

Monday 23 May 2022 – 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

C442/2206



Please write clea	arly in black ink.	
Centre number	Candidate number	
First name(s)		_
Last name		_
Date of birth	D D M M Y Y Y	

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.

	(AMINER ONLY
Question No	Mark
1	/18
2	<i>1</i> 27
3	/12
4	/30
5	/13
Total	/100

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C442/2206/9 Turn over

Answer all the questions.

Eustachian tube	inner ear	middle ear
organ of Corti	round window	stapes

You may use each structure once, more than once, or not at all.

Description	Structure
A small bone that transmits sound vibrations within the ear.	
Found in the cochlea and contains rows of hair cells.	
Opening covered by a membrane that allows movement of fluid in the cochlea.	
Separated from the external ear by the ear drum.	

[4]

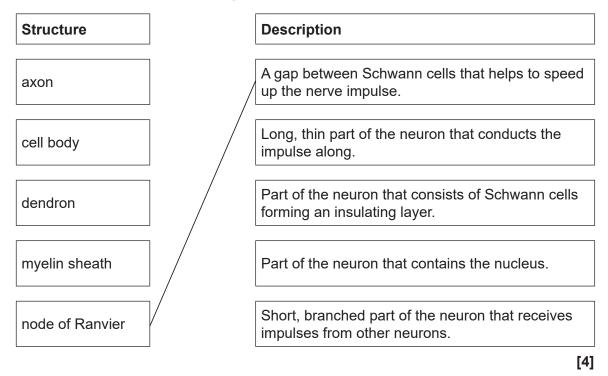
(b)	Impulses from the sensory organs are carried to the brain by nerves.	
	(i) Name the nerve that carries impulses from the ear to the brain.	
		[1]
	(ii) Name the nerve that carries impulses from the eye to the brain.	

[11]

(c) The structure of nerve cells (or neurons) is adapted for their function of carrying impulses.

Match each structure with its description by drawing a line between the boxes.

One line has been completed for you.



- (d) Kai has glaucoma, a malfunction of the eye.
 - (i) Which one of the following is a possible cause of glaucoma?Put a tick (✓) in the box next to the possible cause.

Possible cause of glaucoma	Tick (✓) one only
Ageing.	
Air pollution.	
Alcohol misuse.	
Exposure to ultra-violet (UV) light.	

۲4	11
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	Give one reason why pressure could build up inside the eye.	
ii)	Glaucoma is caused by a build-up of pressure inside the eye.	

) [^]	Describe the likely symptoms and effects of glaucoma on Kai's eyesignt.
	91

2 Fig. 1 is a diagram of the heart which is part of the cardiovascular system.

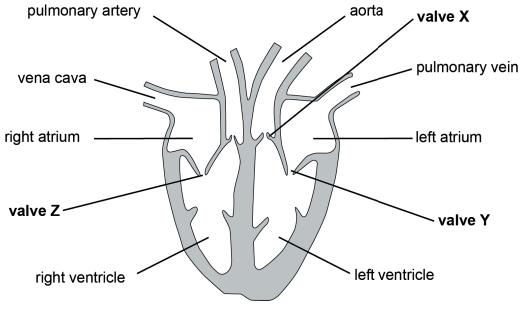


Fig. 1

(a)	(i)	Which of the valves X , Y or Z on the diagram of the heart is a semi-lunar valve?
		[1]

(ii) Choose from the components of the heart labelled on **Fig. 1** to complete the table about their role in heart function.

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

One has been done for you.

Role in heart function	Component
A blood vessel that carries deoxygenated blood from the body back to the heart.	vena cava
A blood vessel that carries oxygenated blood from the lungs back to the heart.	
A blood vessel that carries oxygenated blood out of the heart to the body.	
A chamber that forces blood out of the heart towards the lungs.	
A chamber that receives deoxygenated blood returning from the body.	

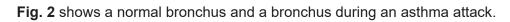
[4]

(b)	Coronary arteries supply the heart muscle with blood containing absorbed nutrients.				
	Con	nplete the pa	ssage by choosing	the most appropriate wo	ord(s) from the list below.
	ADF	•	aerobic	anaerobic	
	ATP	•	carbon dioxide	glucose	lactic acid
	Abs	orbed nutrier	nts, such as	,	are needed to supply energy
	for t	he contractio	on of heart muscle. I	Energy is supplied in the	form of
			which	is produced during cellu	ular respiration in the muscle
	cells	s. When plen	ty of oxygen is avai	lable	respiration takes
	plac	e inside mito	chondria which rele	ease	
					as a waste product.
					[4]
(c)	Anik	a has been a	admitted to hospital	after suffering a suspec	ted heart attack.
	(i)	Give two sy angina.	mptoms that sugge	st a person has either s	uffered a heart attack or has
		1			
					[2]
	(ii)*		een told that she hateries is blocked.	as coronary heart diseas	ee (CHD) and that one of her
		Explain the artery.	possible causes an	d risk factors that could	lead to a blocked coronary
					[6]

(d)		ckages in the arteries leading to the brain can prevent flow of blood containing ients and oxygen causing a stroke.	
	mati	ionic and oxygon oddonig a calone.	
	(i)	Outline one other biological cause of a stroke.	
			[2]
	(ii)	Give two lifestyle changes that could lower the chances of having a stroke.	
		1	
		2	
			[2]

(e)*	Leo has been receiving treatment in hospital after suffering a stroke.
	Analyse two possible treatments that could help Leo to manage his symptoms and lower the chances of suffering another stroke.
	re:

3 Bronchi are part of the respiratory system that supplies the oxygen required for cellular respiration.



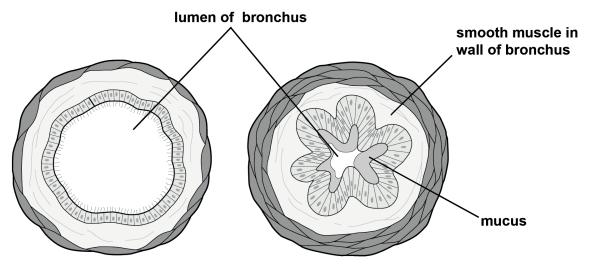


Fig. 2

(a)	Use Fig. 2 to give four reasons why asthma sufferers become breathless,	start wheezing
	and feel tightness in the chest during an asthma attack.	

			[4]
4.	 	 	
2 .	 	 	
1.	 	 	

(b)* Charlie is 45 years old and has had asthma since he was a child.

The following treatments have been used to help Charlie manage his symptoms:

- inhalers
- drugs taken as tablets or powders
- injections.

Evaluate two of these treatments for managing Charlie's asthma.			
[8]			

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Turn over for the next question

4 (a) Fig. 3 shows part of the digestive system.

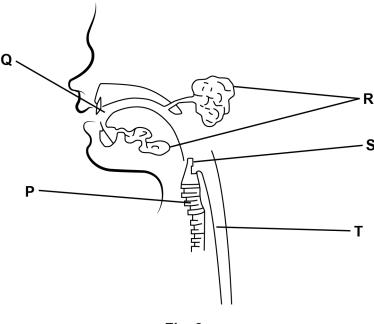


Fig. 3

(i) Complete the table below by choosing the correct letter from Fig. 3 that identifies the structures of this part of the digestive system.

One row has been done for you.

Structure	Letter
buccal cavity	
epiglottis	S
oesophagus	
salivary glands	

п	.3.	
	J	

		LO.			
ii)	Describe the structure and function of the epiglottis labelled S on Fig. 3 .				

(b)	Outl	ine the role of the part of the digestive system shown in Fig. 3 in the breakdown of l.	of
			[3]
(c)		able bowel syndrome (IBS) is a digestive malfunction that may occur when food res through the digestive system too quickly.	
	(i)	State one symptom of IBS.	
			. [1]
	(ii)	State one cause of IBS.	
			. [1]
	(iii)	State one treatment or lifestyle change for managing IBS.	
			[1]

(d) (i) Assimilation is a process carried out by the liver.

Which **one** of the following is the correct meaning of the term assimilation? Put a tick (\checkmark) in the box next to the correct meaning.

Meaning of assimilation	Tick (✓) one only
Emulsifying fat molecules so they have a larger surface area for digestion.	
Movement of digested nutrients into body cells to become part of the cells.	
Movement of digested nutrients into the blood stream.	
Removal of undigested waste from the body.	

[1] (ii)* The liver also has breakdown functions as part of the regulatory system. Discuss the main functions of the liver in breaking down the excess, toxic or unwanted products of metabolism. [8]

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(e) The kidney is also a component of the regulatory system.

Complete the table below by deciding whether each statement about the structure and functions of the kidney is **True (T)** or **False (F)**.

Statement	True (T) or False (F)
Collecting ducts of kidney nephrons have a role in osmoregulation.	
Ultrafiltration takes place in the Bowman's capsule of kidney nephrons.	
Urea is reabsorbed back into the blood as it passes through kidney nephrons.	
Ureters carry urine from the kidneys to the bladder.	

[4]

(f)*	Ali has nephrotic syndrome. His symptoms include swelling of his legs and blood clots in his urine.
	Explain the possible causes for Ali's nephrotic syndrome. Include both biological causes and risk factors for developing the condition.
	[6]

Joir	nts occur w	here two bones m	neet and allow moven	nent between the bones.	
(a)	Name the	type of joint that	allows the skull to mo	ove on the spinal column.	
					[1]
(b)	Choose fi		to answer the followi	ng questions about the co	mponents of a
	You can ι	use each compon	ent once, more than o	once, or not at all.	
	cartilage		ligament	muscle	
	synovial	capsule	synovial fluid	tendon	
	(i) State	e the component t	that contracts and rel	axes to move the bones.	
					[1]
	(ii) State	e the component t	that lubricates and no	ourishes the joint.	
					[1]
	(iii) State	e the component t	that can act as a shoo	ck absorber.	
					[1]
	(iv) State the j	•	that is a type of fibrou	is tissue that pulls on the b	one to move

- $(c)^*$ Beth has arthritis in her knees. She has the following symptoms:
 - stiff, painful knee joints
 - inability to kneel down or fully bend her knees
 - grating noises when she tries to bend her knees.

Explain the likely causes for Beth's symptoms.
re
[6]
Outline one type of treatment used to reduce the symptoms of arthritis.
[2]

END OF QUESTION PAPER

(d)

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(d) or 6(b).



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