

**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**

**Plus your additional time allowance.**

**You must have:  
no materials required**

**Modified Enlarged 18 pt**

**First Name**

**Last Name**

**Centre  
Number**

**Candidate  
Number**

**Date of  
Birth**

D

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Y

Y

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Y

## **INSTRUCTIONS**

**Use black ink.**

**Complete the boxes on the front page 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**

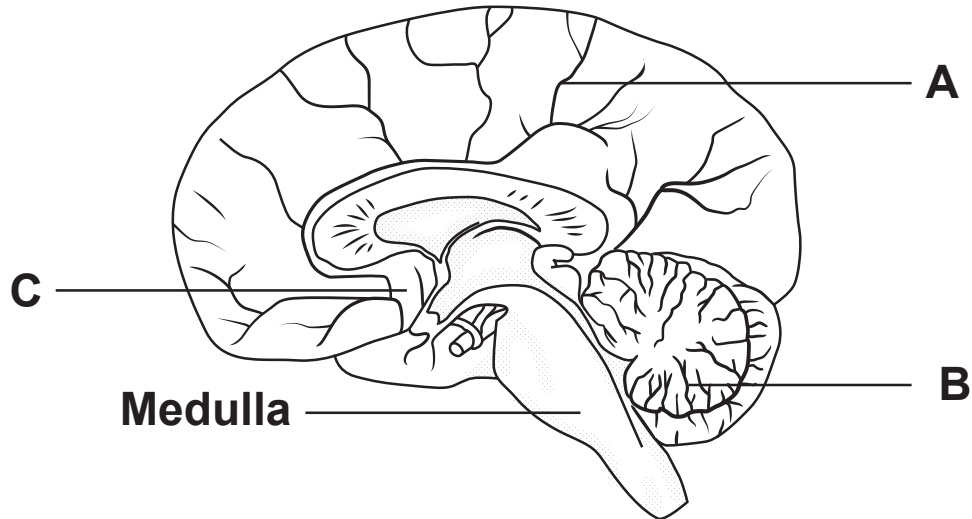
**The total mark for this paper is 100.**

**The marks for each question are shown in brackets [ ].**

**Quality of extended response will be assessed in questions marked with an asterisk (\*).**

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. [1]

It controls autonomic functions such as heart rate.

☐

It controls balance and posture.

☐

It coordinates movement of muscles.

☐

It coordinates speech and language.

☐

- (b) Simone, aged 45, has been diagnosed with multiple sclerosis (MS). MS is an auto-immune disease which damages neurones in the Central Nervous System.

- (i) Which part of the neurone is affected by MS?

[1]

- (ii)\* Identify possible treatments Simone could receive from health care professionals and explain how they help to manage the symptoms of MS. [8]

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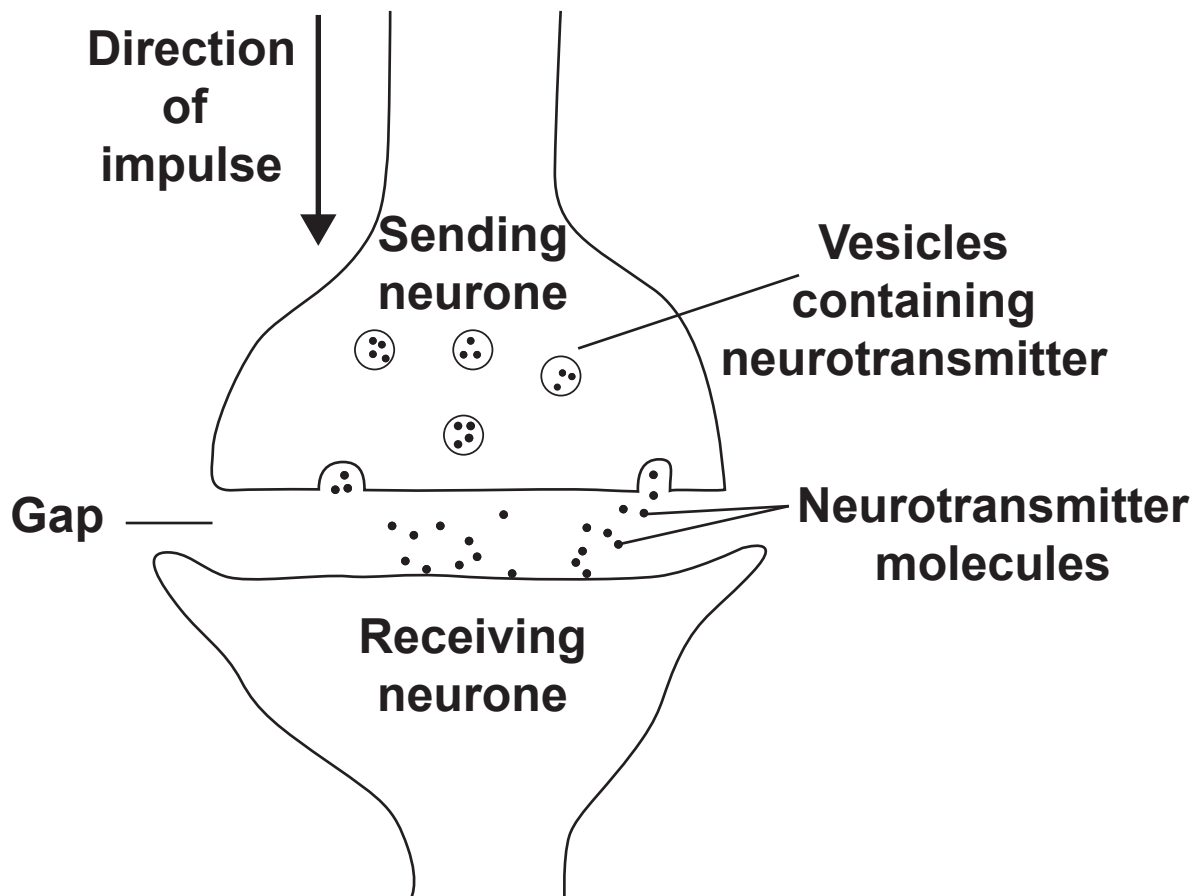
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(c) The diagram below shows the gap between two neurones.



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. [4]

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

- 2 (a) Complete this description about the composition and functions of blood.

Use words from the list below: [6]

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 \_\_\_\_\_.

**(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.

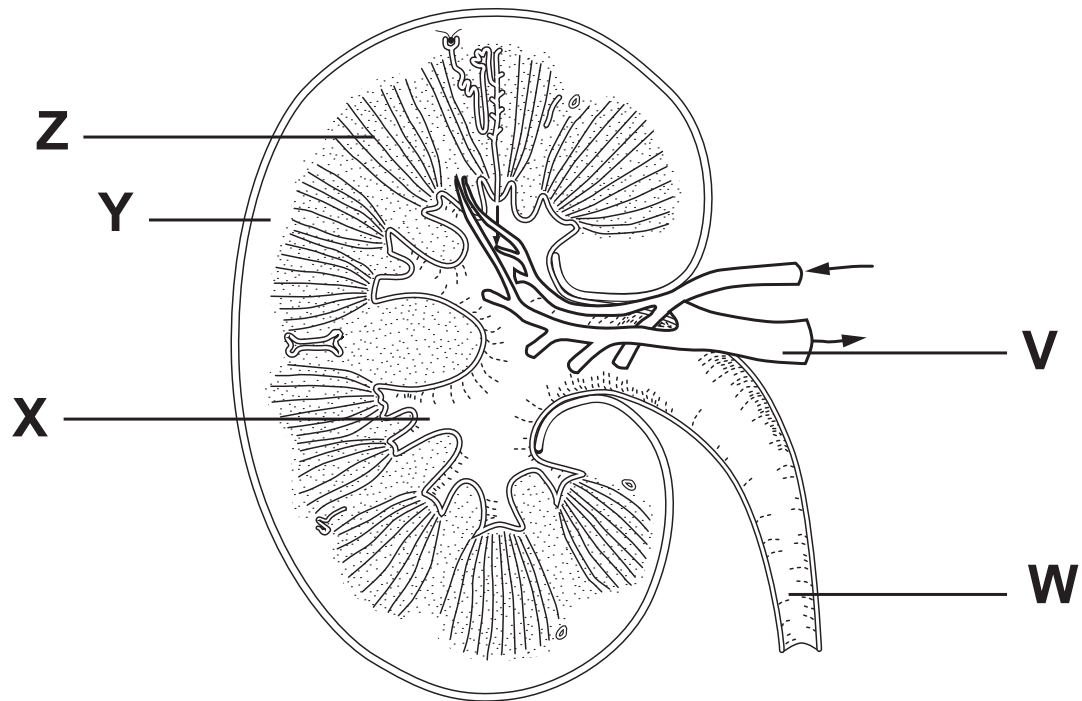
Name ONE process that occurs in a kidney nephron and the part of the nephron involved in this process.

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. [3]

Structure within the kidney	Letter
Cortex	
Medulla	
Renal vein	V
Ureter	

**(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. [1]**

**Assimilation**

☐

**Deamination**

☐

**Detoxification**

☐

**Respiration**

☐

**(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]**

[illegible]

**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: [3]**

**Cartilage**

**Ligament**

**Tendon**

**Synovial fluid**

**Synovial membrane**

<b>Function</b>	<b>Component</b>
<b>Attaches bone to bone</b>	
<b>Lubricates and nourishes the joint</b>	
<b>Reduces friction during movement</b>	

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

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**[4]**

**(b)\* After years of playing rugby, Harry has developed severe arthritis in his knees.**

**Explain the treatment options that are available to Harry for his arthritis. [5]**

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**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  
Liver  
Pancreas

Large intestine  
Small intestine  
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]



**(c)\* Karim has Coeliac disease. Explain why he has been advised not to eat foods containing gluten as part of his dietary support plan.**

[illegible]

**[6]**

**(d) Apart from its role in digestion, the pancreas also functions as an endocrine organ and produces hormones.**

**(i) Explain what is meant by the term 'hormone'.**

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[2]

[2]

- (ii) The table below has statements about the pancreas and its role as an endocrine organ. Complete the table by deciding whether each statement is TRUE or FALSE. [4]

Statement	True or False
Diabetes is caused when the pancreas produces too much insulin.	
The hormone glucagon is produced by the pancreas.	
The pancreas produces the hormone insulin.	
Type II diabetes is caused when cells in the pancreas are destroyed during childhood.	

- (e)\* Uncontrolled diabetes can damage organs in the body, such as the eye, leading to a malfunction.

- (i) Identify a malfunction of the eye or ear.

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[1]

**(ii) Explain how the malfunction in 4(e)(i) may impact on an individual's lifestyle.**

[illegible]

- 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.**



**glucose + oxygen       $\longrightarrow$       carbon dioxide + water**

- (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. [4]**

<b>Can be triggered by cigarette smoke or dust</b>	
<b>Caused by chemicals in cigarette smoke</b>	
<b>Caused by a defective gene</b>	
<b>Mucus is produced thicker than normal</b>	

**(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.**

[illegible]

- (d) Complete the description about the structure of the middle ear.

Choose from the following: [4]

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.

**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).**

[illegible]





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