



**Victorian Certificate of Education  
2009**

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

**STUDENT NUMBER**

Figures

Words


Letter

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**AGRICULTURAL AND HORTICULTURAL  
STUDIES**

**Written examination**

**Wednesday 4 November 2009**

**Reading time: 9.00 am to 9.15 am (15 minutes)**

**Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)**

**QUESTION AND ANSWER BOOK**

**Structure of book**

<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
7	7	100

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

**Materials supplied**

- Question and answer book of 17 pages.

**Instructions**

- Write your **student number** in the space provided above on this page.
- All written responses must be in English.

**Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.**

**Instructions**

Answer **all** questions in the spaces provided.

**Question 1**

a. List two methods to modify light levels in a glasshouse or polyhouse to aid plant growth.

i. \_\_\_\_\_

ii. \_\_\_\_\_

2 marks

b. List two ways the temperature of growing media or soil can be controlled to aid plant growth.

i. \_\_\_\_\_

ii. \_\_\_\_\_

2 marks

c. Describe two pre-sowing treatments that can be used to aid the germination of hard-coated seeds.

i. \_\_\_\_\_

ii. \_\_\_\_\_

2 marks

d. Describe three different practices that can be used to ensure the levels of water and oxygen in soil are appropriate for seed germination.

i. \_\_\_\_\_

ii. \_\_\_\_\_

iii. \_\_\_\_\_

3 marks

e. What are the advantages and disadvantages of using fogging irrigation in a glasshouse?

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3 marks

f. What are the advantages and disadvantages of using windbreaks in a grazing enterprise?

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3 marks

Total 15 marks

**TURN OVER**

**Question 2**

Choose **one** pest or disease from the list provided in Table 1 (below). Show your choice by placing a **tick** in the appropriate box.

**Table 1.** Selected pests and diseases

poultry mite		aphids	
colic		blowfly	
rust		mastitis	
powdery mildew		phylloxera	

- a. What specific business type does your chosen pest or disease affect?

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1 mark

- b. Use the following questions to describe in detail an integrated management strategy to prevent and control your chosen pest or disease.

- i. What are the **symptoms** (signs) that show the pest or disease is present and how is the extent and stage of development of the pest or disease **monitored**?

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- ii. How is the **source** of the pest or disease controlled? Include, where possible, how the host's environment can be managed so that it does not benefit the pest or disease species.

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- iii. Which chemical, mechanical and/or biological control methods may be used to **treat** the pest or disease?

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- iv. What **critical timing** is required for the above treatments to efficiently manage the pest or disease?

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2 + 2 + 2 + 2 = 8 marks

Total 9 marks

**Question 3**

New and emerging technologies and innovations are important for the development of agricultural and horticultural industries.

**a.** Name an example of a new or emerging agricultural or horticultural technology.

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**i.** What type of agricultural or horticultural business will use this new or emerging technology?

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**ii.** Describe how this technology works or is used.

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**iii.** What are the advantages and disadvantages of this innovation over previously used technology?

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1 + 2 + 3 = 6 marks



**Question 4**

Sue was driving past a local flower-growing property and noticed water running off the property into a stormwater drain. The drain goes into a local creek. Sue remembered that the local Landcare group were concerned about the decline of the frog population downstream from where this water entered the creek.

- a. Name the most likely environmental degradation causing the decline in the frog population.

\_\_\_\_\_ 1 mark

- b. Describe three practices on the flower-growing property that could have caused the environmental degradation.

practice 1 \_\_\_\_\_

\_\_\_\_\_

practice 2 \_\_\_\_\_

\_\_\_\_\_

practice 3 \_\_\_\_\_

\_\_\_\_\_

3 marks

- c. Name another indicator (other than the changing frog population) that should be investigated to confirm that there is a problem with water management on the flower-growing property.

\_\_\_\_\_ 1 mark

- d. Explain what the property manager should do to fix the problem. In your answer include **three** specific actions.

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3 marks


Total 8 marks



**Question 5**

Dryland salinity is a problem affecting many areas in Australia.

- a. Using a labelled diagram, explain how unirrigated soils may become salt affected.



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3 marks

- b. Explain two strategies land managers should use to maintain **short-term** economic production on land affected by dryland salinity.

strategy 1 \_\_\_\_\_

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strategy 2 \_\_\_\_\_

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\_\_\_\_\_

4 marks

- c. Describe a detailed **long-term** strategy that land managers should use to prevent dryland salinity from occurring.

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3 marks

Total 10 marks

**Question 6**

Mika has inherited a property which he plans to develop for mixed farming and grazing. The property has an orchard of fruit trees and a poultry shed on flat land next to a creek which flows through the property. The rest of the property is undulating hills that have been cleared for pasture. Some of the pasture areas are showing signs of tunnel erosion. The pasture is infested with capeweed.

During dry seasons, overhead sprinklers may irrigate the orchard with water pumped from the creek. The water needs to be filtered to stop the sprinkler nozzles from blocking.

Many of the fruit trees in the orchard are showing signs of stress. Over the past few years tests on the water table level in the orchard show that it is rising.

The poultry are allowed to graze during the day on a small area next to the creek. They are housed at night to protect them from predators.

Willow trees and blackberries grow along the creek, except for a small section of remnant indigenous vegetation.

The property receives adequate rainfall to maintain pasture growth year round. After heavy rains, runoff from the undulating hills causes the creek to flood.

- a. The *Catchment and Land Protection Act 1994* has declared blackberries ‘regionally controlled’ and willows ‘restricted’ noxious weeds in Mika’s region. How does this affect the way Mika should manage these weeds?

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2 marks

- b. Capeweed is a broadleaf annual that can smother pasture. It sets seed in spring and does not provide continuous pasture cover during summer. Explain how the presence of capeweed would affect pasture and grazing management.

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3 marks

- c. Describe how Mika should use the small section of remnant indigenous vegetation to improve biodiversity on the property.

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2 marks

- d. Explain how improving biodiversity on the property will affect the sustainability of the property.

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3 marks

- e. The fruit trees are stressed.

- i. Suggest **two** likely causes of this stress.

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- ii. Explain what extra information is needed to establish the cause of this stress.

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2 + 3 = 5 marks

f. Water management on the property needs improving. Suggest the changes that need to be made to solve the existing problems. Use the information provided in the case study to justify your suggested changes.

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5 marks

g. When Mika takes over the property, what environmental information should he collect to determine the plant and animal species that would be sustainable on this property?

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3 marks

- h.** Mika wishes to develop a whole property management plan. Describe **four** pieces of information that Mika needs to collect for the plan.

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4 marks

Total 27 marks

**Question 7**

From Table 2 (below) choose **one** agricultural or horticultural business that you are familiar with in terms of its business management. This may be the one that you used in your small business project. Show your choice by placing a **tick** in the appropriate box.

**Table 2.** Selected business types

cereal cropping		garden design/construction	
poultry for meat		ornamental garden maintenance	
poultry for eggs		glasshouse plants	
beef cattle		container-growing ornamentals	
pigs		field-grown vegetables, herbs or flowers	
sheep or goats		production of indigenous plants	
dairy cows		hydroponic production	
grapevines		production of fruit/nuts from trees	
fish or yabbies		horses for recreation	
turf production		rearing rabbits for pet or meat market	

**Business plans** usually include information about business objectives, available and required resources, marketing plans, financial plans, production plans, risks, quality management and performance monitoring.

- a. Using your selected business type as an example, describe the information contained in the
- i. production plan

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- ii. financial plan

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iii. marketing plan.

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2 + 2 + 2 = 6 marks

b. Four broad types of risk that influence the profitability of a business are listed below. In the space provided, describe an example of each type that specifically affects your chosen business.

Risk types	Example of risk for your chosen business
environmental	
marketing	
financial	
production	

4 marks

c. For your selected business type, describe how the industry monitors quality **during production**.

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3 marks



**d.** Using principles of sustainability, explain how three different aspects of your selected business should be monitored to evaluate its performance.

**i.** \_\_\_\_\_

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**ii.** \_\_\_\_\_

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**iii.** \_\_\_\_\_

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2 + 2 + 2 = 6 marks

Total 19 marks

