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SUPERVISOR'S USE ONLY

Level 1 Agricultural and Horticultural Science, 2018

90924 Demonstrate knowledge of horticultural plant management practices and related plant physiology

9.30 a.m. Thursday 22 November 2018
Credits: Five

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate knowledge of horticultural plant management practices and related plant physiology.	Demonstrate in-depth knowledge of horticultural plant management practices and related plant physiology.	Demonstrate comprehensive knowledge of horticultural plant management practices and related plant physiology.

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 room for any answer, use the extra space provided at the back of this booklet.

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: SCHOOL HORTICULTURE

Seeds can be sown either directly into the ground or into containers and planted out later.

- (a) Explain why it is necessary to have a level seed bed and to place seeds at the correct depth when sowing them.

Once seedlings in containers have grown their first true leaves, they can be pricked out into larger containers. In order to do this correctly, the seedlings must be held by their leaves, as shown in the photograph below.



Source: www.ediblebackyard.co.nz/raising-really-good-seedlings

- (b) Explain why seedlings should be held by their leaves when pricking out. Use the internal structures of the plant to help explain your answer.

QUESTION TWO: PLANT PROCESSES

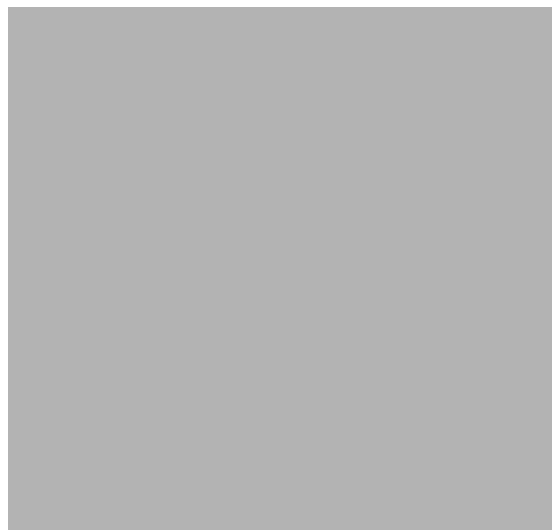
Photosynthesis is an essential plant process carried out by all plants.

- (a) Describe the process of photosynthesis. You may include a word equation in your answer.



Source (adapted): Maria Sinclair,
Level 1 Biology Study Guide (Auckland:
ESA Publications, 2011), p 217.

Cross-section of a leaf



Source (adapted): www.pathwayz.org/Tree/Plain/CROSS+SECTION+OF+A+LEAF+%5BBASIC%5D.

- (b) Using the table below, identify the plant structures A, B, and C in the illustrations above, and explain how each one is involved in the process of photosynthesis.

Structure	Name	Function in photosynthesis
A		
B		
C		

This examination continues on the following page.

QUESTION THREE: GROWING TOMATOES

Tomato plants need a lot of care in order to produce high yields of fruit (tomatoes). Weeds can affect the growth of the plant, which can impact on the yield of the fruit produced.

- (a) Describe how a grower could remove weeds from around tomato plants, and explain how removing the weeds helps to maintain healthy plant growth.

Disbudding of laterals on tomato plants is a common management practice.

- (b) Describe how disbudding is carried out on tomato plants, and explain what effect this will have on plant growth and crop yield.

Tomato plants can get fungal diseases such as botrytis, or be infested with sucking insects such as aphids.

Tomato with botrytis



Source: <https://www.thespruce.com/tomato-leaf-diseases-1403409>

Aphids on tomato plant



Source: <https://www.gardeningknowhow.com/plant-problems/pests/insects/homemade-aphid-control.htm>

(c) Justify an appropriate plan to reduce or prevent pests and disease in tomato plants.

In your answer:

- include a description of an integrated pest and disease management (IPM) plan
- explain how the plan will prevent or reduce pests and diseases
- consider the effect that pests and disease have on plant growth and crop yield.

More space for this answer is available on the next page.

