- D** mouth
- E** bronchioles
- F** larynx

Write the **letters** in the boxes to give the correct order for the passage of air after **breathing out** (expiration).

The second one has been done for you.



**[5]**

This was a well answered question, with a high percentage of candidates achieving full marks.



### Question 2 (a)

2 Components of the nervous system work together to form the control and communication centre of the body.

(a) Complete the table using components from the list.

- spinal cord
- central nervous system
- sensory neurone
- motor neurone
- autonomic nervous system
- cerebral cortex

Function	Component
Controls and regulates heart rate	
Allows transmission of information to <b>and</b> from the brain	
Transmits impulses from the brain to muscles	

[3]

Candidates either scored full marks or 1 or 0 marks on this question. Spinal Cord was the most common correct response and central nervous system was often incorrectly given as a response for the autonomic nervous system.

### Question 2 (b) (i)

(b) Multiple sclerosis (MS) is a malfunction of the nervous system.

(i) Identify **one** symptom of multiple sclerosis.

Tick (✓) **one** box.

High blood pressure

Unexplained weight loss

Problems with balance and co-ordination

Swelling of hands and feet

[1]



This was a well answered question, with numerous candidates achieving a Level 2/Level 3 mark. Some individuals were limited by the fact that they didn't explain the symptom. In order to achieve a Level 2/Level 3 response you were required to explain the cause of the symptom, for example constant cough in order to help move the thick stick mucus out of the lungs.

Question 3 (a) (i)

3 (a) Control and regulatory systems are responsible for maintaining a constant internal environment in the body.

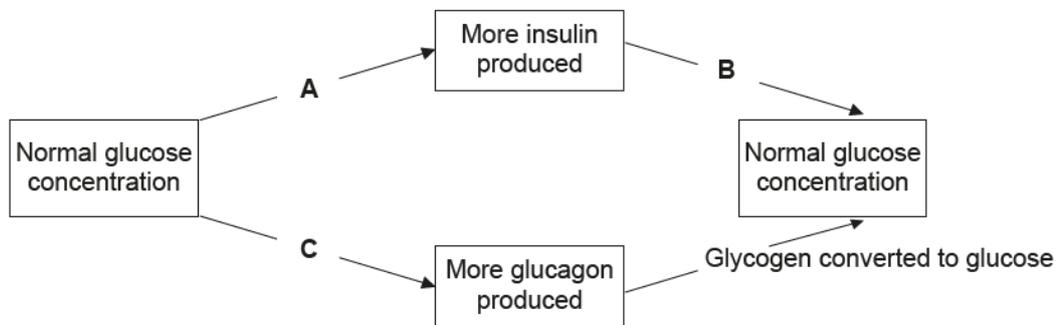
(i) Name the term that means 'maintaining a constant internal environment'.

.....[1]

The majority of candidates correctly identify this as homeostasis. The most common incorrect response was optimum conditions.

Question 3 (a) (ii)

(ii) The concentration of glucose in the blood is maintained by a feedback mechanism. Identify what is happening with **glucose** at each of the stages in the diagram.



A .....

.....

B .....

.....

C .....

.....

[3]

A number of candidates struggled with this question and often repeated a lot of the information provided in the diagram. A common misconception was that the body produces glucose and insulin breaks it down.





## Question 4 (b)

- (b) Identify which statements about possible treatments for osteoarthritis are **true**, and which are **false**.

Tick (✓) **one** box in each row.

Statement	True	False
Taking vitamin D and calcium supplements.		
Taking steroids to reduce inflammation and swelling.		
Surgery to replace a joint.		
Physiotherapy to strengthen muscles.		

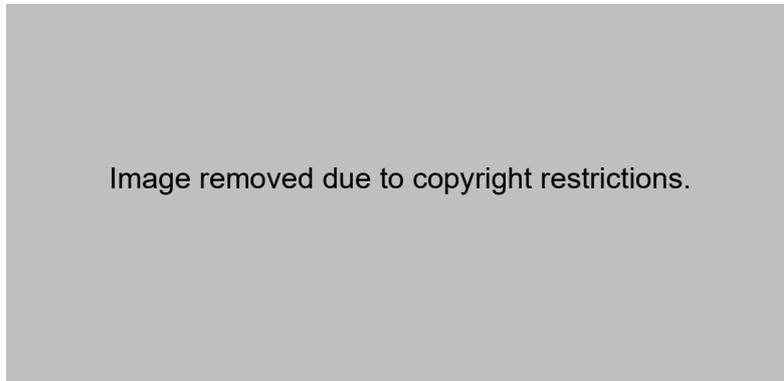
[4]

The responses to this question was incredibly varied, with an even distribution of marks from 0 to 4.

Question 4 (c)

X

Y



Z

(c) The diagram shows a transverse section of bone.

Complete the table using letters from the diagram.

Structure	Letter
Haversian canals	
Bone cells (osteocytes)	
Canaliculi	

[3]

Haversian canal was the feature that was correctly identified by the most individuals. Many candidates struggled to differentiate between osteocytes and canaliculi.

### Question 4 (d)

(d) Nutrients are needed for healthy bones.

These nutrients enter the blood from the digestive system by the process of absorption in the small intestine.

Explain how the wall of the small intestine is adapted for the absorption of nutrients.

.....  
.....  
.....  
..... [4]

The majority of candidates correctly identified that the small intestine is lined with villi and that this increases surface area. However, only a small percentage went on to explain a second feature. This resulted in the majority of candidates achieving only 2 marks on this question.

### Question 4 (e) (i)

(e) Irritable bowel syndrome (IBS) is a malfunction of the digestive system.

(i) Identify **two** symptoms of IBS.

1 .....  
2 ..... [2]

This was a well answered question, with nearly all candidates achieving full marks.

### Question 4 (e) (ii)

(ii) State **two** possible causes of IBS.

1 .....  
.....  
2 .....  
..... [2]

The most common correct response was genetic predisposal/family history, but the majority of candidates struggled to identify a second cause. Smoking, alcohol and poor diet were all common incorrect responses.

### Question 4 (f)

(f)\* Various techniques and treatments are available to monitor and treat malfunctions of the digestive system, including:

- Ultrasound
- Endoscopy
- Lithotripsy

Analyse the various techniques and treatments listed above.

.....

.....

.....

..... [8]

Some candidates answered this question exceptionally well. They analysed each technique well, linking them to conditions they are associated with and making qualitative judgements on their effectiveness. Some individuals simply described techniques, without linking to treatments and in the case of ultrasound discussed its use in foetal scans. Linking to digestive malfunctions was required within the stem of the question, so not doing this limited candidates to a lower mark.

### Question 5 (a) (i)

5 The eye is part of the sensory system.

(a) Answer the following questions about the eye.

Use words from the list.

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

- |         |        |             |       |
|---------|--------|-------------|-------|
| cornea  | retina | humour      | pupil |
| ciliary | iris   | conjunctiva | lens  |

(i) Identify a type of fluid that fills the eye and helps to keep its shape.

..... [1]

Question 5 (a) (ii)

(ii) Identify the inner lining of the eye that contains rod and cone cells.

.....[1]

Question 5 (a) (iii)

(iii) Identify a muscle that helps to change the shape of the lens.

.....[1]

Question 5 (a) (iv)

(iv) Identify the clear covering at the front of the eye.

.....[1]

Responses to this question were mixed. A reasonable number of candidates were able to correctly identify all four structures of the eye. However, most individuals only correctly identified one or two structures correctly. The most common error was mistaking the lens for the clear covering at the front of the eye.

### Question 5 (b)

**(b)\*** Jack has recently been diagnosed with age-related macular degeneration (AMD).

Describe the possible effects of AMD on Jack's vision, **and** also how the AMD could be monitored.

.....

.....

.....

.....[6]

Very few candidates produced a Level 3 response for this question. Some individuals provided detailed description on the causes of this condition. However, this was not required and thus received no credit. In terms of the effects on vision the most common response was that it caused blurred vision. Very few candidates described the loss of central vision, which is a key characteristic of this condition. Many individuals discussed the use of eye tests performed by an optician. Candidates should be aware that tests for this condition would be performed by an ophthalmologist. Finally, a number of candidates described in detail the impact on daily life. The question did not require this and thus this received no credit.

### Question 5 (c)

(c) The brain is responsible for coordinating messages throughout the body.

Complete the sentences about the brain.

Use terms from the list.

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

- |                          |                     |                      |                        |
|--------------------------|---------------------|----------------------|------------------------|
| <b>medulla oblongata</b> | <b>meninges</b>     | <b>frontal lobes</b> | <b>thinking</b>        |
| <b>balance</b>           | <b>hypothalamus</b> | <b>temperature</b>   | <b>corpus callosum</b> |

The brain is protected by the skull and tough membranes called ..... It is divided into two cerebral hemispheres connected by a bridge called the .....

The outermost layer of the brain is called the cerebral cortex, which is responsible for ..... and decision-making.

Important functions, such as breathing and swallowing, are controlled by the..... which is found at the base of the brain where it meets the spinal cord.

The cerebellum has a role in coordinating muscle activity and in maintaining .....

**[5]**

Most candidates answered this question correctly, with 5 marks being the most common mark given.

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