

## Tuesday 15 January 2019 – Afternoon

### LEVEL 3 CAMBRIDGE TECHNICAL IN HEALTH AND SOCIAL CARE

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

**Duration: 2 hours**

**C442/1901**



**You must have:**

- no materials required

First Name						Last Name				
Centre Number						Candidate Number				
Date of Birth	D	D	M	M	Y	Y	Y	Y		

#### INSTRUCTIONS

- Use black ink.
- Complete the boxes above with your name, centre number, candidate number and date of birth.
- Answer **all** the questions.
- Write your answer to each question in the space provided.
- If additional answer space is required, you should use the lined page(s) at the end of this booklet. The question number(s) must be clearly shown.

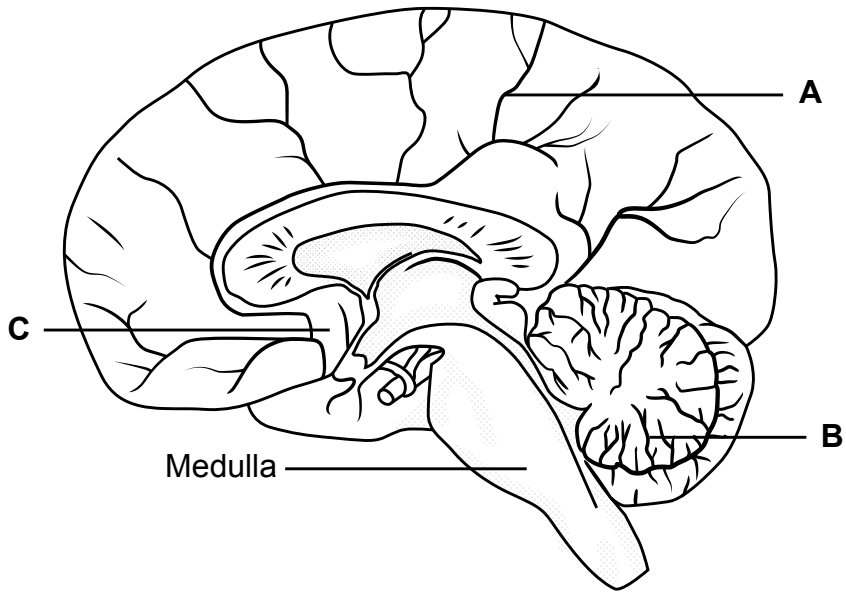
#### INFORMATION

- 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 consists of **20** pages.

FOR EXAMINER USE ONLY	
Question No	Mark
1	/17
2	/25
3	/12
4	/29
5	/17
<b>Total</b>	<b>/100</b>

Answer **all** the questions.

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]**

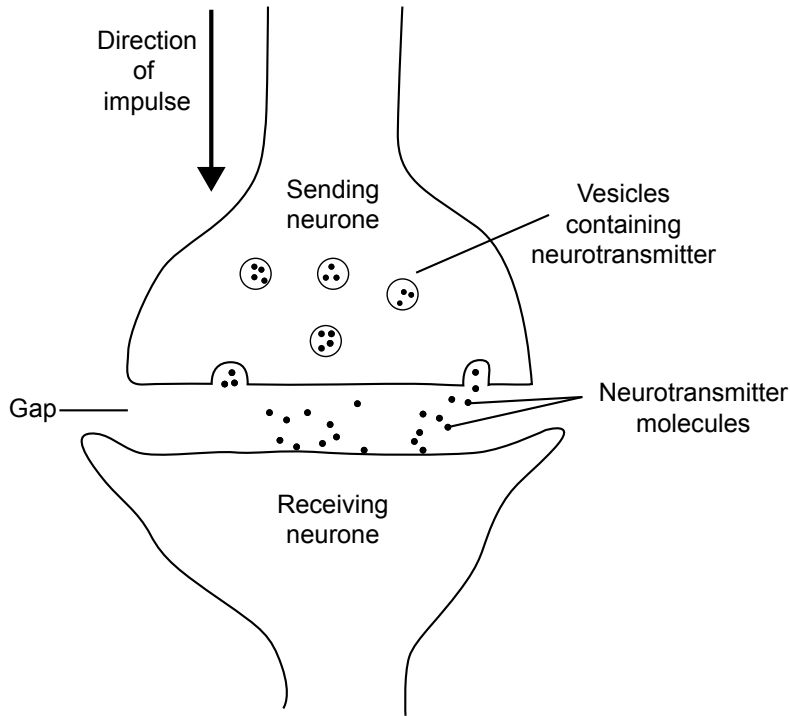
(ii) Which of the following statements about the function of the medulla is correct?  
Tick (✓) **one** box.

- It controls autonomic functions such as heart rate.
- It controls balance and posture.
- It coordinates movement of muscles.
- It coordinates speech and language.

**[1]**



(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]

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]

(b) Kevin has been suffering from hypertension.

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

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.....[1]

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

[6]

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

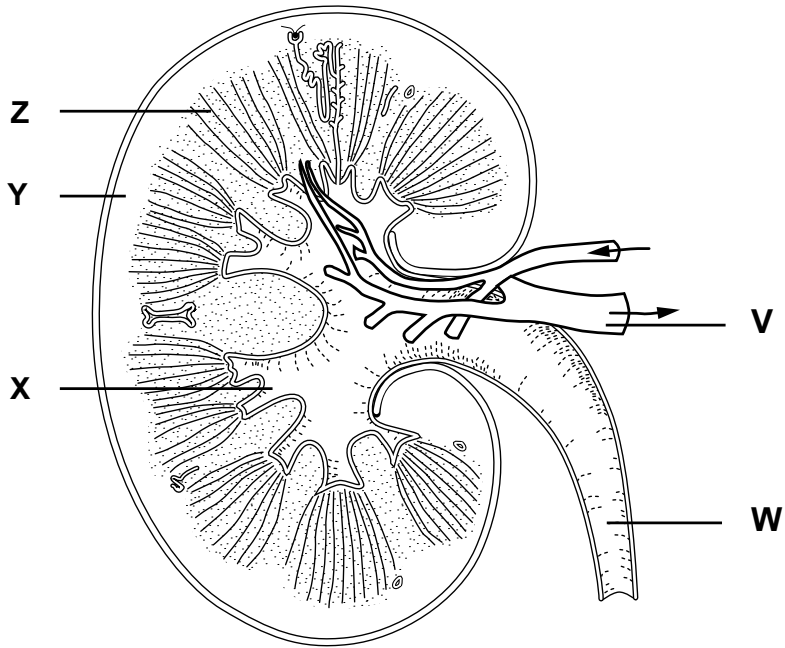
Name **one** process that occurs in a kidney nephron and the part of the nephron involved in this process.

Process.....

Part of nephron involved.....

[2]

(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]

**(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]**

**(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]**

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**Turn over for the next question**

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]

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

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 .....[4]



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.

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.....[4]

(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]

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

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

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

.....[1]

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

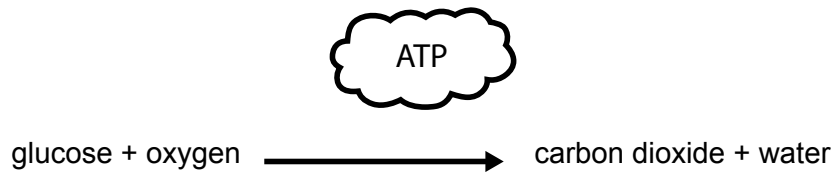
.....[1]





- 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.

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.....[3]

- (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]

(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.

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[6]



(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]

**END OF QUESTION PAPER**

**ADDITIONAL ANSWER SPACE**

If additional answer space is required, you should use the following lined page(s). The question number(s) must be clearly shown – for example 1(a) (i) or 4(a).

A large rectangular area with a solid vertical line on the left side and horizontal dotted lines across the page, providing space for writing answers.

A series of horizontal dotted lines for writing, spanning the width of the page.

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