

**Modified Enlarged 18 pt**

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**

**Monday 16 January 2023 – Morning**

**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 plus your additional time allowance**

**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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**READ INSTRUCTIONS OVERLEAF**

## **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 (\*).**

## **ADVICE**

**Read each question carefully before you start your answer.**

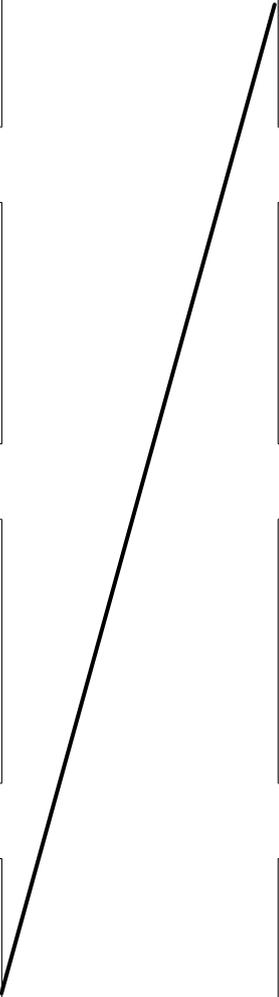
Answer ALL the questions.

1 The components of the nervous system are responsible for coordinating nerve impulses in the body.

(a) Match each component with its function by drawing a line between the boxes.

One has been completed for you. [3]

Component	Function
Autonomic nervous system	Connected to the brain by nerves. Allows communication between the brain and the body.
Central nervous system	Consists of sensory and motor neurons that transmit nerve impulses to and from the brain and spinal cord.
Peripheral nervous system	Consists of the brain and spinal cord. Takes a main role in control and coordination of most body functions.
Spinal cord	Regulates body functions that are not consciously controlled such as breathing and heart rate.



**(b) The brain is part of the nervous system.**

**Choose from the list of components below to answer the following questions about the roles of the brain.**

- cerebellum          cerebral cortex          corpus callosum**  
**frontal lobes          hypothalamus          medulla**

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

**(i) State ONE component that has a role in the regulation of body temperature and thirst.**

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[1]

**(ii) State TWO components that have a role in decision-making and processing information.**

1 \_\_\_\_\_

2 \_\_\_\_\_

[2]

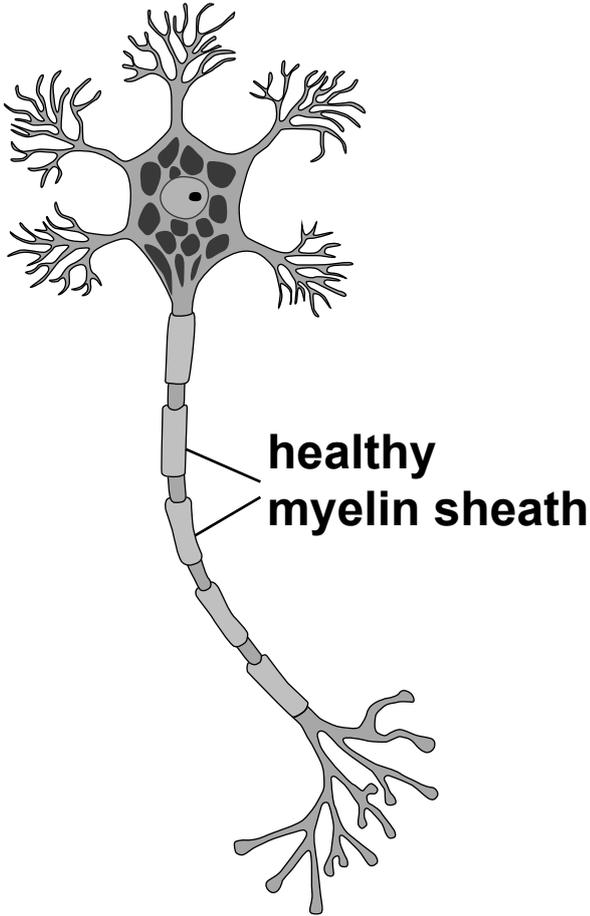
**(iii) State ONE component that has a role in automatic functions such as breathing and swallowing.**

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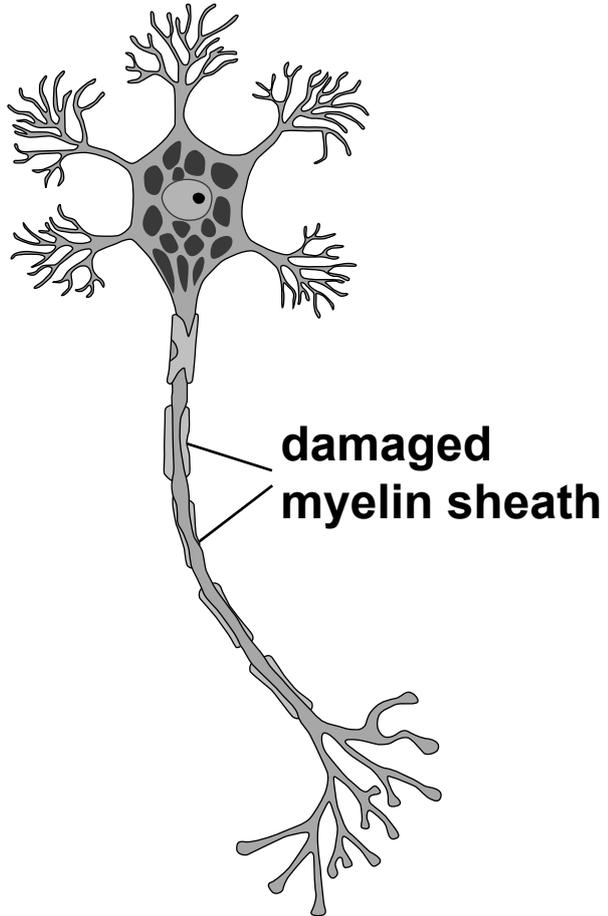
[1]

(c) The diagram shows a healthy neuron and a neuron from a person suffering from multiple sclerosis (MS).

healthy neuron



neuron of person suffering from MS



(i) Describe the structure of a healthy myelin sheath.

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2 (a) The pituitary and the pancreas both have roles as endocrine glands.

(i) The pituitary gland is located beneath the hypothalamus in the brain.

Which ONE of the following is a role of the pituitary gland?

Put a tick (✓) in the box next to the role. [1]

Role of the pituitary gland	Tick (✓) ONE only
produces the hormone, adrenaline	
produces the hormone, thyroxine	
regulates other endocrine organs	
regulates the nervous system	

(ii) The pancreas has a role in controlling the levels of glucose in the blood.

Outline how the pancreas controls blood glucose levels.

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**(c) Mia's diabetes was caused by her body's immune system destroying cells in her pancreas.**

**Name ONE other type of diabetes and state the cause of this type of diabetes.**

**Name** \_\_\_\_\_

**Cause** \_\_\_\_\_

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[2]

- (d) The pancreas also has roles in the digestive system.

Complete the table below by deciding whether each statement about the digestive roles of the pancreas is TRUE (T) OR FALSE (F). [3]

STATEMENT	TRUE (T) OR FALSE (F)
Pancreatic juices are secreted through the pancreatic duct.	
Produces digestive enzymes that are secreted into the stomach.	
Produces hydrochloric acid to kill bacteria.	

- (e) Bile is a fluid that is produced in the digestive system.

- (i) Which ONE of the following organs produces bile?

Put a tick (✓) in the box next to the role. [1]

Organ that produces bile	Tick (✓) ONE only
gall bladder	
liver	
small intestine	
stomach	

**(ii) Describe TWO functions of bile.**

1 \_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

**[2]**

**(f) Gallstones are a malfunction of the digestive system involving bile.**

**(i) Give TWO symptoms of gallstones.**

1 \_\_\_\_\_

2 \_\_\_\_\_

**[2]**

**(ii)\* Explain the possible causes for the formation of gallstones. Include both lifestyle risk factors and biological causes in your response. [6]**

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**3 Blood vessels are components of the circulatory system.**

**(a) Complete the passage about the structure of blood vessels by choosing the most appropriate word(s) from the list below. [4]**

**arteries**

**capillaries**

**high**

**low**

**muscle**

**thicker**

**thinner**

**tissue**

**veins**

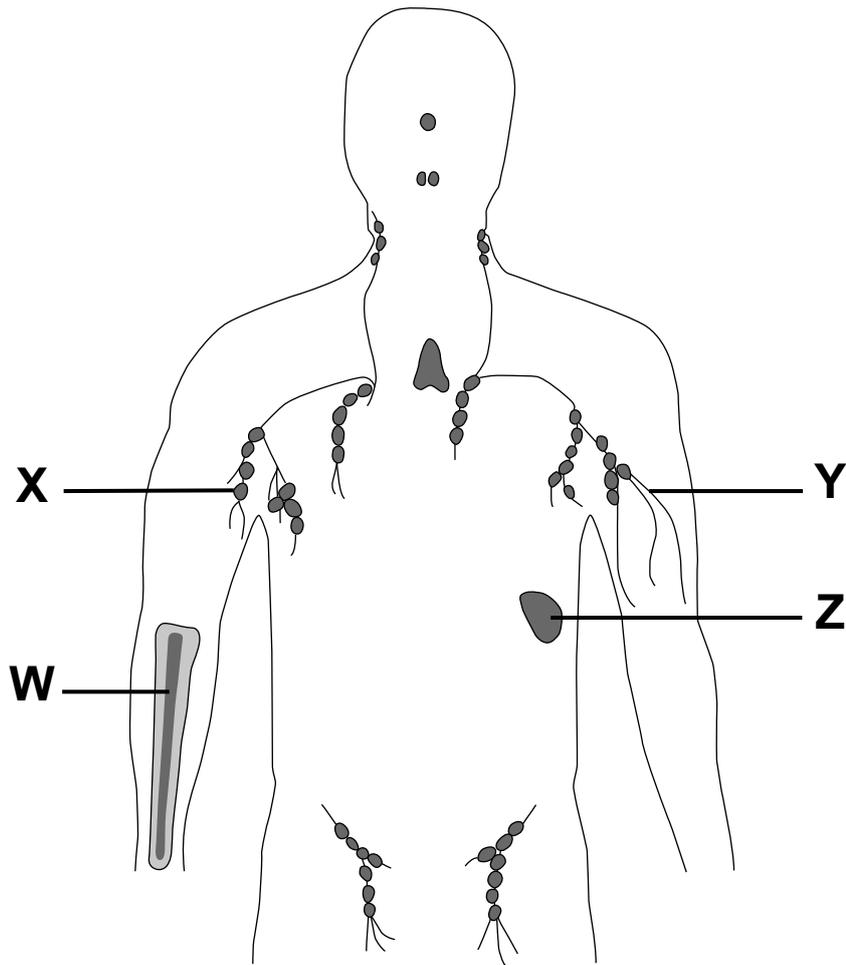
**Arteries and veins have walls containing smooth \_\_\_\_\_ and elastic fibres.**

**Generally, veins have \_\_\_\_\_ walls and wider lumens than arteries. Blood flowing through veins is under \_\_\_\_\_ pressure.**

**Valves are found in \_\_\_\_\_ to keep blood flowing in the right direction.**



(c) The diagram shows the lymphatic system.



(i) Complete the table below by selecting the correct letter that identifies the structures of the lymphatic system.

One has been done for you. [3]

Structure	Letter
bone marrow	W
lymph node	
lymph organ	
lymph vessel	

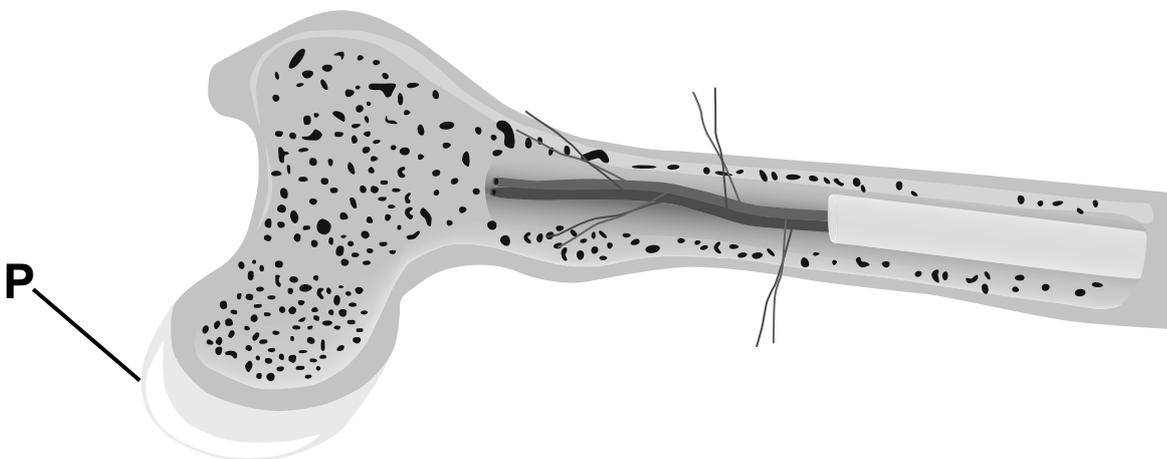
- (ii) One of the roles of the lymphatic system is to produce blood cells.

State ONE OTHER role of the lymphatic system.

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[1]

- (d) The diagram below shows a section of bone from the arm.



- (i) Identify the type of bone SECTION shown in the diagram.

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[1]

- (ii) The structure labelled P helps to reduce friction in a joint.

Identify structure P.

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[1]

**(e) Beth has osteoporosis. Scans have shown changes in her bone tissue.**

**(i) Identify ONE cause of osteoporosis.**

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

**(ii) Give TWO ways in which her bones could have changed as osteoporosis progressed.**

**1** \_\_\_\_\_

\_\_\_\_\_

**2** \_\_\_\_\_

\_\_\_\_\_

**[2]**

**(iii)\*Analyse the use of TWO possible treatments for managing Beth's osteoporosis. [6]**

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**4 The eye is part of the sensory system.**

- (a) Choose from the list of structures below to complete the table about the eye.**

**ciliary muscle**

**conjunctiva**

**cornea**

**iris**

**suspensory ligament**

**tear gland**

**You may use each structure once, more than once or not at all. [4]**

<b>Description</b>	<b>Structure</b>
<b>Changes the shape of the lens to enable the eye to focus.</b>	
<b>Produces fluid to clean and lubricate the front of the eye.</b>	
<b>Thin membrane that covers and protects the surface of the eye.</b>	
<b>Transparent front part of the eye.</b>	



**(c) Deafness is a malfunction of the ear that can be caused by ageing.**

**(i) Give ONE OTHER cause of deafness.**

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[1]

**(ii) State TWO effects of deafness on lifestyle.**

1 \_\_\_\_\_

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2 \_\_\_\_\_

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[2]

**(iii) Give ONE possible treatment for deafness.**

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[1]

**5 During gaseous exchange, oxygen moves out of the alveoli into the capillaries. It is then transported in the blood to body tissues for cellular respiration.**

**(a) (i) Describe TWO features of the alveoli walls that enable gaseous exchange to be efficient.**

**1** \_\_\_\_\_

\_\_\_\_\_

**2** \_\_\_\_\_

\_\_\_\_\_

[2]

**(ii) Explain how a diffusion gradient enables oxygen to move out of the alveoli and into the capillaries.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[2]

**(iii) Name the part of the blood that transports the oxygen to body tissues.**

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



- (ii) Give ONE cause of emphysema and outline the possible effects on Tom's respiratory system.

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[3]

**END OF QUESTION PAPER**













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