

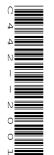
Tuesday 14 January 2020 - Afternoon

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	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.

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

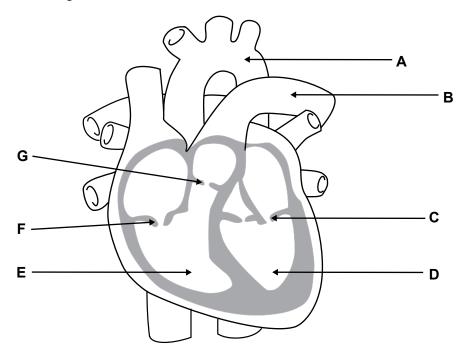
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C442/2001/8 Turn over

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	С
left ventricle	
semilunar valve	
a pulmonary artery	

[3]

(b)	Diffe	erent structures in the he	eart help to control and	regulate the car	rdiac 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.		
	sinc	eatrial node (SAN)	atrioventricular nod	de (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 impulses.				F41
						.[1]
	(iii)	Identify which structure	can be described as th	·		.[1]
	(iv)	Identify which structure ventricles.	ensures that impulses	are spread rapi	dly through the	
						[1]

(c)	The	ne heart is part of the cardiovascular system.					
	Cor	onary Heart Disease (CHD) is a common malfunction of the cardiovascular system.					
	(i)	Identify one other malfunction of the cardiovascular system.					
		[1]					
	(ii)*	Discuss the options available to monitor and treat CHD.					
		You should include medical treatments and lifestyle changes in your answer.					

system.											
	Letters A-F represent the organs of the respiratory system.										
	Α	trachea									
	В	bronchi									
	С	lungs									
	D	mouth									
	Ε	bronchioles									
	F										
		ite the letters in the boxes to give the correct order for the passage of air after eathing out (expiration).									
	Th	e second one has been done for you.									
			5								
(e)	Intercostal muscles and the diaphragm are structures of the respiratory system that have a role in breathing in (inspiration) and out (expiration). Describe the role of one of these structures in breathing in.										

- 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]

(b) Multiple sclerosis (MS) is a malfunction of the nervous system.

(i)	Identify one symptom of multiple sclerosis. Tick (✓) one box.	
	High blood pressure	
	Unexplained weight loss	
	Problems with balance and co-ordination	
	Swelling of hands and feet	[1]
(ii)*	Discuss the possible causes of multiple sclerosis.	
	You should include biological causes and risk factors in your answer.	
		•••••

C)*	Eve has had cystic fibrosis since she was born. It was inherited from her parents due to a faulty gene.
	Explain the symptoms of cystic fibrosis.
	ra)

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PLEASE DO NOT WRITE ON THIS PAGE

Turn over for the next question

					10		
3	(a)		ntrol and regulatory sy ironment in the body.	/stems are re	sponsible for r	naintaining a cons	stant internal
		(i)	Name the term that	means 'maint	aining a const	ant internal envirc	nment'.
							[1]
		(ii)	The concentration o			•	
			Identify what is happ	pening with gl	ucose at each	n of the stages in t	he diagram.
					More insulin		
				_ A	produced	В	
			Normal glucose			Normal gl	LICOSA
			concentration			concentr	I
				C _ [Mana aluanana	Glycogen cor	verted to glucose
					More glucagon produced		3
			۸	L		ı	
			Α	•••••			
			В				
			C				
							[3]
	(b)	The	kidney is part of the	regulatory sy	stem.		
		Con	nplete the sentences	about the stru	ucture and fun	ction of the kidney	/ .
			words from the list.				
		You	can use each word	once, more th	an once, or no	ot at all.	
			osmoregulation	detoxi	fication	excretion	ureter
		nep	hron ultra	afiltration	reabsorp	tion urea	protein
		The	kidney has two main	functions:		wh	nich maintains the
		con	centration of water ar	nd ions in the	blood, and		which
		rem	oves metabolic waste	e from the boo	dy.		

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

(c)* Li is five years old and has recently been diagnosed with nephrotic syndro	me.
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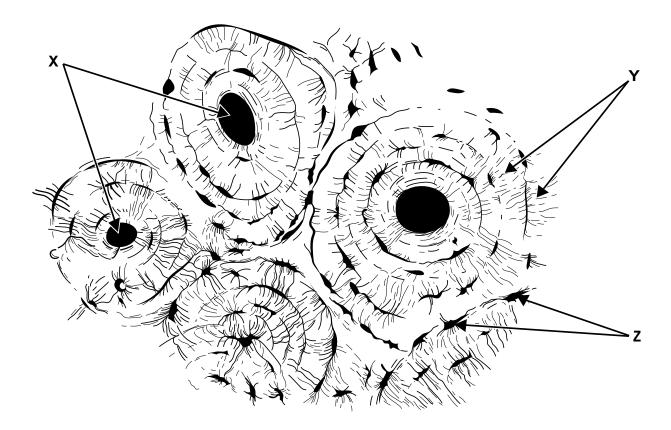
He has the following symptoms:

- Frequent need to urinate
- Constant infections
- Blood clots
- Swelling caused by increased fluid in his body tissues
- Protein found in his urine

Evaluate two possible treatments for these symptoms of nephrotic syndrome.
O

	has been diagnosed with osteoarthritis.		
(a)*	Explain the possible causes of Mia's osteoarthritis and the effects it is her.	likely to ha	ave on
			[6
(b) Identify which statements about possible treatments for osteoarthritis are are false.		are true , a	and which
	Tick (✓) one box in each row.		
	Statement	True	False
	Taking vitamin D and calcium supplements.		
	Taking steroids to reduce inflammation and swelling.		
	Surgery to replace a joint.		

Physiotherapy to strengthen muscles.



(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]

(d) Nutrients are needed for healthy bones.

Evr	value how the wall of the small intesting is adapted for the absorption of putrients
⊏xµ	plain how the wall of the small intestine is adapted for the absorption of nutrients.
•••••	
•••••	
••••	
Irrita	
Irrita	able bowel syndrome (IBS) is a malfunction of the digestive system.
	able bowel syndrome (IBS) is a malfunction of the digestive system. Identify two symptoms of IBS.
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(i)	able bowel syndrome (IBS) is a malfunction of the digestive system. Identify two symptoms of IBS. 1

(f)* Various techniques and treaments are available to monitor and treat malfunctions of the digestive system, including:

• (Jltrasound
• E	Endoscopy
• L	ithotripsy
Anal	yse the various techniques and treatments listed above.
•••••	
	[8]

The eye is part of the sensory system.

5

(a)		wer the following ques	tions about the eye.		
		can use each word on	ce, more than once, or	r not at all.	
	cor	nea	retina	humour	pupil
	cilia	ary	iris	conjunctiva	lens
	(i)	Identify a type of fluid	that fills the eye and h	elps to keep its shape.	
					[1]
	(ii)	Identify the inner lining	g of the eye that contai	ins rod and cone cells.	
					[1]
	(iii)	Identify a muscle that	helps to change the st	nape of the lens.	
					[1]
	(iv)	Identify the clear cove	ring at the front of the	eye.	

(b) * Jack	has recently been diagnosed with age-related macular degeneration (AMD).
	cribe the possible effects of AMD on Jack's vision, and also how the AMD could be nitored.
	Ie.

(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	ne skull and tough men	nbranes	
called	It is divide	ed into two cerebral her	nispheres
connected by a bridge calle	ed the		
The outermost layer of the	brain is called the cere	ebral cortex, which is re	sponsible
for	and decision-r	making.	
Important functions, such a	as breathing and swal	lowing, are controlled b	y
the	which is found	d at the base of the bra	in where it meets
the spinal cord.			
The cerebellum has a role i	in coordinating muscle	activity and in maintain	ning
			[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).



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