



**Victorian Certificate of Education  
2005**

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

**STUDENT NUMBER**

Figures  
Words


Letter

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# AGRICULTURAL AND HORTICULTURAL STUDIES

## Written examination

**Wednesday 2 November 2005**

**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>
6	6	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 **three** environmental factors that a manager can control within a polyhouse to improve plant production.

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3 marks

**b.** List **three** different characteristics of soil or potting mix that plant growers can change to produce healthy root systems.

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3 marks

**c.** Organic matter in soil or potting mix is generally good for plants.

**i.** List **two** benefits of having organic matter in soil or potting mix.

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**ii.** List **two** problems caused by organic matter in soil or potting mix.

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2 + 2 = 4 marks

**d.** List **two** ways shelterbelts change the nearby microclimate.

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2 marks

Total 12 marks

**Question 2**

From the list provided in Table 1, choose the pest or disease that you are most familiar with by placing a tick in the appropriate box.

**Table 1.** Selected pests or diseases

mastitis		powdery mildew	
liver fluke		cabbage moth	
footrot		Marek's disease	
rusts		ringworm	
black spot		mosaic virus	
botflies		aphids	

- a. Explain how a manager would recognise that this pest or disease is present.

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3 marks

- b. For your chosen pest or disease select and answer only **three** of the following **five** points.

Choose **three** by placing a tick in the appropriate boxes and then answer **only** those you have ticked.

- Describe the best way to monitor the likelihood of your chosen pest or disease becoming a problem.

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**OR**

Describe the hygiene practices that managers should use to reduce the impact of your chosen pest or disease.

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**OR**

Describe the environmental factors that managers should control to reduce your chosen pest or disease.

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**OR**

List the best times to prevent **and** control your chosen pest or disease.

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**OR**

List the recommended methods of chemical and/or biological control of your chosen pest or disease.

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6 marks

c. List **two** safety considerations when handling and/or using chemical and herbicidal products.

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2 marks

Total 11 marks

**Question 3**

a. Steve has a nursery in the southeast of Melbourne. It is February. On his way to lunch Steve walks past his growing-on area for 150 mm container-grown perennials. The 24-hour set timer has activated the overhead irrigation system. Steve notices the council stormwater drains are covered in a coloured organic scum. The drains are easily coping with the large volume of water flowing over the gravel surface from the growing-on area.

i. State the most likely type of environmental degradation.

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ii. Describe **two** practices which could have caused the problem.

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iii. Describe what Steve should do to fix the problem.

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1 + 4 + 3 = 8 marks

**b.** It is October on a property in the Western district of Victoria. There was some heavy rain two days ago. Chris has noticed that in one part of the paddock there are some areas of water about 10 cm deep. The pasture beneath and near the water is stunted in growth. The surface ponding is worse in the area near the gate to the paddock.

**i.** State the most likely type of environmental degradation.

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**ii.** Describe **two** practices which could have caused the problem.

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**iii.** Describe what Chris should do to fix the problem.

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1 + 4 + 3 = 8 marks

- c. It is June on a property in northeast Victoria. Kylie is walking back to the house from her lowest lying paddock. She is concerned because she has noticed another two trees are showing signs of ‘dieback’. Several of the trees lower in the paddock are already dead.

i. State the most likely type of environmental degradation.

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ii. Describe **two** practices which could have caused the problem.

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iii. Describe what Kylie should do to fix the problem.

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1 + 4 + 3 = 8 marks

**d.** It is February on a property in northwest Victoria. It is the fourth consecutive day that Mitch has had to cultivate in temperatures above 35 degrees Celsius. There is a northerly wind blowing and lots of dust in the air. Mitch is thankful that the tractor cabin is airconditioned.

**i.** State the most likely type of environmental degradation.

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**ii.** Describe **two** practices which could have caused the problem.

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**iii.** Describe what Mitch should do to fix the problem.

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1 + 4 + 3 = 8 marks

Total 32 marks



**Question 4**

Tania owns a small lavender farm on the outskirts of Melbourne. She propagates all of her own tube stock in a polyhouse for field planting and sale. Tania wishes to import a new lavender plant variety into Australia. She contacts the Australian Quarantine Inspection Service (AQIS) for assistance.

- a. Explain why Tania would want to import a new plant variety from another country.

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3 marks

- b. Explain why AQIS is important to horticultural and agricultural industries.

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3 marks

- c. List **three** problems that may occur as a result of illegal importation of plant material into Australia.

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3 marks

**d.** Name an organisation that could help Tania manage for sustainability in each of the following areas.

You **must** name a different organisation for each area.

- potting mix or soil problems

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- pest or disease problems

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- water management

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- environmental management

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4 marks

Total 13 marks

**Question 5**

Many activities are required to commercially manage and produce crops, plants, animals or garden services. From the list provided in Table 2 select a **commercial** agricultural or horticultural business that you are familiar with. Indicate the type of business you have selected by placing a tick in the appropriate box.

**Table 2.** Selected commercial agricultural or horticultural business types

growing a cereal crop		designing and constructing an ornamental garden	
managing poultry for meat		maintaining an ornamental garden	
managing poultry for fresh eggs		growing flowering plants in a glasshouse	
rearing cattle for the beef market		container growing of ornamental plants	
rearing pigs for the meat market		field growing a vegetable, herb or flower crop	
rearing sheep to produce wool/prime lambs		growing indigenous plants for revegetation use	
producing milk for the whole milk market		hydroponic plant production	
managing vines to produce a crop of grapes		managing trees to produce a crop of fruit	
breeding fish or yabbies for food		managing horses for recreational purposes	

- a. What is the **main** species of plant or animal that your chosen commercial business grows or manages? Specify the breed, variety and/or cultivar.

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1 mark

**b.** Commercial businesses aim to satisfy the requirements of their target markets.

**i.** Name the **main** target market of your chosen commercial business.

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**ii.** Explain how your chosen commercial business satisfies the requirements of its main target market.

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1 + 3 = 4 marks

**c.** Many activities are required to produce agricultural and horticultural products. Complete Table 3 on page 13 as follows.

**i.** List, in the order that they are carried out, the **production activities** involved in your chosen **commercial** business. Your answers should be written in column 1. – titled ‘Production activities listed in order’.

**ii.** Describe how, why and when **each** production activity you listed on Table 3 is done. Your answer should be written in column 2. – titled ‘How, why and when each production activity is done’ **next to** the production activity you listed.

**iii.** What machinery and equipment are required by your chosen **commercial** business to complete each production activity you have listed in Table 3? Your answer should be written in column 3. – titled ‘Machinery/equipment required’ **next to** the production activity for which it is used.

6 + 8 + 5 = 19 marks



**Question 6**

A **recent** technological development may be considered to be a new or emerging equipment or process that helps commercial businesses.

- a. Name a **recent** agricultural or horticultural technological development.

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1 mark

- b. Describe in detail what this recent agricultural or horticultural technological development does and the practices it has replaced.

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3 marks

- c. Before introducing this new technology a manager would need to ensure that it was environmentally, economically and socially sustainable. Explain how a manager would judge the sustainability of the technology you named in **part a**.

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4 marks

Total 8 marks