CAMBRIDGE TECHNICALS

OCR
Oxford Cambridge and RSA

CAMBRIDGE TECHNICALS LEVEL 3 (2016)

Examiners' report

HEALTH AND SOCIAL CARE

05830–05833, 05871

Unit 4 Summer 2024 series

Version 1

Contents

© OCR 2024

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. A selection of candidate responses is also provided. 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.

Would you prefer a Word version?

Did you know that you can save this PDF as a Word file using Acrobat Professional?

Simply click on **File > Export to** and select **Microsoft Word**

(If you have opened this PDF in your browser you will need to save it first. Simply right click anywhere on the page and select **Save as . . .** to save the PDF. Then open the PDF in Acrobat Professional.)

If you do not have access to Acrobat Professional there are a number of **free** applications available that will also convert PDF to Word (search for PDF to Word converter).

© OCR 2024

Unit 4 series overview

Performance in this exam series was lower than in recent exam series. The main reason for this was a reduction in the performance on some of the Level of Response questions. In recent exam series there has been one or more Level of Response questions relating to the impact of disease on daily life/lifestyle. Candidates have become highly skilled at answering these questions with many gaining high Level 2 or Level 3. This exam series did not include this type of question which impacted on performance. Many candidates struggled with the question comparing IBS and coeliac and the question on the causes and effects of nephrotic syndrome. However, candidates performed well on other Level of Response questions including the role of blood vessels of the heart and the role of lung structures during inspiration and expiration.

As in previous exam series candidates performed well on points based questions, with many candidates gaining a high percentage of the marks available.

Candidates who did well on this paper generally:	Candidates who did less well on this paper generally:
• answered all questions • provided Level 2+ responses for most Level of Response questions • gained more than 65% of the marks available for the short answer point-based questions • applied knowledge to address the stem of the question.	• did not answer all questions • did not achieve above a Level 1 on any Level of Response question. • gained less than 50% of the marks available for the short answer point-based questions.

© OCR 2024

Question 1 (a) (i), (ii), (iii) and (iv)

1 Blood is contained in the blood vessels of the cardiovascular system.

(a) Choose from the terms below to answer the following questions about the composition of blood and its functions.

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

erythrocyte	**lymphocyte**	**monocyte**
neutrophil	**plasma**	**platelet**

(i) Which is the liquid part of the blood?

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

(ii) Which is a cell that transports oxygen in the blood?

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

(iii) Which is the largest type of white blood cell that helps to prevent infection?

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

(iv) Which is a cell fragment important in the clotting of blood?

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

Question 1 (a) was well answered by the majority of candidates. Most of them identified the correct component of blood for Questions a (i), (ii) and (iv). However very few candidates knew the largest type of white blood cell, with most identifying lymphocytes or neutrophils.

© OCR 2024

Question 1 (b)

(b) Which **one** of the following is a correct statement about the role of hydrostatic pressure in the formation of tissue fluid?

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

Statement	Tick (✓) **one** only
Forces blood proteins out of capillaries into surrounding tissues.	
Forces water and dissolved substances into capillaries from the surrounding tissues.	
Forces water and dissolved substances into surrounding tissues.	

[1]

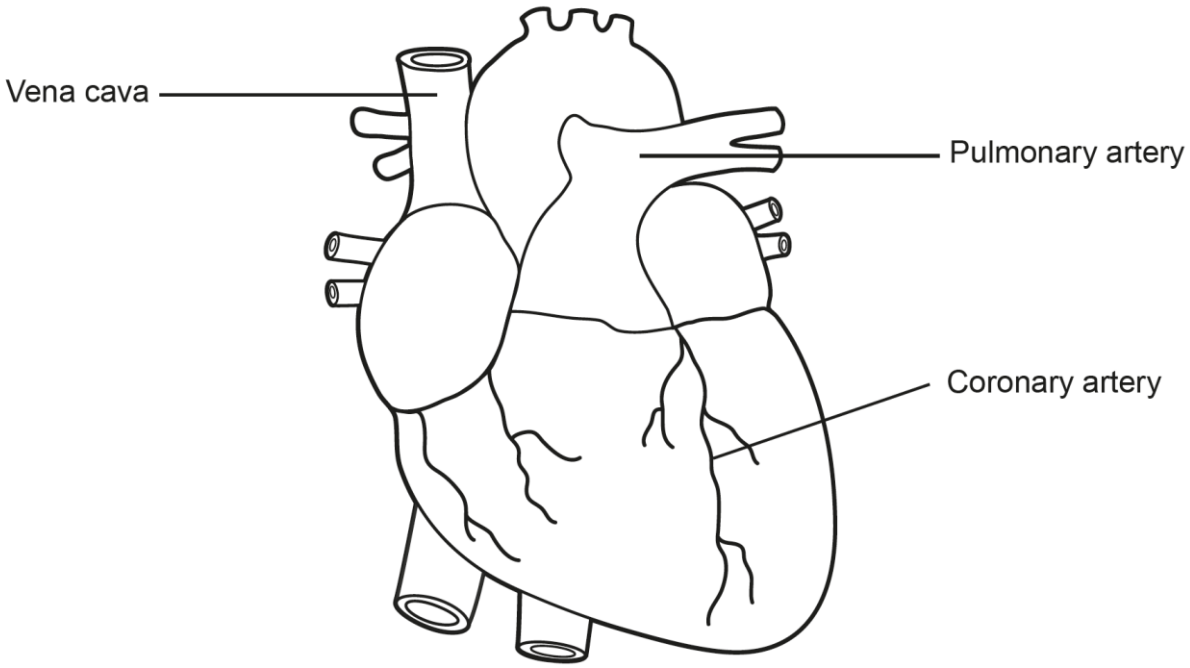
Responses to this question were mixed, with candidates almost equally selecting each option.

© OCR 2024

Question 1 (c) (i)*

(c) The heart pumps blood around the body.

The diagram shows the structure of the heart with three blood vessels labelled.



(i)* Describe the roles of these blood vessels.

.....

.....

.....

.....

.....

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

A number of candidates provided excellent responses describing the role of all three vessels in detail and gaining full marks. The role of the vena cava was the most well described, with the coronary artery the least well described.

© OCR 2024

Question 1 (c) (ii)

(ii) The heart has an electrical conduction system that controls the cardiac cycle.

Match each of the structures of the heart with its role in the cardiac cycle by drawing a line between the boxes.

Structure	Role
Atrioventricular node (AVN)	Initiates contraction of heart muscle and is also known as the 'pacemaker'.
Purkyne fibres	Delays impulses to allow time for atria to empty blood into the ventricles.
Sinoatrial node (SAN)	Specialised cardiac muscle that transmits impulses through ventricle walls.

[3]

This was generally well answered, with the majority of candidates getting full marks.

Question 1 (d)

(d) Heart rate is controlled by a component of the nervous system.

Which **one** of the following is a component of the nervous system that controls heart rate?

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

Component	Tick (✓) **one** only
Autonomic nervous system	
Central nervous system	
Spinal cord	

[1]

Nearly all candidates provided the correct response.

© OCR 2024

Question 1 (e) (i)

(e) The heart supplies blood to the brain. Taylor suffered a stroke when the blood supply to their brain was reduced.

(i) Give **one** explanation for how the blood supply to Taylor's brain may have been reduced.

.....

.....

.....

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

Most candidates gained one mark for either identifying blood clots or burst blood vessels, but often candidates did not explain how it reduced blood supply. Some candidates repeated the information provided in the question within their responses. This cannot be credited and often limited the marks.

Question 1 (e) (ii)

(ii) Outline possible effects of the stroke on Taylor's body.

.....

.....

.....

.....

.....

.....

.....

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

This was a well answered question, with most candidates gaining three or four marks. Some candidates covered aspects such as risk factors or treatments, which was not required and often limited the marks that they gained.

© OCR 2024

Question 1 (f)*

(f)* Discuss the strengths and weaknesses of treatments available to help Taylor recover from the stroke.

.....

.....

.....

.....

.....

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

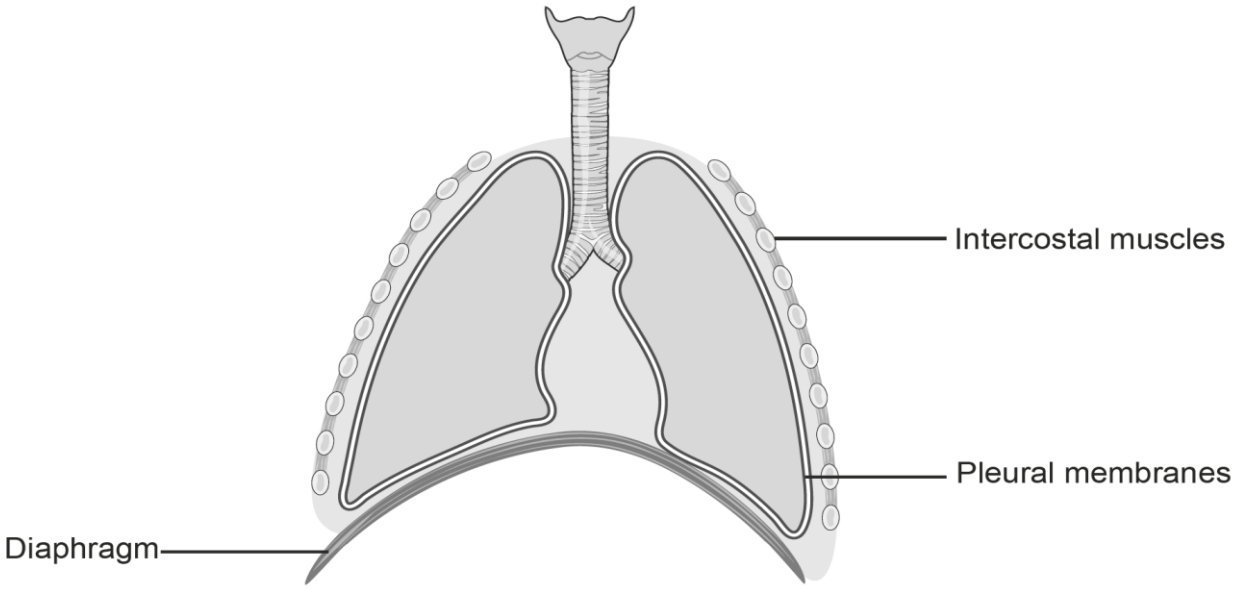
The focus of this question is on the treatment available to help Taylor. Candidates who did cover treatments provided good responses covering both strengths and weaknesses. Many candidates discussed either support or lifestyle changes within their response, neither of which were creditable.

© OCR 2024

Question 2 (a)*

2 Inspiration (breathing in) and expiration (breathing out) is carried out by the respiratory system.

The diagram below shows the respiratory system with three of the structures labelled.



(a)* Explain the roles of these structures in inspiration and expiration.

.....

.....

.....

.....

.....

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

A number of candidates provided excellent responses addressing all three structures and their roles in inspiration and expiration. The diaphragm was the structure that was explained most well and the pleural membrane least well by candidates.

© OCR 2024

Question 2 (b)

(b) Aerobic and anaerobic are types of respiration.

The table below contains statements about aerobic and anaerobic respiration.

Complete the table below by deciding whether each statement is correct for either **aerobic only**, **anaerobic only** or **both** types of respiration.

Put a tick (✓) in **one** box for each row.

The first row has been done for you.

Statement	Aerobic only	Anaerobic only	Both
Occurs inside cells			✓
Produces ATP			
Produces lactic acid			
Uses oxygen			

[3]

Approximately half of candidates gained full marks on this question. Aerobic only uses oxygen was the most frequent correct response.

Question 2 (c) (i)

(c) Zac has cystic fibrosis, a malfunction of the respiratory system.

(i) Describe **two** symptoms caused by the effects of cystic fibrosis on Zac's lungs.

1 .....

.....

2 .....

.....

[2]

A number of candidates either described risk factors or symptoms not related to the lungs. Breathlessness, lung infections and coughing were the most common correct responses.

© OCR 2024

Question 2 (c) (ii)

(ii) State **one** treatment available for cystic fibrosis **and** describe how it could improve Zac's condition.

.....

.....

.....

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

This was a well answered question with most candidates gaining one or two marks.

© OCR 2024

Question 2 (d)

(d) Cystic fibrosis can also affect the digestive system.

Complete the table by choosing words or sentences, from the list given below, to match structures in the digestive system with their role in digestion.

Bile duct	**Churns the food to break it up**	**Large intestine**
Oesophagus	**Opens to allow removal of faeces**	**Pancreatic duct**
Small intestine	**Stores faeces until they are removed**	

Structure	Role
Anus	....
.....	Allows a digestive fluid to flow from gall bladder to the small intestine.
.....	Reabsorbs water from digested food and prepares waste products for removal.
Rectum	....
.....	Completes digestion and is the site of absorption of nutrients.

[5]

Most candidates gained three to five marks for this question. Common mistakes included mixing up the small and large intestines and identifying the pancreatic duct instead of the bile duct.

© OCR 2024

Question 2 (e) (i)*

(e) Irritable bowel syndrome (IBS) and coeliac disease are malfunctions of the digestive system.

(i)* Discuss the similarities and differences between the causes and effects on the digestive system of these malfunctions.

.....

.....

.....

.....

.....

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

Most candidates demonstrated knowledge and understanding of both IBS and coeliac disease. However, only a minority of candidates were able to fully address the question. A common issue was not indicating similarities and differences and just providing generic information about the conditions.

Assessment for learning

Candidates need to develop their ability when discussing similarities and differences between diseases. Candidates need to make direct comparisons between the similarities and differences and not provide generic information about diseases.

Question 2 (e) (ii)

(ii) Describe **two** impacts of IBS on lifestyle.

1 .....

.....

2 .....

.....

[2]

Most candidates achieved one or two marks for this question. A common issue was stating impacts with no description, which prevented them from gaining credit.

© OCR 2024

Question 3 (a)

3 Synovial joints are part of the musculoskeletal system.

The table below contains statements about some of the components of a synovial joint and their functions.

(a) Complete the table by deciding whether each statement is **True (T)** or **False (F)**.

Statement	**True (T) or False (F)**
Bones provide a framework for the attachment of muscles.	.....
Ligaments attach muscles to bones.	.....
Muscles can only pull when they contract.	.....

[3]

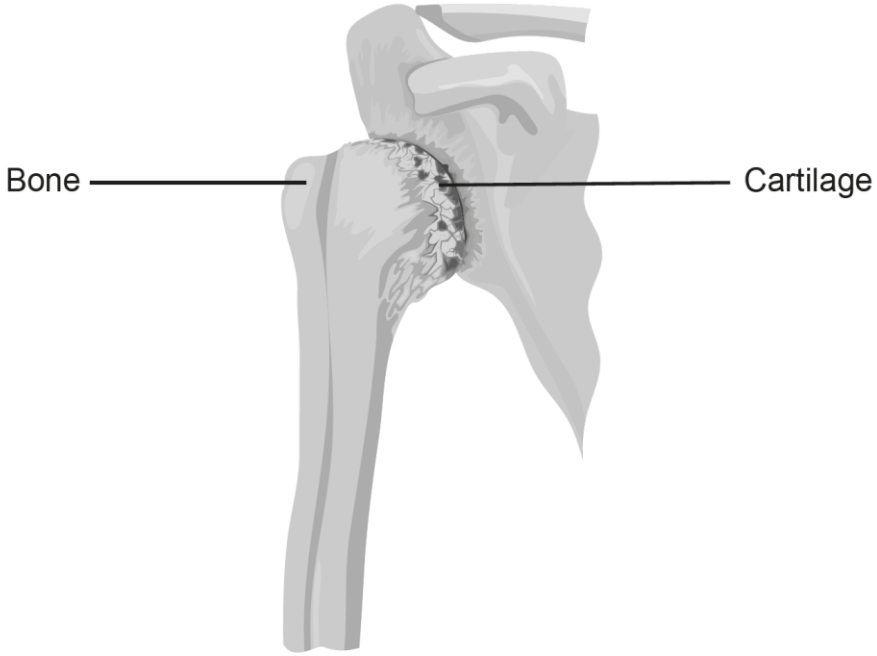
Responses were very mixed for this question, with candidates gaining up to three marks in almost equal amounts. Bones provide a framework for attachment of muscles was the most common correct response.

© OCR 2024

Question 3 (b) (i)

(b) Heidi has arthritis in the shoulder.

The diagram below shows a shoulder joint with arthritis.



(i) Identify the type of synovial joint in the shoulder.

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

Most candidates provided the correct response.

© OCR 2024

Question 3 (b) (ii)*

(ii)* Explain the possible risk factors **and** biological causes for Heidi's arthritis.

.....

.....

.....

.....

.....

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

This was generally well answered with most candidates gaining Level 1 or Level 2. Common issues limiting candidates from gaining Level 3 was confusing arthritis for osteoporosis, stating risk factors with no explanation and confusing explanations of rheumatoid arthritis and osteoarthritis

Question 3 (c) (i)

(c) Heidi is concerned about developing osteoporosis as she ages.

(i) Name the component of the synovial joint that would be affected by osteoporosis.

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

Most candidates correctly identify bone as the component of the synovial joint that would be affected.

Question 3 (c) (ii)

(ii) Describe **two** methods that can be used to monitor the development of osteoporosis.

1 .....

.....

2 .....

.....

[2]

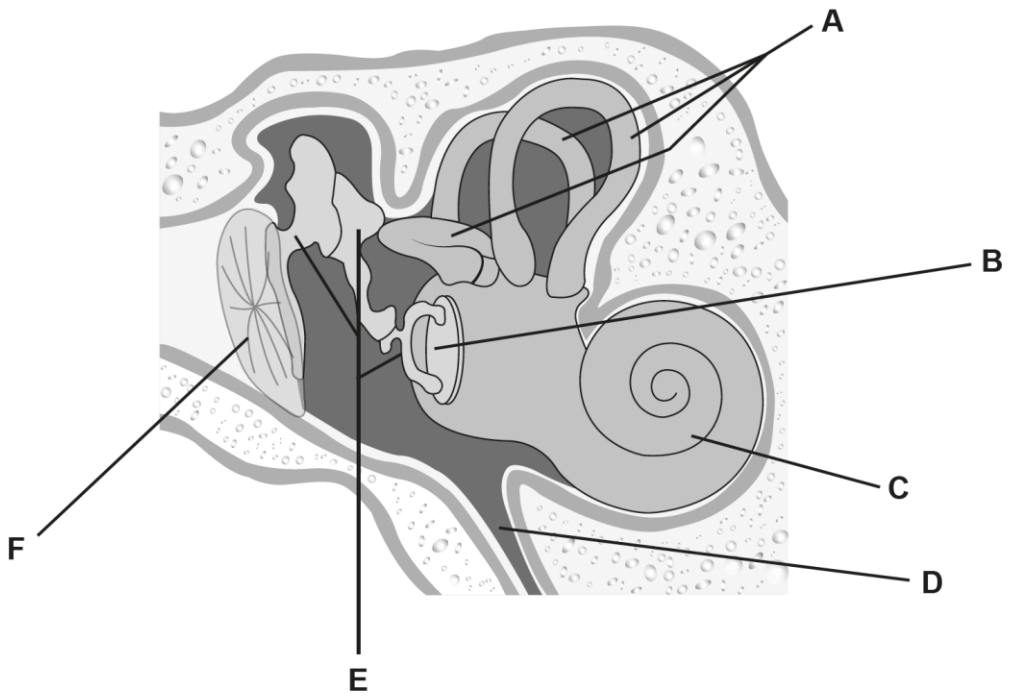
This was generally well answered with x-rays, bone density scans and MRIs the most frequent correct responses.

© OCR 2024

Question 4 (a)

4 The ear is part of the sensory system.

The diagram below shows some of the structures in the ear.



(a) Complete the table below by selecting the correct letter that identifies the structures of the ear from the descriptions.

The first row has been done for you.

Description	Letter
A coiled tube that contains jelly-like fluid.	C
A thin membrane that transmits vibrations to the middle ear.	.....
A tube that helps to keep the pressure of the middle ear the same as outside the ear.	.....
Fluid-filled tubes that help with balance.	.....
Small bones that transmit vibrations.	.....

[4]

For this question candidates either achieved full marks or no marks. Few candidates scored marks in-between.

© OCR 2024

Question 4 (b) (i)*

(b) Hearing loss may occur suddenly or develop over a period of time.

(i)* Explain the possible causes **and** effects of hearing loss.

.....

.....

.....

.....

.....

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

Most candidates were able to identify causes of hearing loss, with earwax blocking the auditory canal, exposure to loud noises and ageing common responses. However, it also required them to explain the effects, which only a small minority of candidates did. The term effects relates to the biological effects, meaning how the causes resulted in hearing loss. For example, explaining that a blocked auditory canal reduces sound waves from reaching the ear drum. Many candidates focused their response on impacts on daily life, which was not required.

Misconception

? Effects refers to biological effects not the impact on daily life.

© OCR 2024

Exemplar 1

Possible causes of hearing loss include, ageing, long or frequent exposure to loud sounds/music. There is multiple effects of hearing loss. The individual may isolate themselves as they are likely to have to get people to repeat what they are saying slower so they can read their lips. They may stop going out and socialising which could lead to impacts on mental hearth such as depression or anxiety. However, the individual may have been born deaf. This can have both negative and positive effects. Firstly, they may be behind for their age due to the hearing loss. Or secondly, they may have learned to live with it throughout their life, so they have the confidence to go out as it is all they have ever known. **[6]**

This candidate has provided a detailed response, in which they have identified three possible causes of hearing loss. However, they have not explained how they cause hearing loss or the effects of these causes on hearing loss. The majority of the response is focused on the impacts of hearing loss on daily life which was not required.

© OCR 2024

Exemplar 2

one cause of hearing loss is older age. As inaividuauger older, their hearing will decreave. ~~This may be due to~~ This is because the eararum may not transmit vibrations well, or their auaitory nerve may deteriorate, which is what sends the signal to the brain. This hearing loss will happen gradually over a long time. An effect of hearing loss is the individual may become socially isolated because they can't hear people well. This makes it difficult for them to have conversations with people, so they may shut themselves away to avoid having to talk/listen to people.
A second ~~effect is that they~~ cause is osteoporosis. This is because osteoporosis causes bone density to deteriorate. In the ear, there are small bones that transmit vibrations. If the density of these bones decrease then the ~~vibrat~~ vibrations may not get transmitted correctly, or not at all. This will cause hearing loss to happen over a long period of time. **[6]**

This candidate has provided a detailed response, in which they have identified two possible causes of hearing loss. For each cause they have explained the effects of these causes on hearing loss. In both cases they have explained how the transmission of vibrations is impeded..

© OCR 2024

Question 4 (b) (ii)

(ii) Describe **two** treatments for hearing loss.

1 .....

.....

2 .....

.....

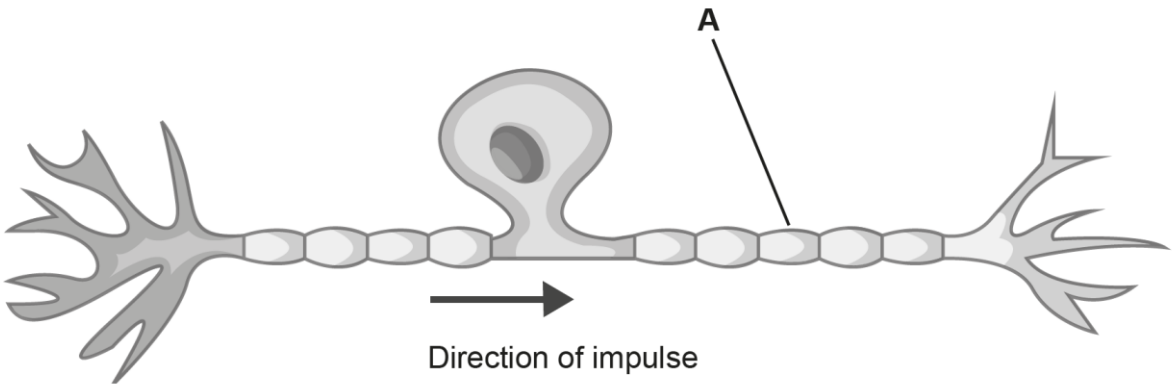
[2]

Most candidates gained full marks for this question. However, some candidates provided support methods such as learning sign language instead of treatments.

Question 4 (c) (i)

(c) Transmission of nerve impulses throughout the body is carried out by specialised nerve cells or neurons.

The diagram shows the structure of a neuron.



(i) Identify the type of neuron shown in the diagram.

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

Less than half of the candidates provided the correct response.

© OCR 2024

Question 4 (c) (ii)

(ii) Part of the neuron, labelled **A** on the diagram, carries the impulse from the cell body to the next cell.

Identify the part of the neuron that completes this function.

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

Most candidates provided the correct response.

Question 5 (a)

5 The kidney is part of the regulatory system.

(a) Complete the passage about the kidney by choosing the most appropriate word(s) from the list below.

bladder	**calyx**	**cortex**	**medulla**
renal artery	**renal vein**	**urethra**	

The ..... is the inner region of the kidney that contains nephrons to carry out the kidney functions. Urea is removed from the blood and the filtered blood leaves the kidney via the ..... .

The urine formed passes through special chambers each known as a ..... and then passes through the ureter to the ..... for storage. The stored urine leaves the body at intervals through the ..... .

[5]

Most candidates gained between two and four marks for this question. Bladder and urethra were the most common correct responses. Many candidates gave the response renal artery instead of renal vein.

© OCR 2024

Question 5 (b)

(b) The kidney removes urea from the blood, but it is produced by a different organ in the body.

Which **one** of the following organs produces urea?

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

Component	Tick (✓) **one** only
Gallbladder	
Liver	
Pancreas	

[1]

There were mixed responses to this question with all options selected in approximately equal amounts.

© OCR 2024

Question 5 (c)

(c) Kidney nephrons carry out the main functions of the kidney.

The table below shows some of the components of a kidney nephron.

Choose from the list of components to complete the table about the structure of a kidney nephron.

Bowman's capsule **collecting duct** **convoluted tubule**

glomerulus **loop of Henle**

Description	Component
A small ball of capillaries where blood enters for filtration.	.....
Part of the nephron tubule where glucose is reabsorbed back into the blood.	.....
Part of the nephron tubule where most of the water is reabsorbed.	.....
Part of the nephron tubule where ultrafiltration occurs.	.....

[4]

Only a minority of candidates gained four marks for this question. Most candidates achieved either one or zero marks.

© OCR 2024

Question 5 (d)*

(d)* Alex has nephrotic syndrome, a malfunction of the kidneys.

The symptoms of nephrotic syndrome include:

- high levels of urine produced
- increased risk of infection
- oedema (swelling caused by fluid in body tissues).

Explain the biological causes of nephrotic syndrome that can lead to these symptoms.

.....

.....

.....

.....

.....

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

The vast majority of candidates struggled with this question, with zero marks a very common outcome and many candidates not providing a response at all. Often the marks gained linked to protein leaking into the urine, but only a minority of candidates could explain why this occurs with this condition.

Assessment for learning

The biological causes of nephrotic syndrome is an area where candidates need to develop their knowledge and understanding.

© OCR 2024

Copyright information

Question 1 (c) (i) Anatomy of heart: Modified image - Shutterstock 577216093 by okili77

Question 2 (a)* The lungs, trachea and bronchi, mediastinum: Modified image - Shutterstock 278586008 by Blamb

Question 3(b) Image of shoulder osteoarthritis: Modified image - Shutterstock 1445799752 by Double Brain

Question 4(c) Neurons and nerve cells: Modified image - Shutterstock 765092974 by Mari-Leaf

© OCR 2024

Supporting you

Teach Cambridge

Make sure you visit our secure website **Teach Cambridge** to find the full range of resources and support for the subjects you teach. This includes secure materials such as set assignments and exemplars, online and on-demand training.

Don't have access? If your school or college teaches any OCR qualifications, please contact your exams officer. You can forward them this link to help get you started.

Reviews of marking

If any of your students' results are not as expected, you may wish to consider one of our post-results services. For full information about the options available visit the OCR website.

Keep up-to-date

We send a monthly bulletin to tell you about important updates. You can also sign up for your subject specific updates. If you haven't already, sign up here.

OCR Professional Development

Attend one of our popular CPD courses to hear directly from a senior assessor or drop in to a Q&A session. Most of our courses are delivered live via an online platform, so you can attend from any location.

Please find details for all our courses for your subject on **Teach Cambridge**. You'll also find links to our online courses on NEA marking and support.

Signed up for ExamBuilder?

ExamBuilder is a free test-building platform, providing unlimited users exclusively for staff at OCR centres with an Interchange account.

Choose from a large bank of questions to build personalised tests and custom mark schemes, with the option to add custom cover pages to simulate real examinations. You can also edit and download complete past papers.

Find out more.

You will need an Interchange account to access our digital products. If you do not have an Interchange account please contact your centre administrator (usually the Exams Officer) to request a username, or nominate an existing Interchange user in your department.

Online courses

Enhance your skills and confidence in internal assessment

What are our online courses?

Our online courses are self-paced eLearning courses designed to help you deliver, mark and administer internal assessment for our qualifications. They are suitable for both new and experienced teachers who want to refresh their knowledge and practice.

Why should you use our online courses?

With these online courses you will:

- learn about the key principles and processes of internal assessment and standardisation
- gain a deeper understanding of the marking criteria and how to apply them consistently and accurately
- see examples of student work with commentary and feedback from OCR moderators
- have the opportunity to practise marking and compare your judgements with those of OCR moderators
- receive instant feedback and guidance on your marking and standardisation skills
- be able to track your progress and achievements through the courses.

How can you access our online courses?

Access courses from Teach Cambridge. Teach Cambridge is our secure teacher website, where you'll find all teacher support for your subject.

If you already have a Teach Cambridge account, you'll find available courses for your subject under Assessment - NEA/Coursework - Online courses. Click on the blue arrow to start the course.

If you don't have a Teach Cambridge account yet, ask your exams officer to set you up – just send them this link and ask them to add you as a Teacher.

Access the courses **anytime, anywhere and at your own pace**. You can also revisit the courses as many times as you need.

Which courses are available?

There are **two types** of online course: an **introductory module** and **subject-specific** courses.

The introductory module, Building your Confidence in Internal Assessment, is designed for all teachers who are involved in internal assessment for our qualifications. It covers the following topics:

- the purpose and benefits of internal assessment
- the roles and responsibilities of teachers, assessors, internal verifiers and moderators
- the principles and methods of standardisation
- the best practices for collecting, storing and submitting evidence
- the common issues and challenges in internal assessment and how to avoid them.

The subject-specific courses are tailored for each qualification that has non-exam assessment (NEA) units, except for AS Level and Entry Level. They cover the following topics:

- the structure and content of the NEA units
- the assessment objectives and marking criteria for the NEA units
- examples of student work with commentary and feedback for the NEA units
- interactive marking practice and feedback for the NEA units.

We are also developing courses for some of the examined units, which will be available soon.

How can you get support and feedback?

If you have any queries, please contact our Customer Support Centre on 01223 553998 or email support@ocr.org.uk.

We welcome your feedback and suggestions on how to improve the online courses and make them more useful and relevant for you. You can share your views by completing the evaluation form at the end of each course.

© OCR 2024

Need to get in touch?

If you ever have any questions about OCR qualifications or services (including administration, logistics and teaching) please feel free to get in touch with our customer support centre.

Call us on
01223 553998

Alternatively, you can email us on
support@ocr.org.uk

For more information visit
ocr.org.uk/qualifications/resource-finder
ocr.org.uk
facebook.com/ocrexams
twitter.com/ocrexams
instagram.com/ocrexaminations
linkedin.com/company/ocr
youtube.com/ocrexams

We really value your feedback

Click to send us an autogenerated email about this resource. Add comments if you want to. Let us know how we can improve this resource or what else you need. Your email address will not be used or shared for any marketing purposes.

I like this **I dislike this**

Please note – web links are correct at date of publication but other websites may change over time. If you have any problems with a link you may want to navigate to that organisation's website for a direct search.

CAMBRIDGE
UNIVERSITY PRESS & ASSESSMENT

OCR is part of Cambridge University Press & Assessment, a department of the University of Cambridge.

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored. © OCR 2024 Oxford Cambridge and RSA Examinations is a Company Limited by Guarantee. Registered in England. Registered office The Triangle Building, Shaftesbury Road, Cambridge, CB2 8EA. Registered company number 3484466. OCR is an exempt charity.

OCR operates academic and vocational qualifications regulated by Ofqual, Qualifications Wales and CCEA as listed in their qualifications registers including A Levels, GCSEs, Cambridge Technicals and Cambridge Nationals.

OCR provides resources to help you deliver our qualifications. These resources do not represent any particular teaching method we expect you to use. We update our resources regularly and aim to make sure content is accurate but please check the OCR website so that you have the most up to date version. OCR cannot be held responsible for any errors or omissions in these resources.

Though we make every effort to check our resources, there may be contradictions between published support and the specification, so it is important that you always use information in the latest specification. We indicate any specification changes within the document itself, change the version number and provide a summary of the changes. If you do notice a discrepancy between the specification and a resource, please contact us.

You can copy and distribute this resource in your centre, in line with any specific restrictions detailed in the resource. Resources intended for teacher use should not be shared with students. Resources should not be published on social media platforms or other websites.

OCR acknowledges the use of the following content: N/A

Whether you already offer OCR qualifications, are new to OCR or are thinking about switching, you can request more information using our Expression of Interest form.

Please get in touch if you want to discuss the accessibility of resources we offer to support you in delivering our qualifications.