

Trial Examination 2021

Question and response booklet

QCE Biology Units 1&2

Paper 1

Student's Name:		
Teacher's Name:		

Time allowed

- Perusal time 10 minutes
- Working time 90 minutes

General instructions

- Answer all questions in this question and response booklet.
- QCAA-approved calculator permitted.
- Planning paper will not be marked.

Section 1 (25 marks)

25 multiple choice questions

Section 2 (25 marks)

• 5 short response questions

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SECTION 1

Instructions

- Choose the best answer for Questions 1–25.
- This section has 25 questions and is worth 25 marks.
- Use a 2B pencil to fill in the A, B, C or D answer bubble completely.
- If you change your mind or make a mistake, use an eraser to remove your response and fill in the new answer bubble completely.

	A	В	С	D
Example:				

	A	В	С	D
1.		\bigcirc		\bigcirc
2.		\bigcirc		\bigcirc
3.		\bigcirc	\bigcirc	\bigcirc
4.		\bigcirc		\bigcirc
5.		\bigcirc		\bigcirc
1. 2. 3. 4. 5. 6. 7. 8. 9.	0	\bigcirc	0	
7.		\bigcirc		\bigcirc
8.		\bigcirc		\bigcirc
9.		\bigcirc		\bigcirc
10.		\bigcirc	\bigcirc	\bigcirc
11. 12.		\bigcirc		\bigcirc
12.		\bigcirc		\bigcirc
13. 14.		\bigcirc		\bigcirc
		\bigcirc		\bigcirc
15.		\bigcirc	\circ	
16.		\bigcirc		\bigcirc
17.		\bigcirc		\bigcirc
18.		\bigcirc		\bigcirc
19.		\bigcirc		\bigcirc
20.		\bigcirc	\circ	
21.		\bigcirc		\bigcirc
21. 22. 23. 24.	A 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B O O O O O O O O O O O O O O O O O O O	c 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	D
23.		\bigcirc		\bigcirc
24.		\bigcirc		\bigcirc
25.		\bigcirc		\bigcirc

SECTION 2

Instructions

- Write using black or blue pen.
- Respond in paragraphs consisting of full sentences.
- If you need more space for a response, use the additional pages at the back of this booklet.
 - On the additional pages, write the question number you are responding to.
 - Cancel any incorrect response by ruling a single diagonal line through your work.
 - Write the page number of your alternative/additional response, i.e. See page ...
 - If you do not do this, your original response will be marked.
- This section has five questions and is worth 25 marks.

QUESTION 26 (4 marks)

In both plants and animals, surfaces are used for the exchange of materials between the internal and external environment.

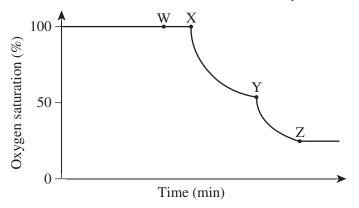
Such surfaces are found in:

- the digestive systems of animals
- the respiratory systems of animals
- the vascular systems of plants.

Outline the four main characteristic structural features that these surfaces have in common, using one of the systems above as an example, and relate them to the functioning of this chosen system.		

QUESTION 27 (5 marks)

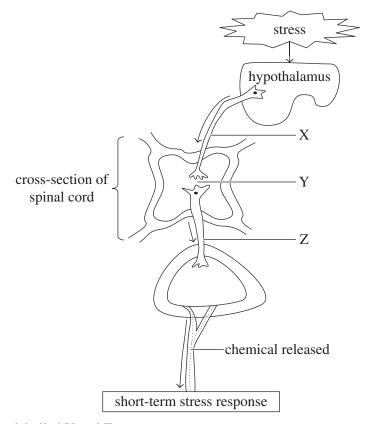
The following graph shows the results of an experiment in which mitochondria were extracted from muscle cells and placed in a fluid. The oxygen levels were measured in the fluid over time. At point W on the graph, pyruvate was added to the fluid. At points X, Y and Z, ADP and P_i were added.



Explain why oxygen consumption by the mitochondria could not begin until pyruvate was added.	[2 m
The stage of the process that occurs between points X and Z on the graph causes a mareduction in oxygen saturation.	rked
Identify the stage of this process and write an equation in words or symbols that indicate the inputs and outputs, including ADP and P _i .	ates [2 m

QUESTION 28 (5 marks)

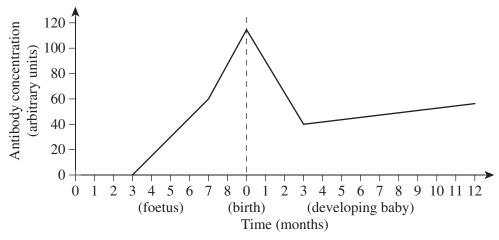
In a response to a stressful stimulus, the hypothalamus sends two types of messages that trigger the release of two different hormones from two different areas in the adrenal gland. One of these processes is shown in the following diagram.



a)	Identify the areas labelled Y and Z.	[2 marks]
	Y:	
	Z:	
b)	Use appropriate terminology to compare the process of transmission in area Z and the process in area Y.	[2 marks]
a)	The educated cloud aslesses a horacone into the blood	
c)	The adrenal gland releases a hormone into the blood. What is one distinctive feature of this type of gland?	[1 mark]
	what is one distinctive readure of this type of grand:	[1 mark]

QUESTION 29 (6 marks)

The following graph shows the antibody concentration in a foetus during the nine months of development before birth, at birth, and in the developing baby up to twelve-months old.



a)	Explain the difference in changes in antibody concentration in the three months before
	birth and the three months after birth.

[2 marks]

b)	Outline two reasons for the increase in antibody concentration from three-months old	
	to twelve-months old.	[2 marks

c) As a person ages, their thymus gland begins to shrink.

Explain why this would affect their antibody concentration level. [2 marks]

QUESTION 30 (5 marks)

In America, the most widespread pest-carried disease is Lyme disease. Recently, it has been reported in Australia but there is some debate as to whether it is present. Lyme disease is caused by the bacterium *Borrelia burgdorferi*, which is carried by a specific type of tick that lives on deer and field mice. The first symptoms are a raised red rash that appears in a circle, fatigue, joint stiffness, headache and 'swollen glands'.

	[2 marks
Lyme disease can be diagnosed by testing blood for the specific antibodies. and cell-mediated components of the adaptive immune system can act again such as the bacteria causing Lyme disease. However, the cells and mechanis component are different.	st bacterial antigens
For each of the humoral and cell-mediated components, name the major cell	* A
involved and describe the mechanism used to destroy the bacteria.	[2 marks
Humoral component:	
Cell-mediated component:	
A vaccine for Lyme disease was being used up until 2002, but it was unsucc No current vaccine is available.	essful.

END OF PAPER

ADDITIONAL PAGE FOR STUDENT RESPONSES Write the question number you are responding to.		
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