1

90167

NZQA
NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

For Supervisor's use only

Level 1 Biology, 2007

90167 Describe plant processes

Credits: Four
9.30 am Tuesday 27 November 2007

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 2–10 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.

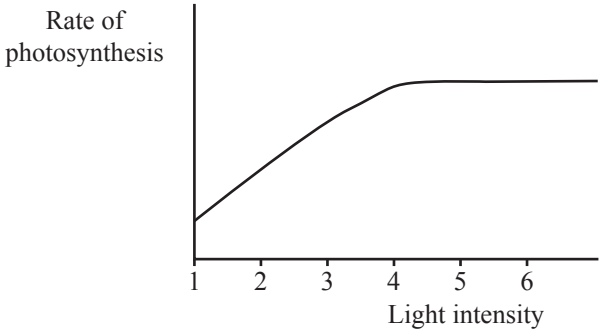
For Assessor's use only	**Achievement Criteria**		
Achievement	**Achievement with Merit**	**Achievement with Excellence**
Describe biological ideas relating to the functioning of plant processes.	Explain biological ideas relating to the functioning of a plant process.	Discuss biological ideas relating to the functioning of a plant process.
Overall Level of Performance		

You are advised to spend 50 minutes answering the questions in this booklet.

Assessor's use only

QUESTION ONE

(a) **Describe** the relationship between light intensity and the rate of photosynthesis as shown in the graph below.

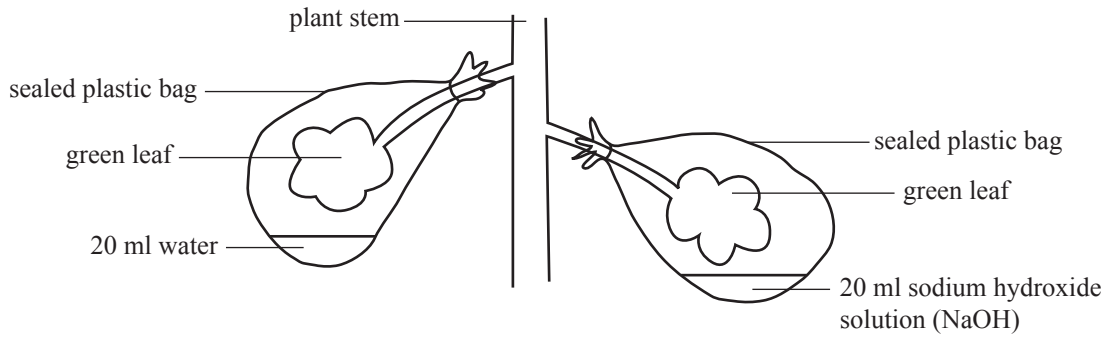


(b) The leaves of plants normally have a green colour due to the presence of chlorophyll.

Describe the function of chlorophyll in the leaf.

Assessor's use only

In an investigation of photosynthesis, leaves of a destarched plant were treated as shown below, and the plant left in a sunny place for 2 days.



Leaf 1 **Leaf 2**

After two days an iodine test on both leaves gave the following results:

Leaf 1 **Leaf 2**

(c) **Explain** these results in terms of photosynthesis.

QUESTION TWO

Assessor's use only

The diagram below shows the internal structure of a leaf.

Adapted from V. Slaughter, *Living Things* (London: Hodder & Stoughton, 1980), p 30.

Explain how TWO features of a leaf allow it to carry out photosynthesis.

QUESTION THREE

Assessor's use only

Plants need enough nitrogen for healthy growth. The diagram shows a plant that has grown in soil that did not have enough nitrogen in it.

Rogers and Poletti, *Year 11 Biology Workbook* (Hamilton: ABA Books, 2004), p 20.

Explain how plants use nitrogen for healthy growth.

QUESTION FOUR

Assessor's use only

Different plant structures are built from specialised groups of plant cells called tissues. Each plant structure is made up of tissues designed to carry out specialised functions or processes.

The diagram shows the arrangement of plant tissues in a dicotyledon stem.

Don Bramley, *Yates Guide to Horticulture* (Auckland: Heinemann, 1987), p 22.

(a) Each year the stem will grow thicker by secondary thickening.

Explain how the stem grows thicker.

(b) Plant growth at the shoot tips and the root tips shows some similarities and some differences.

Assessor's use only

Discuss reasons for the similarities and the differences in the way plants grow at the shoot tips compared with the root tips.

Rogers and Poletti, *Year 11 Biology Workbook* (Hamilton: ABA Books, 2004), p 14.

QUESTION FIVE

Assessor's use only

Some plants can reproduce both sexually and asexually.

(a) **Describe** an advantage **to a plant** of sexual reproduction.

(b) **Describe** THREE ways that seeds are dispersed.

(c) **Explain** how the dispersal of seeds can increase plant survival.

In sexual reproduction in flowering plants, some flowers are pollinated by insects and some are pollinated by the wind. Below are diagrams of an insect-pollinated flower and a wind-pollinated flower.

Assessor's use only

For copyright reasons, this resource cannot be reproduced here.	*For copyright reasons, this resource cannot be reproduced here.*
insect-pollinated flower	wind-pollinated flower

V. Slaughter, *Living Things* (London: Hodder & Stoughton, 1980), p 150.

(d) **Discuss** how the features of the flower allow pollination to occur in wind-pollinated flowers compared to insect-pollinated flowers.

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

Assessor's use only

Question number	

90167