



**Victorian Certificate of Education  
2010**

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

**STUDENT NUMBER**

Figures

Words


Letter

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**AGRICULTURAL AND HORTICULTURAL  
STUDIES**

**Written examination**

**Wednesday 3 November 2010**

**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 to write in blue or black pen.
  - 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. Write using black or blue pen.

**Question 1**

**a.** Jenny is going to grow herbs in soil beds on her 2 hectare property and has been advised that the fertility and drainage of the soil need to be improved.

**i.** Adding fertiliser is one way of improving soil fertility. List **two** other ways that Jenny can improve the fertility of the soil.

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**ii.** List **two** ways the drainage of the soil could be improved.

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2 + 2 = 4 marks

**b.** Jenny is considering putting in a polyhouse and using hydroponics to improve the growing environment.

**i.** What are the advantages of changing the environment by growing the herbs in a fully enclosed polyhouse instead of growing the herbs in the open field?

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- ii. What are the advantages of changing water management by growing the herbs hydroponically instead of growing the herbs in soil beds?

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3 + 3 = 6 marks

- c. Irrigated intensive field crops, such as herbs, require high levels of nutrients, usually provided as fertilisers.

- i. Identify and explain **two** effects of correct fertiliser application on crop yields.

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**ii.** Describe **two** ways a grower might decide how much fertiliser to apply to a crop.

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**iii.** Identify and explain **two** problems that might occur as a result of the use of too much fertiliser on a crop.

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3 + 3 + 3 = 9 marks

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**Question 2**

Choose **one** weed from the list provided in Table 1. Show your choice by placing a **tick** in the appropriate box.

**Table 1. Selected weeds**

African lovegrass	
Scotch thistle	
Paterson's curse	

St John's wort	
Wild radish	
Wild oats	

Flick weed	
Oxalis	
Dandelion	

a. What specific business type does your chosen weed affect?

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1 mark

b. What practices would be necessary to prevent your chosen weed from becoming a problem for the business?

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3 marks

c. Explain the practices necessary to control your chosen weed where it is present, including the timing of these practices.

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3 marks

**TURN OVER**

**Question 3**

New and emerging technologies are found in the following areas: biological pest or disease control, genetic manipulation, alternative energy sources, reproduction manipulation, communication innovation, chemical pest or disease control, resource management methods, remote sensing, precision agriculture/horticulture, plant or animal breeding, radiation usage, alternative materials and environment or system modelling.

a. Name and describe four different new and/or emerging technologies.

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

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

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

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

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2 + 2 + 2 + 2 = 8 marks

**NO WRITING ALLOWED IN THIS AREA**



**Question 4**

Sustainability integrates three main goals – environmental health, profitability and social responsibility – to meet the needs of the present generation without compromising the needs of future generations.

Using specific examples, explain why each part of the above statement is necessary to describe a sustainable agricultural and/or horticultural business.

**i.** environmental health \_\_\_\_\_

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

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**iii.** social responsibility \_\_\_\_\_

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3 + 3 + 3 = 9 marks

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**Question 5**

Lorraine and Fred bought a small farm that they have set up as a horse property. The following are points of interest about the property.

- The main soil type is grey loam with heavy clay subsoil.
- The property has more horses per hectare than others in the district.
- Horses walk through several paddocks to reach the main stables.
- A tractor is used to transport supplementary feed hay in all weather conditions.
- Pasture is poor, showing many bare patches.
- Surface-ponding of water is occurring in many areas. It is very obvious in the small paddock next to the main stables.
- The farm gets hot north or northeast winds during the summer and rain with southwest winds during the winter and early spring.
- Neighbouring properties to the north have heavy infestations of serrated tussock (a wind-borne noxious weed of pastures in the area).
- A creek runs through the property. All of the paddocks are open to the creek on their lowest boundary to provide the horses access to drinking water. The water has a low salinity.

a. Lorraine and Fred have identified a degradation problem on the property that is obvious in the smallest paddock.

i. What is the most likely environmental degradation that is happening in the smallest paddock?

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ii. List **four** changes to the management of the property to **fix** the degradation problem.

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iii. List **four** changes to the management of the property to **prevent** the degradation problem reoccurring.

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1 + 4 + 4 = 9 marks

b. Describe **two** indicators that could be used to measure the success of the strategies you listed in **part a**.

Indicator 1 \_\_\_\_\_

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Indicator 2 \_\_\_\_\_

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4 marks

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c. Lorraine has persuaded Fred to collect and propagate seeds from trees, shrubs and ground covers growing in a small area of indigenous vegetation remaining on the property.

i. For **maximum** long-term benefit, identify **two** locations on the property where these seedlings should be planted.

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ii. Explain **three** different benefits of planting the seedlings in these locations on the property.

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2 + 6 = 8 marks

**Question 6**

From Table 2, 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 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	

- a. Quality standards are achieved by monitoring and managing businesses' inputs, processes and outputs. For your chosen business type, use specific examples to explain how each of these is monitored and managed to ensure quality standards are achieved and maintained.

inputs \_\_\_\_\_

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processes \_\_\_\_\_

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outputs \_\_\_\_\_  
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9 marks

- b. Explain the difference between a business plan and a property management plan in terms of what information is included in each.

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3 marks

- c. When developing a business plan and deciding on, or evaluating, a location, what factors would you need to consider for your chosen business type in terms of physical environment

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marketing

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government policies and regulations

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community members likely to be affected by the business?

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8 marks

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- d.** All agricultural and horticultural businesses need to be prepared for a pest or disease attack.
  - i.** Name a pest or disease which could affect your chosen business type that you are familiar with.

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- ii.** Use the **four** main elements of Integrated Pest Management (IPM) to describe a strategy to manage this pest or disease.

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1 + 8 = 9 marks