

CAMBRIDGE TECHNICALS LEVEL 3 (2016)

Examiners' report

HEALTH AND SOCIAL CARE



Unit 4 January 2019 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.

Unit 4 series overview

The overall performance of candidates was good. The majority of candidates are able to access all of the paper and complete the paper within the allocated time. Some candidates used the additional page to good effect and made clear links to this page within the body of the examination.

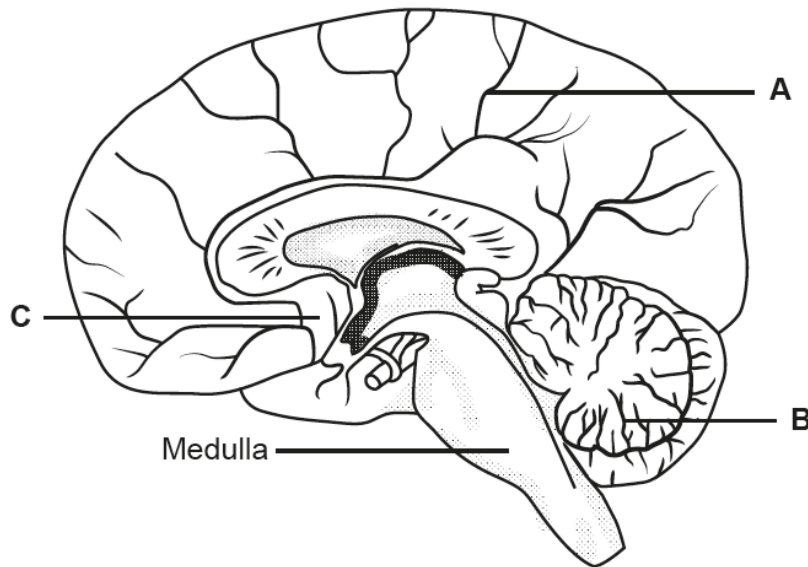
Some candidates did not have secure knowledge on all aspects of the unit, and either left questions unanswered, or provided responses that did not credit any marks.

Some candidates demonstrated advanced knowledge and understanding throughout the entire paper. However, a number of candidates continue to be challenged by the levelled free response questions, and were frequently limited to level 1 responses.

Most candidates struggled with evaluate and analysis questions, and the vast majority of candidates only achieved a level 1 response.

Question 1(a)(i)

1 A diagram of the brain is shown below.



(a) (i) Identify the parts of the brain labelled **A**, **B** and **C** in the diagram.

Choose from the following:

- Cerebellum Cerebral cortex Corpus callosum Hypothalamus**

A.....

B.....

C.....

[3]

Very few candidates were able to identify all parts of the brain correctly. The majority of candidates only identified one correct response at most.

Question 1 (a)(ii)

(ii) Which of the following statements about the function of the medulla is correct?

Tick (✓) **one** box.

It controls autonomic functions such as heart rate.

It controls balance and posture.

It coordinates movement of muscles.

It coordinates speech and language.

[1]

The majority of candidates correctly answered this question.

Question 1(b)(i)

(b) Simone, aged 45, has been diagnosed with multiple sclerosis (MS). MS is an auto-immune disease which damages neurones in the Central Nervous System.

(i) Which part of the neurone is affected by MS?

.....[1]

The majority of candidates provided the correct response, but many spelt myelin sheath incorrectly.

Question 1(b)(ii)

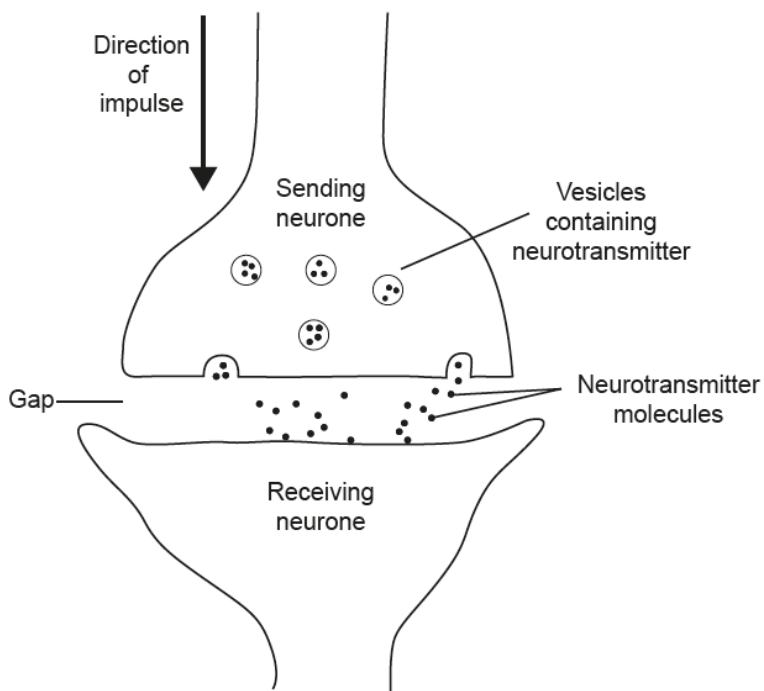
(ii)* Identify possible treatments Simone could receive from health care professionals and explain how they help to manage the symptoms of MS.

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

Numerous candidates provided information about the condition, but this was not required and means that they would have spent time and effort on areas where they wouldn't achieve any credit. Many candidates identified methods of treatment, but did not explain how they helped manage symptoms. A common misunderstanding noted was that antibiotics treat pain.

Question 1 (c)(i)

(c) The diagram below shows the gap between two neurones.



Describe **four** stages of how a nerve impulse is transmitted across the gap between two neurones.

Use the information in the diagram in your answer.

- 1.....
-
- 2.....
-
- 3.....
-
- 4.....
-

[4]

This question was not answered well. Many candidates simply repeated information from the diagram. This may have been due to the direction to “use the information in the diagram in your answer”, but candidates were required to provide additional information to achieve marks.

Question 2(a)

2 (a) Complete this description about the composition and functions of blood.

Use words from the list below:

- blood clotting
- cytoplasm
- erythrocytes
- extensions
- fragments
- lymphocytes
- neutrophils
- plasma
- temperature regulation

The main component of blood is called _____. It consists mostly of water and it helps in the _____ of the body. Red blood cells are also known as _____ and are responsible for transporting oxygen and carbon dioxide.

White blood cells help to prevent infection, for example, _____ which engulf microorganisms.

Platelets can be described as cell _____ and are responsible for _____.

[6]

The vast majority of candidates answered this question well achieving 4 marks or more. The common error was failure to identify that neutrophils engulf microorganisms.

Question 2(b)(i)

(b) Kevin has been suffering from hypertension.

(i) What does the term 'hypertension' mean?

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

This question was answered well.

Question 2(b)(ii)

(ii)* Evaluate the possible lifestyle changes Kevin could make to treat his hypertension.

[6]

.....

.....

.....

.....

Candidates correctly identified numerous lifestyle changes which could treat Kevin’s hypertension. Some candidates went on to explain the benefits of the changes. Very few candidates considered the barriers to making these changes. This resulted in the overwhelming majority of candidates being capped at 2 marks.

Question 2(c)

(c) Hypertension can lead to malfunctioning of the kidneys by damaging nephrons.

Name **one** process that occurs in a kidney nephron and the part of the nephron involved in this process.

Process.....

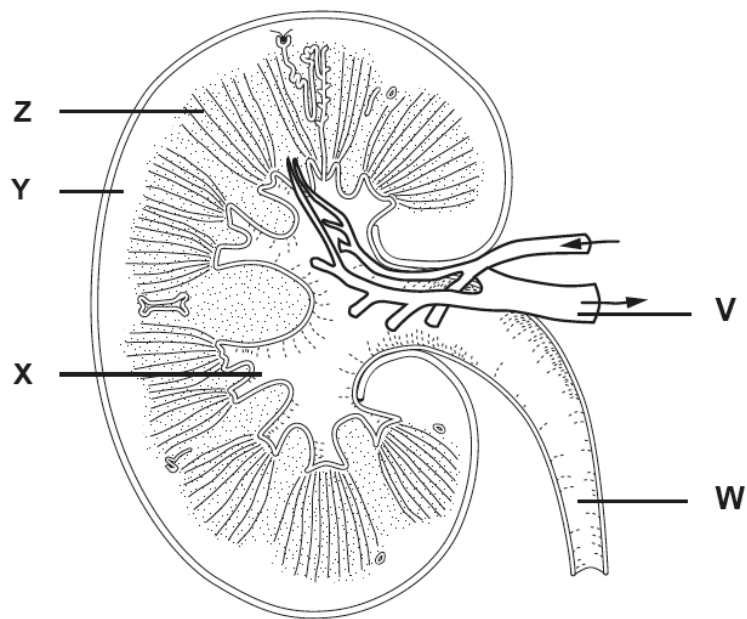
Part of nephron involved.....

[2]

This question wasn’t answered well. Candidates struggled to identify a process and even less knew the part of the kidney involved.

Question 2(d)

(d) The diagram shows a kidney.



Select the correct letter to identify the labelled parts shown on the diagram.

The third one has been done for you.

| Structure within the kidney | Letter |
|-----------------------------|--------|
| Cortex | |
| Medulla | |
| Renal vein | V |
| Ureter | |

[3]

Whilst some candidates correctly identified all 3 parts, the majority did not. The most common correctly identified part was the ureter.

Question 2(e)(i)

(e) The liver produces urea which must then be removed by the kidneys.

(i) Which **one** of the following processes in the liver produces urea?

Tick (✓) **one** box.

Assimilation

Deamination

Detoxification

Respiration

[1]

The majority of candidates incorrectly thought that the process was detoxification.

Question 2(e)(ii)

(ii)* Candice has just found out that she has cirrhosis of the liver.

Discuss the possible causes for cirrhosis and the effects cirrhosis will have on her liver function.

[6]

.....
.....
.....
.....

Most candidates correctly identified that alcohol is a possible cause of cirrhosis, although many were not clear that it is a prolonged excessive exposure that is a possible cause. The question states 'discuss the possible causes', as this is plural, to achieve the higher mark bands candidates needed to consider other causes in addition to alcohol. Very few candidates demonstrated this. The question also required discussion on the effects of cirrhosis on liver function. Many candidates did not address this part of the question.

Question 3(a)(i)

3 (a) The knee is an example of a synovial joint.

(i) Complete the table by matching the components of a synovial joint to their function. Choose from the list of components below:

Cartilage Ligament Tendon Synovial fluid Synovial membrane

| Function | Component |
|------------------------------------|-----------|
| Attaches bone to bone | |
| Lubricates and nourishes the joint | |
| Reduces friction during movement | |

[3]

There was clear disparity in this question. The vast majority of candidates either achieved full marks or 1 of zero marks.

Question 3(a)(ii)

(ii) Explain how the action of muscles around synovial joints result in movement.

.....

.....

.....

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

Some candidates answered this question well, focussing on the action of muscles. Many candidates discussed the structure of synovial joint which is not required, or commented on tendons and ligaments shortening which is incorrect.

Question 3(b)*

(b)* After years of playing rugby, Harry has developed severe arthritis in his knees.

Explain the treatment options that are available to Harry for his arthritis.

.....

.....

.....

.....[5]

Most candidates were able to correctly identify treatments for this condition, but many did not fully explain them. Furthermore some candidates were vague in their responses using terms like medication or operation with no further clarification.

Question 4(a)

4 The digestive system consists of specialised organs that work together to break down food.

(a) Describe what happens to food in the buccal cavity up to the time it enters the stomach.

.....

.....

.....

.....[4]

A number of candidates answered this question well addressing both mechanical and chemical digestion. However, a common issue was that candidates only focussed on mechanical digestion. This capped responses to a maximum of two marks. A minority of candidates described digestion in the stomach, which was not required.

Question 4(b)(i)

(b) Choose from the list of organs below to answer the following questions.

You can use an organ once, more than once or not at all.

- Gall bladder
- Large intestine
- Liver
- Small intestine
- Pancreas
- Stomach

(i) Name **one** organ that secretes hydrochloric acid.

.....[1]

Candidates answered this question well.

Question 4(b)(ii)

(ii) Name **two** organs that produce enzymes.

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

Candidates answered this question well.

Question 4(b)(iii)

(iii) Name **one** organ that stores bile.

.....[1]

The majority of candidates answered this question correctly. A common misconception was that the liver stores bile.

Question 4(b)(iv)

(iv) Name **one** organ where the products of digestion enter the blood.

.....[1]

Candidates answered this question well.

Question 4(c)*

(c)* Karim has Coeliac disease. Explain why he has been advised not to eat foods containing gluten as part of his dietary support plan.

.....
.....
.....
.....
.....

[6]

The vast majority of candidates knew about gluten and the symptoms of the condition. However many were unclear on the effects on the villi and absorption. Very few candidates made the link to secondary conditions like osteoporosis or anaemia.

Question 4(d)(i)

(d) Apart from its role in digestion, the pancreas also functions as an endocrine organ and produces hormones.

(i) Explain what is meant by the term 'hormone'.

.....
.....
.....

[2]

Only a small minority of candidates achieve full marks on this question. Many candidates made vague links to emotions and puberty.

Question 4(d)(ii)

(ii) The table below has statements about the pancreas and its role as an endocrine organ.

Complete the table by deciding whether each statement is **True** or **False**.

| Statement | True or False |
|---|---------------|
| Diabetes is caused when the pancreas produces too much insulin. | |
| The hormone glucagon is produced by the pancreas. | |
| The pancreas produces the hormone insulin. | |
| Type II diabetes is caused when cells in the pancreas are destroyed during childhood. | |

[4]

The quality of the responses were mixed, as was the way in which candidates answered the question. Some wrote true or false, others T or F and some even put a tick or a cross. Candidates should take care to answer the question as indicated. A minority of candidates left all or part of this question blank. Candidates should attempt to answer all questions, especially those with a limited number of responses.

Question 4(e)*(i)

(e)* Uncontrolled diabetes can damage organs in the body, such as the eye, leading to a malfunction.

(i) Identify a malfunction of the eye or ear.

.....[1]

Nearly all candidates provided a correct response for this question. A minority of candidates provided vague answers such as blindness. Cataracts was frequently spelt incorrectly.

Question 4(e)*(ii)

(ii) Explain how the malfunction in 4(e)(i) may impact on an individual's lifestyle.

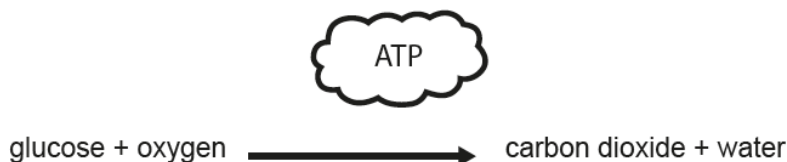
.....
.....
.....
.....[7]

Numerous candidates spent time describing conditions rather than the impact on lifestyle. When explaining the impact on lifestyle many candidates merged impacts together e.g. inability to drive, loss of job, isolation etc. They would benefit from fully explaining the impact using separate points. Many candidates focussed on cataracts, but showed limited understanding of the condition providing very negative responses about the impact on lifestyle.

Question 5(a)

5 Aerobic and anaerobic respiration are types of cellular respiration that take place inside cells to provide energy.

This is the reaction that takes place during aerobic respiration.



(a) Compare this reaction with the one that takes place during anaerobic respiration.

.....
.....
.....
.....[3]

Many candidates struggled with this question. Some candidates provided responses identifying the differences between aerobic and anaerobic. Very few candidates covered both similarities and differences, which is required in compare questions.

Question 5(b)

(b) Write the name of **one** respiratory malfunction being described by each statement in the table.

Choose from: **Asthma** **Cystic fibrosis** **Emphysema**

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

| | |
|---|--|
| Can be triggered by cigarette smoke or dust | |
| Caused by chemicals in cigarette smoke | |
| Caused by a defective gene | |
| Mucus is produced thicker than normal | |

[4]

The candidates answered this question well.

Question 5(c)

(c)* Micky is a 13 year old boy with cystic fibrosis.

Analyse the treatment and care Micky needs to support him in managing his condition.

.....

.....

.....

.....

.....

.....[6]

Many candidates could identify suitable treatments, but very few provided any real analysis. Candidates needed to discuss issues with his treatment or discuss the impact e.g. antibiotics clears up infections quickly meaning there is less damage and scarring to the lungs, which can increase life expectancy.

Question 5(d)

(d) Complete the description about the structure of the middle ear.

Choose from the following:

air

cochlea

ear drum

Eustachian tube

fluid

incus

round window

The middle ear is a chamber filled with _____ between the _____ and the inner ear. The _____ connects the middle ear to the throat and ensures that the pressure of the middle ear is equal to the pressure outside the ear. The _____ is one of three small bones that transmit vibrations across the middle ear to the oval window.

[4]

The candidates answered this question well. However a common misconception was that the middle ear chamber is filled with fluid.

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