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SUPERVISOR'S USE ONLY

Level 2 Biology, 2018

91156 Demonstrate understanding of life processes at the cellular level

9.30 a.m. Friday 23 November 2018
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of life processes at the cellular level.	Demonstrate in-depth understanding of life processes at the cellular level.	Demonstrate comprehensive understanding of life processes at the cellular level.

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 attempt 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 2–12 in the correct order and that none of these pages is blank.

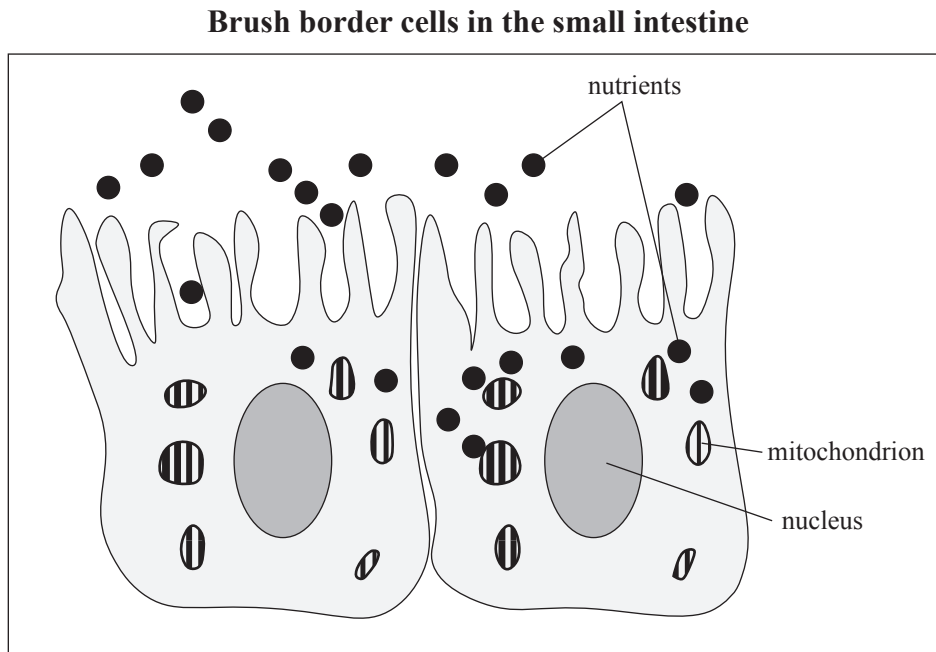
YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL

ASSESSOR'S USE ONLY

QUESTION ONE: MOVEMENT OF MATERIALSASSESSOR'S
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In the small intestine, it is the function of the brush border cells to absorb nutrients. When nutrients first enter the intestines, the nutrients can move into the brush border cells by diffusion. The brush border cells can also absorb these nutrients using active transport.



(a) Describe the process of diffusion.

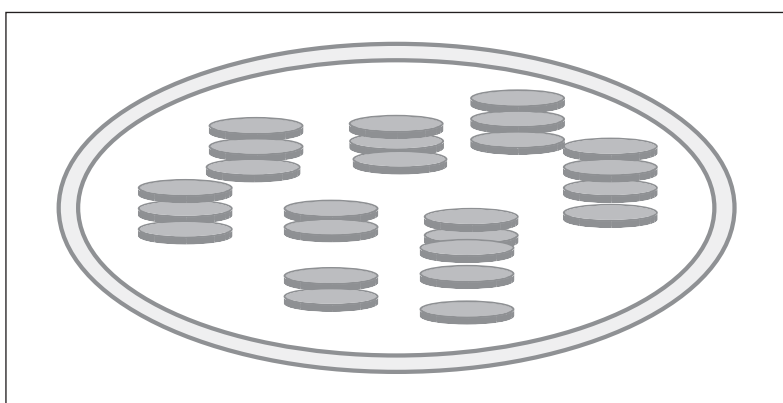
(b) Explain the process of active transport.

- an explanation of aerobic respiration that includes the raw materials needed AND the products made
- an explanation of anaerobic respiration that includes the raw materials needed AND the products made
- a discussion of how lowered oxygen concentration would affect cellular respiration AND active transport in the brush border cells.

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Photosynthesis is an important reaction that supports many other life processes in plants.

- ### Simplified diagram of a chloroplast



- Discuss how enzyme inhibitors influence enzyme activity, and compare this with the effects of pH on enzyme activity.

- a description of what an enzyme is
- an explanation of how enzyme structure is related to its function
- a discussion of how BOTH enzyme inhibitors AND pH affect enzyme activity.

You may use diagrams in your answer.

QUESTION THREE: DNA REPLICATION AND MITOSISASSESSOR'S
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Mitosis and DNA replication occur at different rates, depending on the time of year, the plant part, and the stage of the plant's life cycle.

Diagram showing seed germination



Source: www.dreamstime.com/stock-illustration-bean-seed-germination-isolated-white-image56489327

- (a) Describe **when** DNA replication happens, and explain **why** DNA replication is necessary.

- Your answer should:

- A detailed discussion of enzyme structure and named plant cells is not required in your answer.*

There is more space for your answer to this question on the following page.

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Extra space if required.
Write the question number(s) if applicable.

QUESTION
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