

90464



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NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

For Supervisor's use only

Level 2 Biology, 2008

90464 Describe cell structure and function

Credits: Three
2.00 pm Monday 17 November 2008

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–8 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

For Assessor's use only		Achievement Criteria		
Achievement	Achievement with Merit		Achievement with Excellence	
Describe cell structure and function.	<input type="checkbox"/>	Explain cell structure and function.	<input type="checkbox"/>	Discuss cell structure and function.
Overall Level of Performance				<input type="checkbox"/>

You are advised to spend 35 minutes answering the questions in this booklet.

QUESTION ONE

The endoplasmic reticulum takes up most of the space inside the cytoplasm. Many muscle cells contain both smooth endoplasmic reticulum and rough endoplasmic reticulum.

(a) **Describe** the main structural difference between these two types of endoplasmic reticulum.

(b) **Explain** the function of **both** rough and smooth endoplasmic reticulum, and why they are both needed in muscle cells.

QUESTION TWO

Enzymes are found in both animals and plants, and have important roles in their metabolism.

(a) **Describe the general purpose of enzymes.**

(b) **Explain** the difference between the ‘lock and key’ and ‘induced fit’ models of enzyme activity. You may use diagrams in your answer if you wish.

(c) Some of the factors that affect the rate of enzyme activity within cells include the amount of substrate, the enzyme concentration, coenzymes, and enzyme poisons (inhibitors).

Discuss how any THREE of these factors can change the rate of activity within cells.

QUESTION THREE

Euglena and *Paramecium* are single-celled organisms that live in areas of fresh water such as lakes and ponds. Both of them have a number of organelles that enable them to function and survive in their environments.

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Euglena

Paramecium

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Greenwood, Shepherd & Allan, *Year 12 Biology* (Hamilton: Biozone. 2006), p 270.

(a) The cell membrane that encloses each organism is semi-permeable.

Explain the need for a semi-permeable membrane.

(b) **Explain** why unicellular organisms such as *Euglena* and *Paramecium* are restricted to being microscopic in size.

(c) Single-celled organisms such as *Euglena* and *Paramecium* live in freshwater environments.

Discuss the reasons why contractile vacuoles are necessary in organisms such as these.

QUESTION FOUR

(a) Describe the purpose of photosynthesis.

(b) Explain how the structure AND location of **chloroplasts** affect the process of photosynthesis.

Relph, Pedder, DeLacey, *Life Science* (Auckland: Heinemann, 1989), p 215.

**Extra paper for continuation of answers if required.
Clearly number the question.**

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