



# Victorian Certificate of Education 2008

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

## STUDENT NUMBER

Figures

Words


Letter

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# AGRICULTURAL AND HORTICULTURAL STUDIES

## Written examination

Wednesday 5 November 2008

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 15 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 four ways a glasshouse or a poly house changes the environment of the plants growing inside.

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

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

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

iv. \_\_\_\_\_

4 marks

- b. The moisture content of soil or potting mix influences how well a plant grows. Apart from moisture content, list three other characteristics of soil or potting mix that may be modified to get the best growing conditions for plants.

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

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

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

3 marks

- c. List three ways a property manager could reduce the impact of frost damage on plants.

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

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

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

3 marks

- d. Describe three things a manager can do to ensure grazing animals have the optimum environment for production.

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

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

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

3 marks

- e. What are the advantages and disadvantages of using animal manure instead of artificial fertilisers to improve soil?

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3 marks

- f. What are the advantages and disadvantages of using hydroponics to grow crops instead of growing them as field crops?

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3 marks

Total 19 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

red-legged earth mite		thrips	
footrot		ticks	
mastitis		rust	
blackspot		coccidiosis	
botflies		brown stomach worm	
citrus gall wasp		soft brown scale	

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

\_\_\_\_\_

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**?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- 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 favour 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

- a. List five ways in which weeds can be spread.

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

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

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

iv. \_\_\_\_\_

v. \_\_\_\_\_

5 marks

- b. Name two weeds that are spread by two of the ways listed in **part a**.

i. weed name \_\_\_\_\_ spreading method 1 \_\_\_\_\_

ii. weed name \_\_\_\_\_ spreading method 2 \_\_\_\_\_

2 marks

Total 7 marks

**TURN OVER**

**Question 4**

From the list in Table 2 (below), select **two** technological areas for which you know an example of new or emerging technologies. Show your selection by placing the number 1 and the number 2 in the box next to your chosen technological areas.

**Table 2.** Examples of some technological areas

environment modification		reproduction control	
water management		breeding and genetics	
decision making		soil management	
resource allocation and management		storage and transportation	
plant production		animal production	

**a.** Name an example of a new or emerging technology in your selected **technological area 1**.

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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.** How is this an improvement over previously used technology?

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1 + 2 + 3 = 6 marks



**Question 5**

a. Explain the physical process of how rain and surface water flow contribute to soil erosion.

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3 marks

b. Describe **three** things that happen as a result of erosion caused by water.

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3 marks



- c. Describe three strategies land managers should use to stop erosion caused by water while maintaining **short-term** economic production.

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

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

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strategy 3 \_\_\_\_\_

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3 marks

- d. Describe three strategies land managers should use to repair land affected by erosion caused by water while maintaining **long-term** economic production.

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

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

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strategy 3 \_\_\_\_\_

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3 marks

Total 12 marks

**TURN OVER**

**Question 6**

Freda wants to buy a small property to use for a mixed organic grazing and horticultural business. Organic produce must be grown without the use of pesticides. Animal manures are used as fertilisers. Freda needs a property with healthy soil and water supply. She needs to be sure that there will be no chance of pollution by pesticides and fertilisers from surrounding farms. She will use a number of environmental indicators to test potential properties.

**Table 3.** Environmental indicators

plant species present	number of pests	rainfall	number of pest predators
soil bulk density	soil pH	tree cover	soil organic matter
soil salt levels	water table level	soil fertility	pesticide residue in the soil
soil structure	extent of soil erosion	prevailing winds	area of remnant vegetation

- a. From the environmental indicators in Table 3 (above), select the two most relevant indicators that Freda should use to **assess the suitability of the property for organic production**. Explain how these two indicators would help Freda to decide whether the property is suitable for her proposed business.

indicator 1 \_\_\_\_\_

explanation \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

indicator 2 \_\_\_\_\_

explanation \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 + 2 = 4 marks

- b. Freda is concerned that the runoff from the property may pollute a nearby watercourse. Name two indicators, **not** listed in Table 3, that she should investigate to assess whether runoff could become a problem.

indicator 1 \_\_\_\_\_

\_\_\_\_\_

indicator 2 \_\_\_\_\_

\_\_\_\_\_

2 marks





**Question 7**

From Table 4 (below), choose one agricultural or horticultural business that you are familiar with in terms of its business management. Show your choice by placing a **tick** in the appropriate box.

**Table 4.** 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	
grape vines		production of fruit/nuts from trees	
fish or yabbies		horses for recreation	
turf production		rearing rabbits for pet or meat market	

- a. What is the **specific** end product or service of your chosen business?

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1 mark

- b. Describe how the industry the business belongs to measures the quality of this end product or service.

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3 marks



