

SUPERVISOR'S USE ONLY

91156



Level 2 Biology, 2013

91156 Demonstrate understanding of life processes at the cellular level

9.30 am Friday 22 November 2013 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

You are advised to spend 60 minutes answering the questions in this booklet.

ASSESSOR'S USE ONLY

QUESTION ONE: RESPIRATION

Although aerobic respiration is an essential cell process in both plants and animals, the location and function of the cell in an organism influences the rate at which respiration takes place. Cells that carry out different levels of respiration are usually found to have different amounts of the organelle in which aerobic respiration occurs.

Discuss the process of aerobic respiration.

In your answer:

- describe the purpose of aerobic respiration
- describe what is required for aerobic respiration to occur, and name the products of the process

TWO justified ex	the differences in xamples.	i amounts of th	is organizate, su	pported by a min	iiiiuiii O

ASSESSOR'S
ASSESSOR'S USE ONLY
1

This page has been deliberately left blank.

The examination continues on the following page.

QUESTION TWO: PHOTOSYNTHESIS

ASSESSOR'S USE ONLY

The rate of photosynthesis is directly related to the availability of light. Normally, an increase in light intensity also leads to an increase in temperature. However, if the temperature gets too high, the rate of photosynthesis may decrease or even stop completely. Experiments have shown that if light is kept constant but temperature is varied independently, then the rate of photosynthesis can still be seen to change.

, 1	why the rate of photo	 	

1	
	For copyright reasons,
	this resource cannot be reproduced here.
	Adapted from V. Slaughter, Living Things (London: Hodder & Stoughton, 1980), p 30.
1 у	describe the different types of cells found in a typical leaf
	describe the structure of the organelle where photosynthesis is carried out
	explain how the structures you have described allow the functions to be carried out
	relate the structure and function of the cells and organelles to the rate of photosynthesis.
701°	may draw a diagram(s) in the box provided to support your answer.
	may draw a diagram(s) in the box provided to support your answer.

ASSESSORIO
ASSESSOR'S USE ONLY
USE UNLI
_
_
-
_
_
-
_
_
_
_
_
_
7
1 1

	s occurs during the life cycles of both animals and plants.
	Describe what is meant by mitosis.
	rocess of DNA replication is usually referred to as semi-conservative replication.
	Explain the process of how chromosomes are replicated, and why the process is known as semi-conservative replication.
	You may draw a labelled diagram(s) in the box provided to support your answer.
-	
_	

ASSESSOR'S USE ONLY
_

Question Three continues on the following page.

(c)	cells	ost all animals and plants develop from a fertilised cell that divides into different types of and tissues. The rates of mitosis vary considerably, depending on the location of the cells the stage in the organism's life-cycle.	ASSESSOR'S USE ONLY
	Disc	cuss the statements above.	
	In y	our answer include:	
	•	a description of what affects the rate of mitosis	
	•	reasons why the stages of an organism's life-cycle have different rates of mitosis	
	•	at least two examples, with reasons, of the parts of plants and animals where the rate of mitosis is likely to be higher.	

ASSESSOR'S USE ONLY

ASSESSOR'S USE ONLY

QUESTION	Extra paper if required. Write the question number(s) if applicable.	
QUESTION NUMBER		