OCR
Oxford Cambridge and RSA

Level 3 Cambridge Technical in Health and Social Care
05831/05832/05833/05871

Unit 4: Anatomy and physiology for health and social care

Monday 15 January 2018 – Morning

Time allowed: 2 hours

You may have:
- no materials required

First Name		Last Name	

Centre Number						Candidate Number				

Date of Birth	D	D	M	M	Y	Y	Y	Y

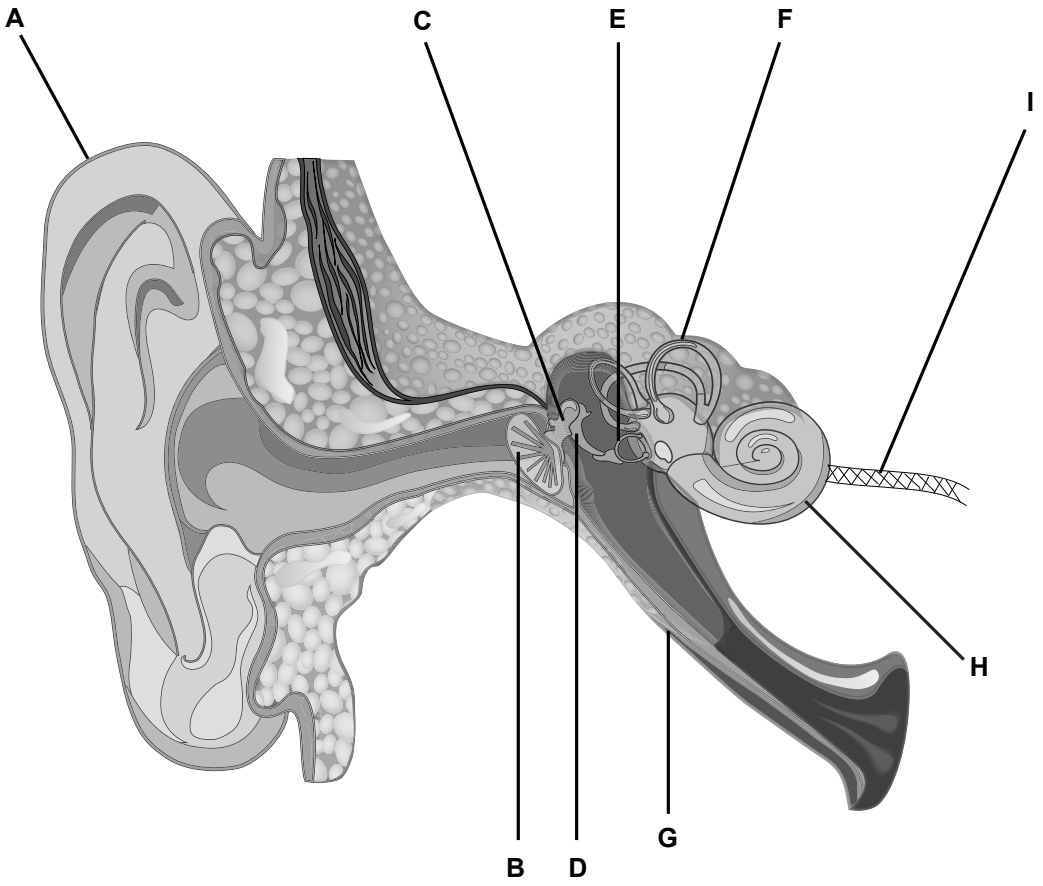
INSTRUCTIONS
- Use black ink.
- Complete the boxes above with your name, centre number, candidate number and date of birth.
- Answer **all** the questions.
- Write your answer to each question in the space provided.
- If additional answer space is required, you should use the lined page(s) at the end 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 **16** pages.

FOR EXAMINER USE ONLY	
Question No	**Mark**
1	/13
2	/24
3	/13
4	/24
5	/26
Total	**/100**

Answer **all** the questions.

1 The diagram below shows the human ear.



(a) Identify the parts of the ear labelled **A - I** in the diagram above. Put the correct letter in the table below.

One answer is completed for you.

Part of the ear	Diagram label
Auditory nerve	
Cochlea	
Eardrum (timpanic membrane)	
Eustachian tube	
External Ear	
Incus (anvil)	
Malleus (hammer)	
Semi-circular canals	F
Stapes (stirrup)	

[8]

(b) The paragraph below describes how the ear enables us to hear sounds.

Fill in the blank spaces with the correct parts of the ear from the table below.

Part of the ear
Auditory nerve
Cochlea
Eardrum (timpanic membrane)
Eustachian tube
External Ear
Incus (anvil)
Malleus (hammer)
Semi-circular canals
Stapes (stirrup)

Sound is channelled in through the _____ where it causes a vibration in the _____. The vibrations are amplified as they pass along the three auditory ossicles or bones in the middle ear. The vibration then enters the coiled chamber called the _____ in the inner ear. Hairs in the organ of Corti cause electrical signals to be transmitted along the _____ to the brain.

[4]

(c) Identify **one** function of the semi-circular canals.

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.....**[1]**

2 Audrey has been diagnosed with osteoporosis.

(a) Identify **four** possible risk factors or causes of osteoporosis.

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2.....

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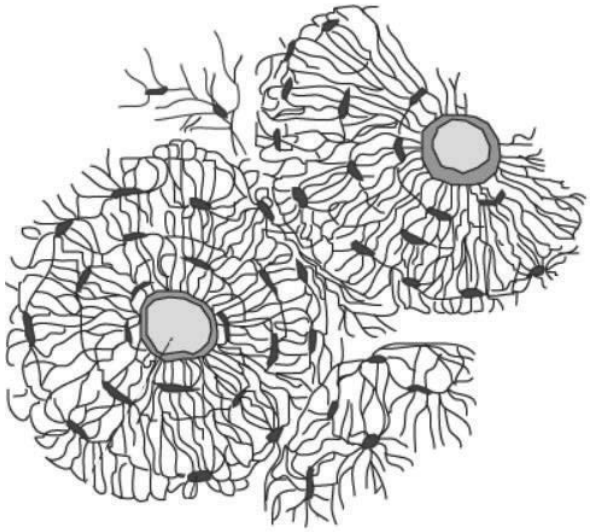
[4]

(b) The diagram below shows a section of a healthy bone and the cells that cause bone growth.



(i) What type of diagram is the one above?

Tick (✓) **one** box.

(a) a transverse section of a bone ☐

(b) a vertical section of a bone ☐

[1]

(ii) Suggest how a diagram of a bone of an individual with osteoporosis, like Audrey, might look different from a healthy bone.

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.....**[1]**

(c) State **three** possible methods of monitoring or treatment that Audrey might have for her osteoporosis.

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[3]

(d)* Explain the likely impacts of osteoporosis on Audrey's daily life.

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(e)* Audrey is taken to hospital because her daughter thinks she has had a stroke.

Explain the possible causes and effects of a stroke.

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.....**[10]**

3 The kidneys play a role in the excretion of waste product from the body.

(a) (i) Name the waste product which is excreted by the kidneys.

.....**[1]**

(ii) Identify the organ which makes this waste product.

.....**[1]**

(iii) Which of the following processes produces this waste product?

Tick (✓) **one** answer only.

ultrafiltration	
deamination	
osmoregulation	
homeostasis	

[1]

(b) Identify which part of the kidney nephron performs each of the functions in the table below.

Use the correct answers from the options provided below.

Calyx **Collecting duct** **Convoluted tubule** **Loop of Henle** **Glomerulus**

Function	Part of kidney nephron
Carries out ultrafiltration of the blood	
Establishes a salt gradient to draw water out of the filtrate	
Selective reabsorption occurs	
Transfers urine to the renal pelvis	

[4]

(c)* Imran has been diagnosed with nephrotic syndrome.

Explain possible treatments for nephrotic syndrome.

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4 **(a)*** Describe chemical digestion in the small intestine.

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(b)* Laura has been diagnosed with gallstones in her gall bladder.

Evaluate possible treatments for gallstones.

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(c)* Albert has been diagnosed with diabetes.

Analyse the effect diabetes can have on daily activities.

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5 **(a)** The function of red blood cells (erythrocytes) is to transport oxygen within the body.

(i) Explain **two** ways that the structure of a red blood cell allows it to perform this function.

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[4]

(ii) Identify which component of the blood carries out each of the functions given in the table.

Use the correct answers from the options provided below.

Lymphocytes **Monocytes** **Plasma** **Platelets**

Function	Component of the blood
Enables clotting after an injury	
Carries dissolved food molecules around the body	
Produces antibodies to fight infection	

[3]

(b) Blood also plays a part in temperature regulation.

Outline how the blood carries out this function.

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.....**[3]**

(c) Explain **two** differences between the structure of veins and the structure of arteries.

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[4]

(d)* The organ of the body which adds oxygen to the blood is the lungs.

Describe how this happens.

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(e) (i) Identify **one** respiratory malfunction.

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(ii)* Describe possible treatments for the malfunction in **(e)(i)**.

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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(c) or 2(d).

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