



Oxford Cambridge and RSA

Tuesday 14 January 2020 – Afternoon

Level 3 Cambridge Technical in Health and Social Care

05831/05832/05833/05871 Unit 4: Anatomy and physiology for health and social care

Time allowed: 2 hours

C442/2001



You can use:

- no extra materials are needed

Please write clearly in black ink.

Centre number

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Candidate number

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First name(s)

Last name

Date of birth

D	D	M	M	Y	Y	Y	Y
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INSTRUCTIONS

- Use black ink.
- Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
- Answer **all** the questions.

INFORMATION

- The total mark for this paper is **100**.
- The marks for each question are shown in brackets [].
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- This document has **20** pages.

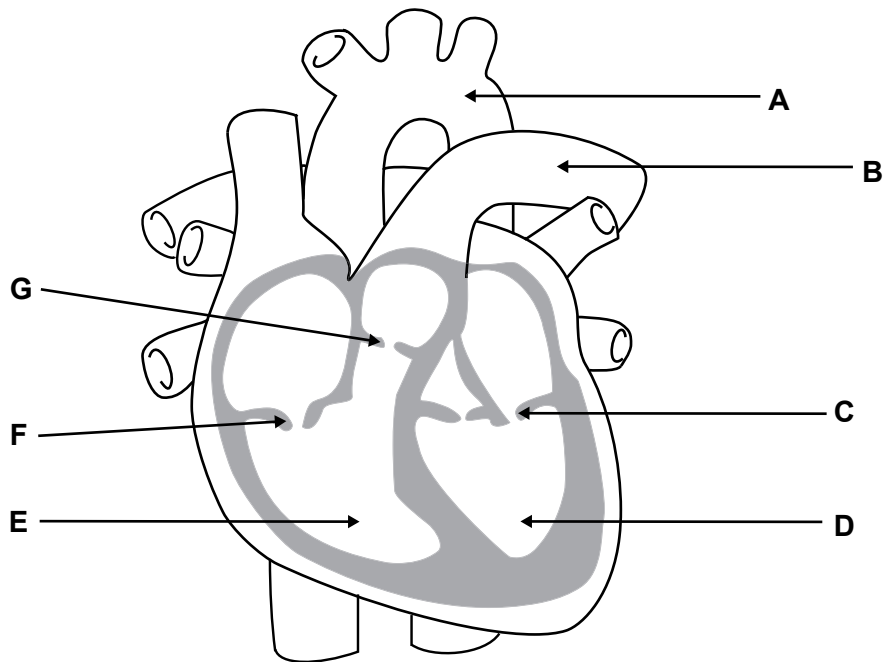
ADVICE

- Read each question carefully before you start your answer.

FOR EXAMINER USE ONLY	
Question No	Mark
1	/23
2	/16
3	/17
4	/29
5	/15
Total	/100

Answer **all** the questions.

- 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]

(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]

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

.....[1]

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

.....[1]

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

.....[1]

- 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 and from the brain	
Transmits impulses from the brain to muscles	

[3]

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Turn over for the next question

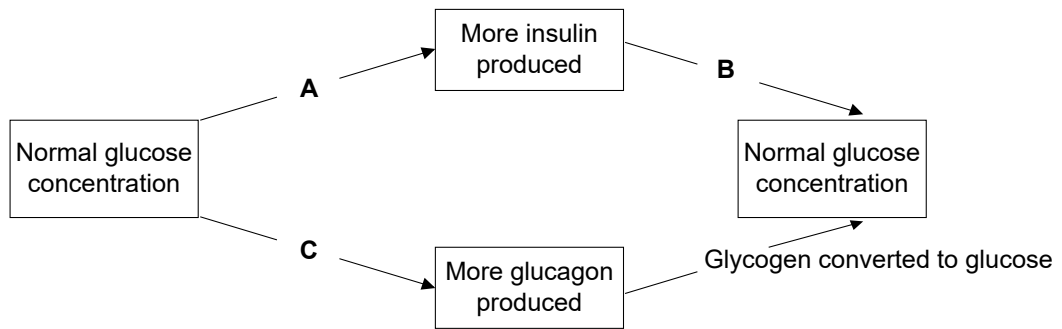
3 (a) Control and regulatory systems are responsible for maintaining a constant internal environment in the body.

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

.....[1]

(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]

(b) The kidney is part of the regulatory system.

Complete the sentences about the structure and function of the kidney.

Use words from the list.

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

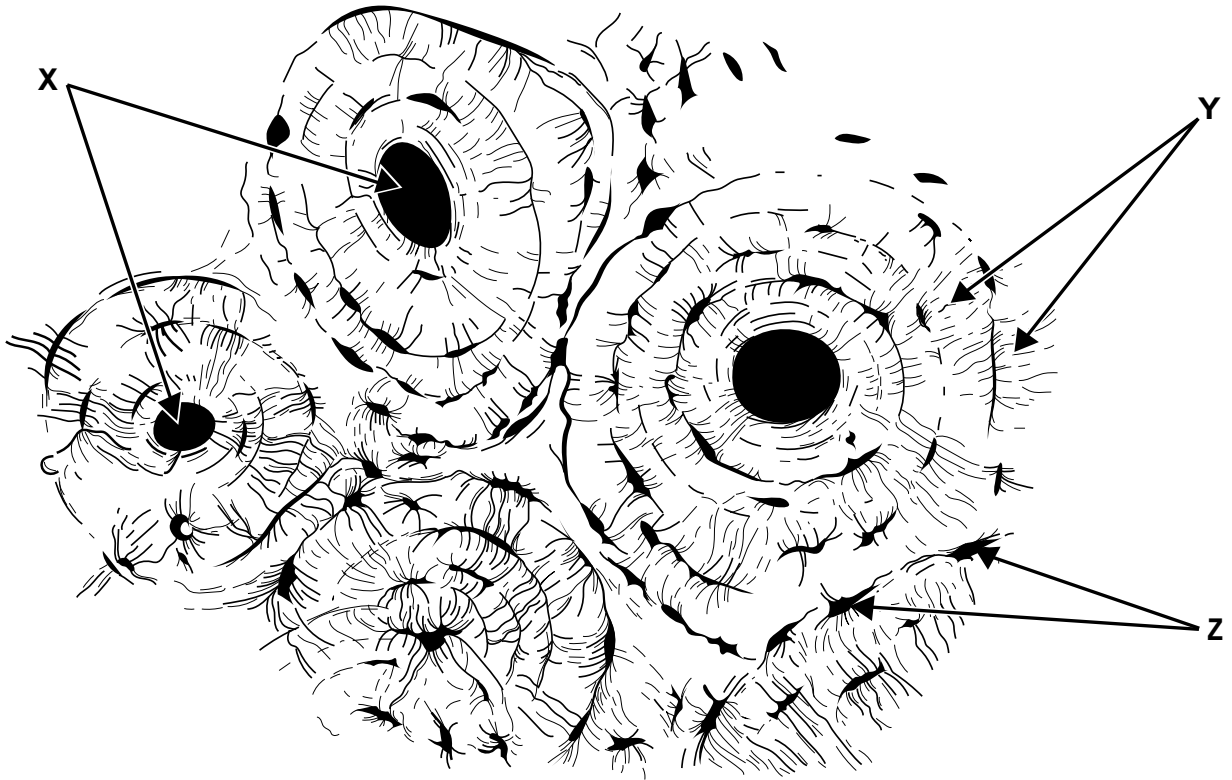
- | | | | |
|-----------------------|------------------------|---------------------|----------------|
| osmoregulation | detoxification | excretion | ureter |
| nephron | ultrafiltration | reabsorption | urea |
| | | | protein |

The kidney has two main functions: which maintains the concentration of water and ions in the blood, and which removes metabolic waste from the body.

The waste product is formed in the liver and transported in the blood to the kidneys where it forms urine. Urine is carried from each kidney, through a tube called the to the bladder, where it is stored.

The kidneys put substances, such as glucose, back into the blood by the process of

[5]



(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]

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]

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

.....[1]

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

.....[1]

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

.....[1]

(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.

- | | | | |
|--------------------------|---------------------|----------------------|------------------------|
| medulla oblongata | meninges | frontal lobes | thinking |
| balance | hypothalamus | temperature | corpus callosum |

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]

END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional answer space is required, you should use the following lined pages. The question numbers must be clearly shown – for example, 1(a) or 2(a).

A large vertical rectangular area containing 25 horizontal dotted lines for writing answers.



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