



Rewarding Learning  
 ADVANCED SUBSIDIARY (AS)  
 General Certificate of Education  
 2015

Centre Number

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Candidate Number

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# Health and Social Care

Assessment Unit AS 14

*assessing*

Unit 14: Understanding Human Physiology

[A3H81]

**THURSDAY 28 MAY, AFTERNOON**



A3H81

## TIME

2 hours.

## INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Write your answers in the spaces provided in this question paper.

Answer **all four** questions.

## INFORMATION FOR CANDIDATES

The total mark for this paper is 100.

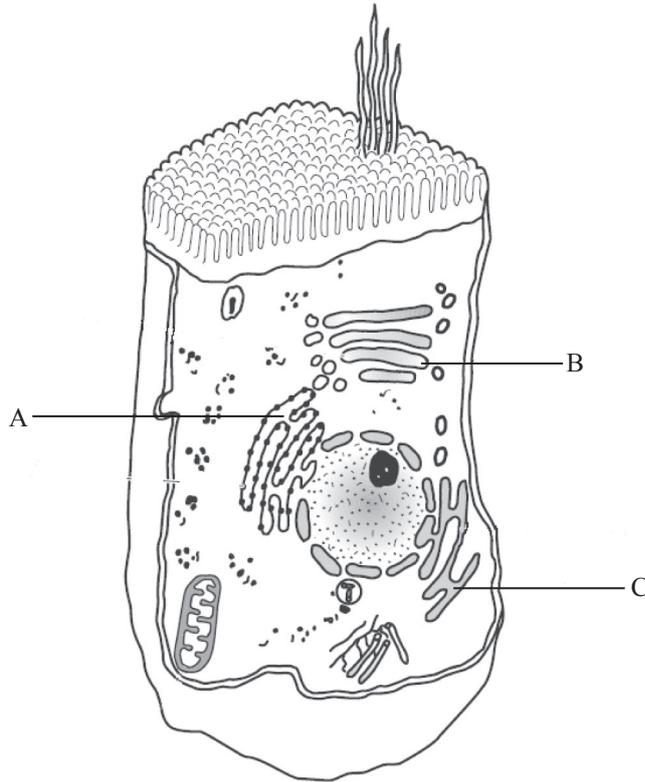
Quality of written communication will be assessed in questions **2(a)**, **3(b)(ii)** and **4(d)**.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
<b>Total Marks</b>	

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1 (a) This is a diagram of an epithelial cell from the ileum (small intestine).



© "Physiology & Anatomy: A Homeostatic Approach", John Clancy & Andrew McVicar, © 2002 Hodder, reproduced by permission of Taylor & Francis Books UK

(i) Write down the name and **one** function of the organelles A, B and C.

A Name \_\_\_\_\_ [1]

Function \_\_\_\_\_

\_\_\_\_\_ [1]

B Name \_\_\_\_\_ [1]

Function \_\_\_\_\_

\_\_\_\_\_ [1]

C Name \_\_\_\_\_ [1]

Function \_\_\_\_\_

\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

(ii) Explain how the epithelial cell is specialised to enable it to perform its function.

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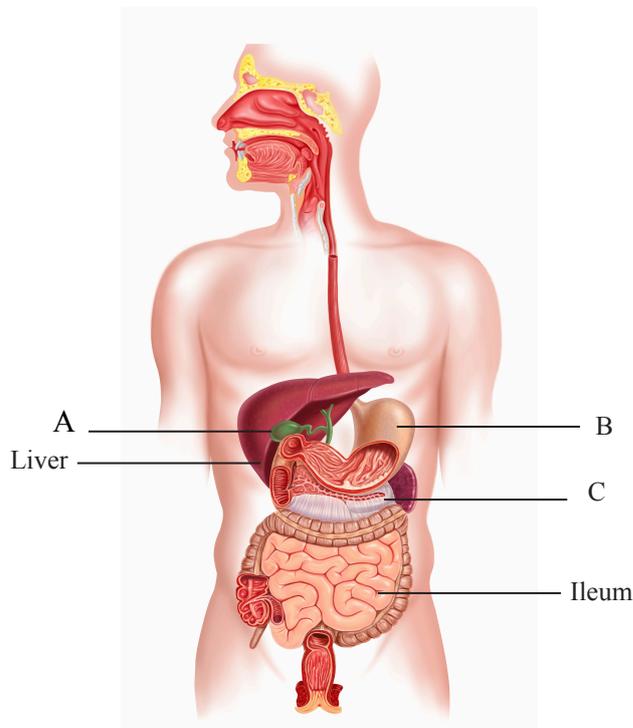
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[2]

(b) The diagram below shows the ileum and several other parts of the digestive system.



© Leonello Calvetti /Science Photo Library

(i) Label the diagram with an X where digestion begins and a Y where digestion ends. [2]

Examiner Only	
Marks	Remark

(ii) Identify organs A, B and C.

A Name \_\_\_\_\_ [1]

B Name \_\_\_\_\_ [1]

C Name \_\_\_\_\_ [1]

(iii) The three main groups of enzymes involved in digestion are shown in the table below. Complete the table to show where the enzyme is first released and the food group on which it acts.

Enzyme	Where enzyme is first released	Food group on which enzyme acts
Carbohydases		Carbohydrates
Lipases	Small intestine	
Proteases		

[4]

(c) The liver has many important functions.

(i) Discuss the role of the liver in the deamination of excess amino acids.

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[3]

Examiner Only	
Marks	Remark

(ii) The liver produces bile. Discuss the role of bile in digestion.

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[3]

(d) Liver damage can lead to cirrhosis of the liver.

(i) Write down two common causes of cirrhosis of the liver.

1. \_\_\_\_\_ [1]
2. \_\_\_\_\_ [1]

(ii) Write down two symptoms of cirrhosis of the liver.

1. \_\_\_\_\_ [1]
2. \_\_\_\_\_ [1]

(iii) Suggest two ways to reduce the risk of developing cirrhosis of the liver.

1. \_\_\_\_\_  
\_\_\_\_\_ [1]
2. \_\_\_\_\_  
\_\_\_\_\_ [1]

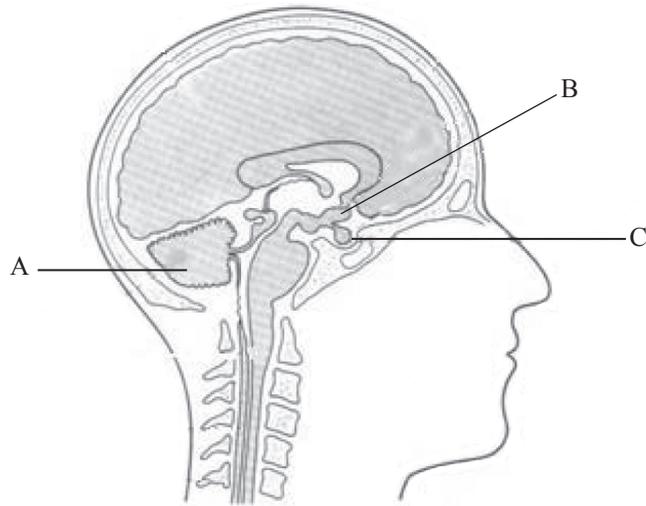
Examiner Only	
Marks	Remark







3 The diagram below shows the structure of the brain.



© 'Biology GCSE Edition'. G Jones & M.Jones. Cambridge University Press, 1987.

(a) Write down the name and **one** function of parts A, B and C.

A Name \_\_\_\_\_ [1]

Function \_\_\_\_\_

\_\_\_\_\_ [1]

B Name \_\_\_\_\_ [1]

Function \_\_\_\_\_

\_\_\_\_\_ [1]

C Name \_\_\_\_\_ [1]

Function \_\_\_\_\_

\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

(b) David is a 63 year old widower. He lives alone in a bungalow. He has one daughter who lives close by with her husband and three young children. David has worked as a school caretaker for the past 35 years. He has a busy life and often eats food from his local chip shop as he has no time to cook. His hobbies include playing snooker and darts at a local pub where he is a valued member of the team.

- (i) David has just been admitted to hospital with a suspected stroke. The doctors are running tests to find out if the stroke is ischemic or haemorrhagic. Explain the following:

Ischemic stroke \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ [2]

Haemorrhagic stroke \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ [2]

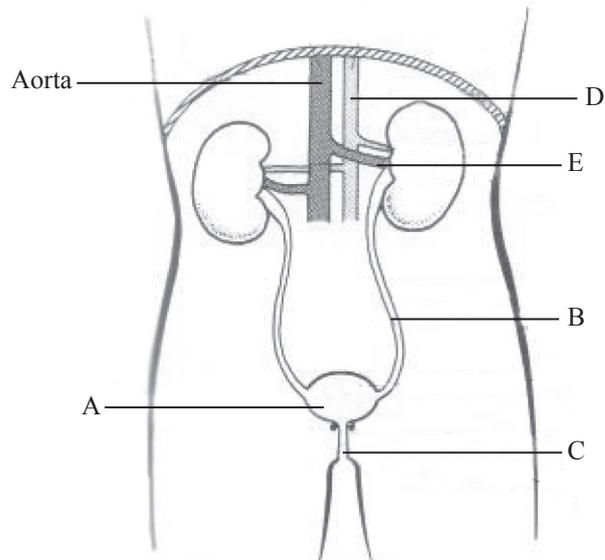
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Marks	Remark







(c) The diagram below shows the excretory system.



©'Biology GCSE Edition'. G Jones & M.Jones. Cambridge University Press, 1987.

(i) Identify parts A, B and C.

A \_\_\_\_\_ [1]

B \_\_\_\_\_ [1]

C \_\_\_\_\_ [1]

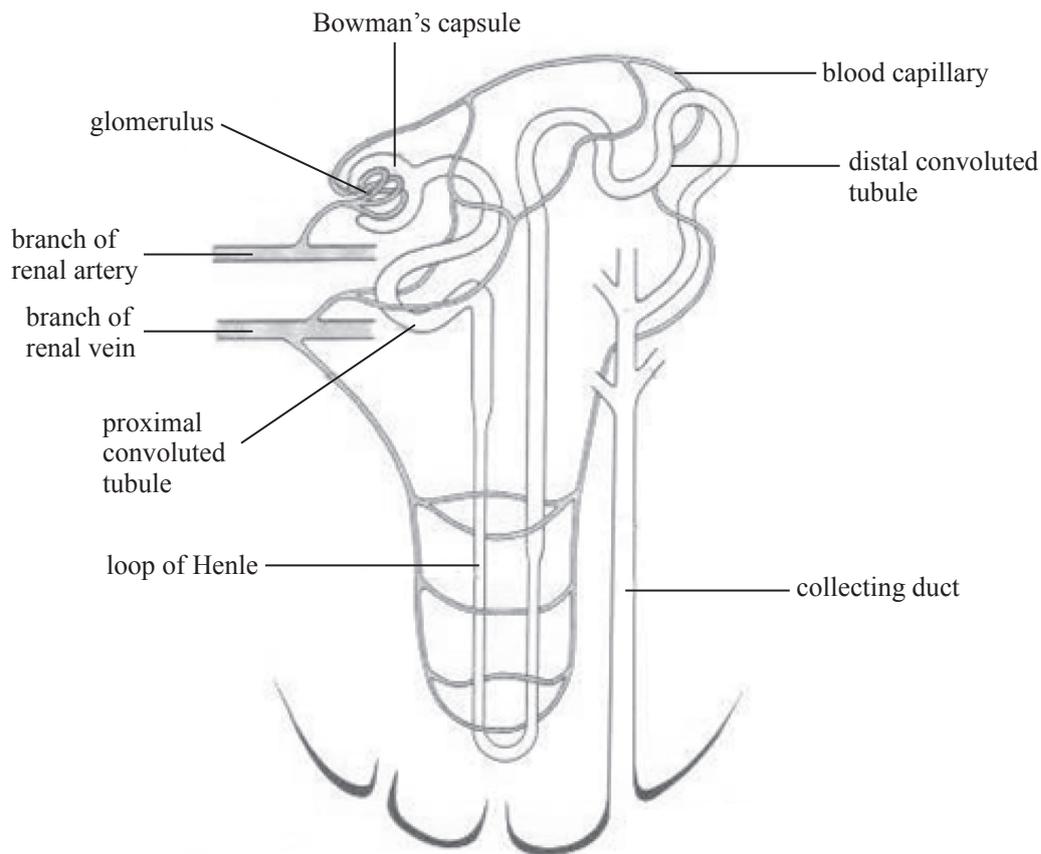
(ii) Identify blood vessels D and E.

D \_\_\_\_\_ [1]

E \_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

(d) The diagram below shows the structure of a kidney nephron.



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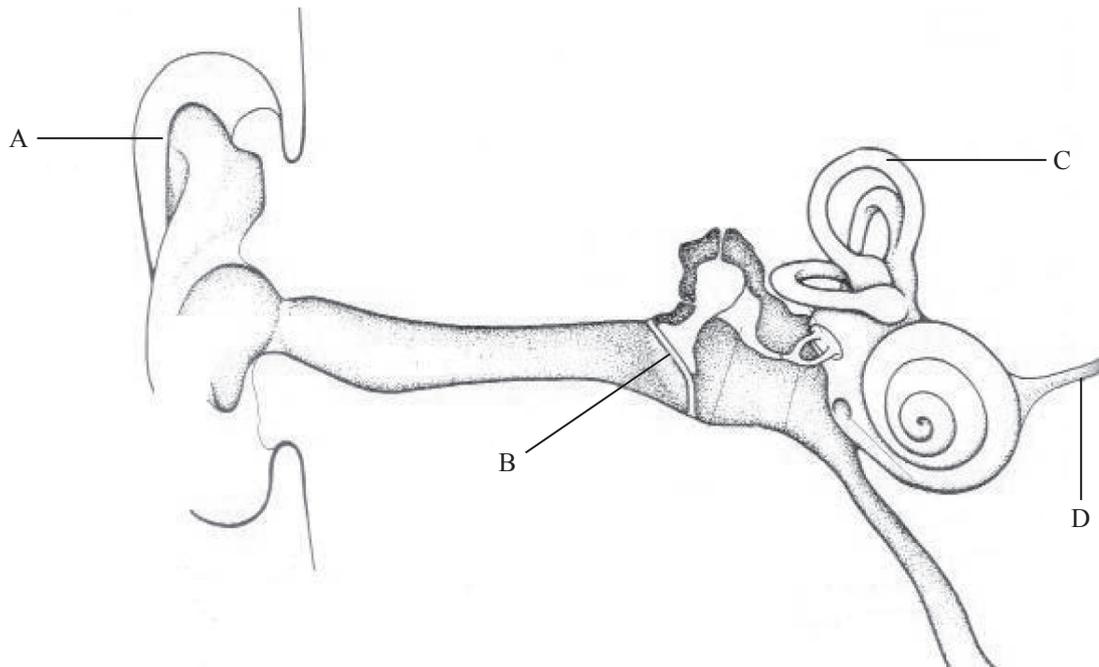
Using the diagram and your knowledge of the kidney nephron, complete the following sentences.

Blood enters the kidney through the \_\_\_\_\_  
 \_\_\_\_\_. Substances are filtered out of the blood under  
 high pressure into the \_\_\_\_\_.  
 Some substances like protein are not filtered out of the blood because  
 they are too \_\_\_\_\_. Urea, salts, glucose and water are  
 all filtered out. \_\_\_\_\_ needs to be reabsorbed back  
 into the blood as it is needed to produce energy. \_\_\_\_\_  
 needs to be removed as it is poisonous to the body if not removed.  
 The re-absorption of water will depend on the permeability of the  
 \_\_\_\_\_ which will change  
 depending on the release of anti-diuretic hormone (ADH) from the  
 pituitary gland.

[6]

Examiner Only	
Marks	Remark

4 The diagram below shows the structure of the ear.



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(a) Match each statement below with the correct letter in the diagram.

- |  |                          |     |
|--|--------------------------|-----|
| This part of the ear is involved in balance        | <input type="checkbox"/> | [1] |
| This part of the ear is known as the pinna         | <input type="checkbox"/> | [1] |
| This part of the ear vibrates against the ossicles | <input type="checkbox"/> | [1] |
| This part of the ear carries messages to the brain | <input type="checkbox"/> | [1] |

(b) Discuss how sound waves travel through the ear from A to D.

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Examiner Only	
Marks	Remark



(c) Explain the following terms:

Conductive hearing loss

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[2]

Sensorineural hearing loss

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[2]

Examiner Only	
Marks	Remark





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[9]

Examiner Only	
Marks	Remark

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**THIS IS THE END OF THE QUESTION PAPER**

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