

Cambridge Assessment International Education

Cambridge International General Certificate of Secondary Education

CANDIDATE NAME					
CENTRE NUMBER			CANDIDATE NUMBER		

BIOLOGY 0610/32

Paper 3 Theory (Core)

February/March 2019

1 hour 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **all** questions.

Electronic calculators may be used.

You may lose marks if you do not show your working or if you do not use appropriate units.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of 18 printed pages and 2 blank pages.



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1 A balanced diet contains seven different groups of substances.

Three of these groups of substances are fats, fibre (roughage) and vitamins.

(a) State the names of **three** other groups of substances in a balanced diet.

(b) The boxes on the left contain the names of conditions that can develop if the diet is not balanced for a long period of time.

The boxes on the right contain descriptions of how these conditions may be caused.

Draw **one** straight line from each box on the left to a box on the right to link the condition to its cause.

name of condition description of cause diet contains very little fibre constipation diet very high in protein eating more food than is necessary scurvy lack of enough food starvation lack of fruits such as oranges

[Total: 7]

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[4]

2 (a) Complete the sentences about aerobic and anaerobic respiration.

Use words or phrases from the list.

(b)

Each word or phrase may be used once, more than once, or not at all.

carbon dioxide	carbon mo	noxide	energy
fatty acids	glycerol	guard	lactic acid
mesophyll	muscle	nitrogen	oxygen
Anaerobic respiration is differen	nt to aerobic respiration	າ because	
is not needed to break down glu	ucose molecules.		
The amount of	release	ed from each glucos	se molecule is much
smaller in anaerobic respiration	l.		
Anaerobic respiration in huma	ns takes place in		cells during
vigorous exercise. It produces .		from glucos	e.
A different form of anaerobic res	spiration takes place i	n yeast cells. Here th	ne glucose is broken
down into alcohol and			[5]
State two ways in which the humans.	products of anaerobi	c respiration in yea	ast can be used by
1			
2			
			[2]

(c) Fig. 2.1 shows the percentage of energy provided by anaerobic respiration when athletes run in races of different distances.

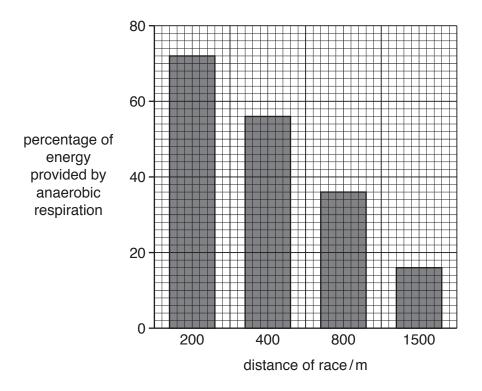


Fig. 2.1

Describe the results shown in Fig. 2.1.	
Use the data to support your answer.	
	[2]

[Total: 9]

3 (a) Fig. 3.1 shows the eye of a person in normal daylight.

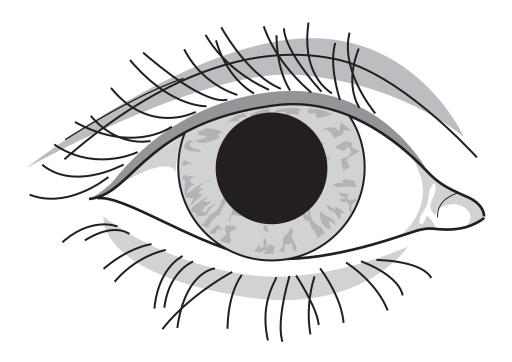


Fig. 3.1

Complete Fig. 3.2 by drawing the pupil to show the effect of shining a bright light into the eye.

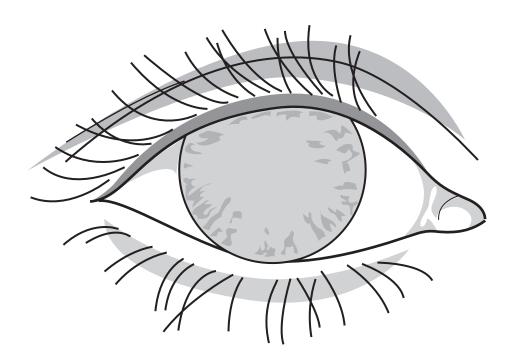


Fig. 3.2

[1]

(b) (i) Fig. 3.3 shows the names of five structures involved in a reflex arc.

Complete Fig. 3.3 by drawing **four** arrows to show the pathway and direction a nerve impulse travels during a reflex action.

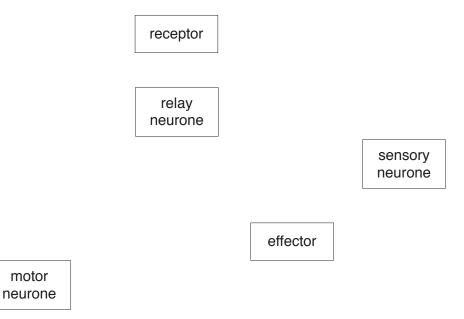


Fig. 3.3

[3]

(ii) State the name of the junction between two neurones.

......[1]

(c) The body is regulated by both the nervous system and by hormones.

Table 3.1 shows information about the names of hormones, where they are produced and their actions in the body.

Complete Table 3.1.

Table 3.1

name of hormone	where the hormone is produced in the body	action the hormone has in the body
insulin	pancreas	
	adrenal gland	widened pupils, increased heart rate, raised blood glucose concentration
testosterone		

[4]

[Total: 9]

4 Modern technology has resulted in increased food production.					
	(a)	State three examples of modern technology that are used to increase food production.			
		1			
		2			
		3			
		[3]			
	(b)	Many farms grow one type of crop plant on a large area of land. This type of crop production is called large-scale monoculture.			
		State two negative impacts to an ecosystem of large-scale monocultures.			
		1			
		2			
		2			
		[2]			
		[Total: 5]			

5	(a)	State one adaptive feature of an egg cell and one adaptive feature of a sperm.				
		egg cell				
		sperm				
		[2]				
	(b)	Some actions can damage the health of a fetus during pregnancy.				
		State two actions a woman should avoid during pregnancy.				
		1				
		2				
		[2]				

(c) Fig. 5.1 shows a fetus in its mother's body shortly before it is born.

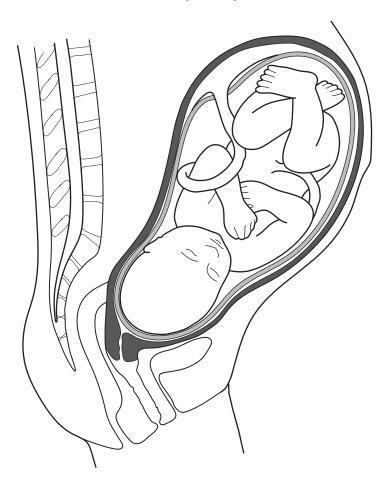


Fig. 5.1

(i)	State the functions of the placenta.
	[2]
(ii)	Describe three events, other than pain, that occur in the mother's body during the process of labour and birth.
	1
	2
	3
	[3]
	[Total: 9]

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6 Fig. 6.1 shows a section through a plant root.

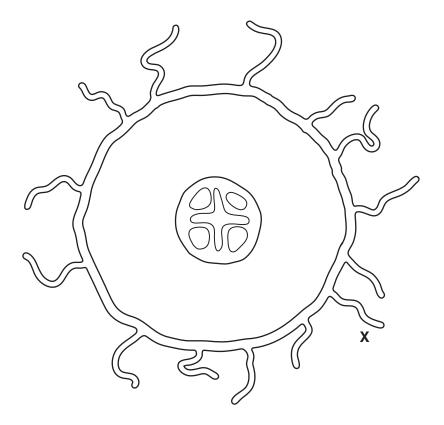


Fig. 6.1

(a) (i) The X on Fig. 6.1 represents a molecule of water.

On Fig. 6.1, draw a line from the **X** to show the pathway this water molecule takes to pass into the tissue that transfers it to the leaves. [1]

(ii) State the name of the process by which the water molecule moves into the root.

......[1]

(iii) State the name of the tissue that transports the water to the leaves.

.....[1]

(b) Fig. 6.2 shows the apparatus used in an investigation.

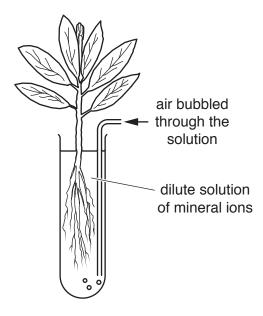


Fig. 6.2

In the investigation, several sets of this apparatus were set up.

Each set of apparatus was placed in a different temperature.

The rate of mineral ion uptake by the plants was measured.

The results are shown in Fig. 6.3.

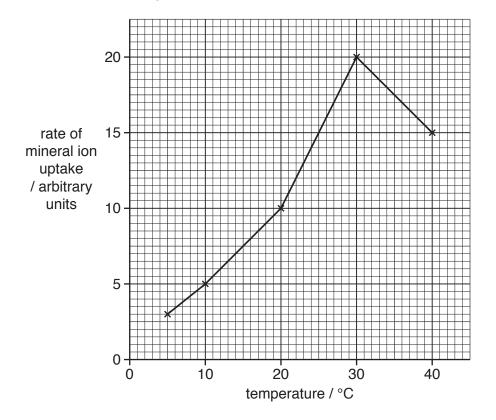


Fig. 6.3

	(i)	State the rate of mineral ion uptake at 25 °C in Fig. 6.3.
		arbitrary units [1]
	(ii)	Describe and explain the results shown in Fig. 6.3.
		Use the data to support your answer.
		[4]
c)		te the name of one mineral ion that plants absorb through their roots and state why the nts need this mineral ion.
	nan	ne of mineral ion
	nee	ded for
		[2]
		[2]

7 (a) Fig. 7.1 shows an external view of the heart of a person who has coronary heart disease.

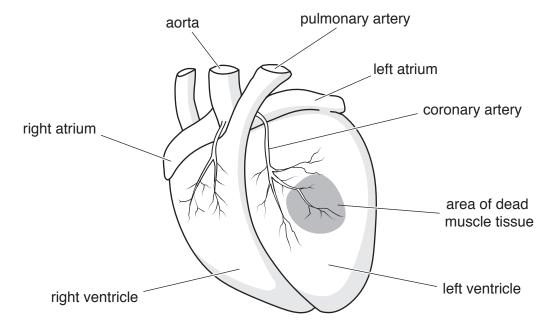


	Fig. 7.1	
(i)	On Fig. 7.1 three arteries are labelled.	
	State the name of two other types of blood vessel.	
	1	
	2	 [2
(ii)	Describe the structure of an artery.	<u>[</u> <u> </u>

(b)	(i)	Fig. 7.1 shows an area of dead muscle tissue.
		Describe what is meant by the term coronary heart disease and suggest why the heart muscle tissue has died.
		[3]
	(ii)	One factor that increases the risk of developing coronary heart disease is having a diet that contains a lot of fat.
		State three other factors that increase the risk of a person developing coronary heart disease.
		1
		2
		3[3]

8 Table 8.1 lists some processes carried out by living organisms.

Place a tick (\checkmark) in a box to show the type of process that occurs in animals, occurs in plants, or occurs in both.

An example has been done for you.

Table 8.1

name of process	occurs in animals	occurs in plants
absorption	1	1
diffusion		
egestion		
photosynthesis		
respiration		
sexual reproduction		
transpiration		

[6]

9	(a)) Define the term <i>pathogen</i> .						
					[1]			
	(b)	The	body has defe	nces against pathogens.				
		The	The defences can be grouped into three types and these are listed in Table 9.1.					
		Cor	nplete Table 9.	by giving a specific example for each type of defence.				
				Table 9.1				
	typ	e of	body defence	example				
	me	char	nical barrier					
	che	emical barrier						
	cells							
					_ [3]			
	(c)	(i)	Suggest two r	easons why it is important for people to wash their bodies frequently				
			1					
			2					
					[2]			
		(ii)	A student's sh	irt has food stains on it.				
			The food stain	contains proteins and fats.				
			The shirt is wa	ashed in a biological washing powder.				
			Explain why a	biological washing powder is effective at removing the stain.				
					ا			

(d) Fig. 9.1 shows an example of an unhygienic practice in a kitchen.



Fig. 9.1

Explain why hygienic food preparation is important.
[2
[Total: 10

10	(a)	Define the term <i>drug</i> .
		[2]
	(b)	State the name of one lung disease linked to smoking cigarettes.
		[1]
	(c)	Alcohol is a drug.
		State the name of the organ in the body that breaks down alcohol.
		[1]
	(d)	State the name of the group of drugs that are used to treat bacterial infections.
		[1]
		[Total: 5]

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