



VCE Agricultural and Horticultural Studies 2011–2015

Written Examination – November

Examination specifications

Overall conditions

The examination will be sat at a time and date to be set annually by the Victorian Curriculum and Assessment Authority. VCAA examination rules will apply. Details of these rules are published annually in the *VCE and VCAL Administration Handbook*.

There will be 15 minutes reading time and 90 minutes writing time. The examination will be marked by a panel appointed by the VCAA.

The examination will contribute 34 per cent to the Study Score.

Content

The *VCE Agricultural and Horticultural Studies Study Design 2011–2015* is the primary document for the development of the examination.

Outcomes 1, 2 and 3 of Units 3 and 4 of the *VCE Agricultural and Horticultural Studies Study Design 2011–2015* will be examined.

All key knowledge and key skills underpinning the outcomes are examinable.

Format

The examination will be presented in a question and answer book. All questions will be compulsory. The examination will contain short and extended responses and may include items which refer to stimulus material such as newspaper articles, extracts from reports or case study material. Question formats will include short answer questions requiring paragraph responses and specific questions requiring 1- or 2-word responses, or very brief answers. Questions pertaining to Unit 3 Outcome 1 will be based on the prescribed list of pests, diseases and weeds published annually in the *VCAA Bulletin VCE, VCAL and VET*. The list of prescribed pests, diseases and weeds will be made available to teachers and schools in December for the following year.

The examination will be out of 100 marks.

Advice

The following sample material provides an indication of the type and range of questions teachers and students can expect on the VCE Agricultural and Horticultural Studies examination paper. It is not intended to form the basis of a sample examination paper.

The VCAA does not publish answers for sample questions.

The following questions do not cover the entire **new** study design. The questions formulated cover those parts of the study design where new dot points or a change in emphasis have been introduced. It is important that teachers become familiar with the new study design as there have been some important changes.

Sample questions

Unit 3 – Technology, innovation and business practices

Area of study 1 – Current management techniques

Question 1

Frosts can damage different types of plants.

- a. Explain how frost causes damage to plants. 2 marks
- b. Discuss two ways the manager of an agricultural or horticultural business may prevent frost damage to susceptible plants. 2 marks

Question 2

Some power companies are working with horticulturalists who grow tomatoes in greenhouses. Carbon dioxide from burning coal is being pumped into the greenhouses.

Explain how the practice of using carbon dioxide in greenhouses is beneficial to the growth of tomatoes.

2 marks

Question 3

Carbon dioxide is needed by plants to grow. Normally there is less than 1% carbon dioxide in the air.

- a. How might horticulturalists alter the amount of CO₂ in the air to make their plants grow more quickly? 2 marks
- b. Evaluate whether this would be a good business decision. 3 marks

Question 4

Geoff, a land manager, has paddocks which tend to become waterlogged. He uses a technique called raised beds (mounding up soil into beds with gutters in between).

- a. How do raised beds help Geoff to grow crops in ‘wet’ paddocks? 3 marks
- b. Describe two advantages of using raised beds. 2 marks
- c. Give two reasons why raised beds may not be a suitable modification technique. 2 marks

Question 5

Contours, terracing and raised beds are three examples of modifying the topography of the land. Choose **one** of these modifications and

- a. describe the benefits of the modification 3 marks

- b. describe any problems associated with this modification 2 marks

- c. explain why a land manager might decide to use this technique. 2 marks

Question 6

Water availability is a major issue confronting many agricultural and horticultural businesses today.

- a. List three ways a farmer might be able to source water for their business. 3 marks

- b. Describe in detail how an agriculturalist or horticulturalist can improve the efficiency of water use in their business. 3 marks

Question 7

Water quality is very important to agricultural and horticultural businesses. Listed below are six factors which may affect water quality.

- nutrients
- turbidity
- chemicals
- salinity
- disease organisms
- organic matter

- a. Choose three of these factors. For each, explain how a manager would **prevent** water being polluted by these factors.

	Factor	Prevention
1		
2		
3		

3 marks

- b. Describe a poor practice which might pollute water used for an agricultural or horticultural business. The practice should not be related to those factors listed above.

2 marks

Question 8

Choose a pest or disease you have studied this year by placing a tick in the appropriate box.

✓	Common name of pest or disease	Biological name
	Coccidiosis	<i>Eimeria spp</i>
	Cabbage moth (Diamondback moth)	<i>Plutella xylostella</i>
	Intestinal worms (Ruminants)	Assorted species
	Aphids	Assorted species
	Liver fluke	<i>Fasciola hepatica</i>
	Milk fever	<i>Hypocalcaemia</i>
	Redlegged earth mite	<i>Halotydeus destructor</i>
	Sheep blowfly	<i>Lucilia cuprina</i>

- a. Describe the signs and symptoms of the presence of this pest/disease. 2 marks
- b. Name a type of business this pest/disease is likely to affect. 1 mark
- c. How does this pest/disease affect this type of business? 2 marks
- d. Describe a biosecurity plan at the local farm level that you could develop to prevent this pest/disease from affecting a business. 2 marks

Question 9

For a business to be able to produce a quality product it must be able to manage any potential threat of pests or diseases.

Choose an agricultural or horticultural business you have studied this year and describe how an integrated pest management plan could be used to manage a pest or disease that could have an impact on the business.

5 marks

Area of study 2 – New or emerging technology

Question 10

Biotechnology is becoming more and more important in agriculture and horticulture.

- a. What is biotechnology?
2 marks
- b. Name an example of biotechnology you have studied this year and describe the technique used to develop this biotechnology.
2 marks

Question 11

Many agricultural and horticultural products are being sold nationally and on the international market. Milk products such as cheese, oaten hay, meat and fruit are being shipped overseas.

- a. Agricultural and horticultural products must meet market specifications. Explain what meeting market specifications means, giving an example you have studied this year.
3 marks
- b. In the past few agricultural and horticultural products were exported. Explain how three technological innovations have facilitated the sale of Australian products overseas.
3 marks

Question 12

Instead of selling a product straight to the market, an agriculturalist or horticulturalist might decide to value add to the product they produce.

- a. Describe an example of how an agriculturalist/horticulturalist value adds to the product they produce.
3 marks
- b. Explain two benefits gained from value adding.
2 marks
- c. Explain why another agriculturalist/horticulturalist may decide not to value add.
2 marks

Question 13

Agriculturalists and horticulturalists have to constantly battle weeds to maintain production. The list below contains the names of a few weeds in Victoria.

Common name of weed	Biological name
Bridal creeper	<i>Asparagus asparagoides</i>
Gorse	<i>Cardamine hirsuta</i>
Blackberry	<i>Rubus fruticosus aggregate</i>
Wild radish	<i>Raphanus raphanistrum</i>

- a. Why are some plants weeds? 2 marks
- b. Choose a weed from the list above and describe what this weed looks like. 2 marks
- c. Explain how this weed affects production. 2 marks
- d. Describe an integrated management plan to control this weed. 4 marks

Unit 4 – Sustainable management

Area of study 1 – Sustainability in agriculture and horticulture

Question 14

Farming practices contribute methane and nitrous oxide emissions to the atmosphere. List three agricultural sources of these gases.

3 marks

Question 15

There is scientific evidence that an increase in global warming will result in a changing climate in Australia. List three predicted changes in relation to temperature and rainfall in Australia with particular emphasis on Victoria.

3 marks

Question 16

Scientists have predicted that changes in rainfall could have an impact on various businesses.

Choose two of the following systems by placing a tick in the appropriate box, and explain how a change in rainfall and temperature would have an **impact** on the system.

✓	System	Impact
	grazing	
	cropping	
	orchard	
	vegetables	

3 + 3 = 6 marks

Question 17

Land managers will need to adapt their practices to cope with predicted changes in rainfall and temperature.

Choose two of the following systems by placing a tick in the appropriate box, and explain how managers may adapt to these changes.

✓	System	Management adaptation
	grazing	
	cropping	
	orchard	
	vegetables	

3 + 3 = 6 marks

Question 18

It is predicted that increasing average temperatures will affect a number of agricultural and horticultural production systems in cool climate zones.

- a. What positive effects on perennial crops are likely to occur in a **cool climate zone** if the average temperature rises?
2 marks
- b. What negative effects on perennial crops are likely to occur in a **cool climate zone** if the average temperature rises?
2 marks
- c. What options do farmers have to address the negative effects of increasing temperatures in a cool climate zone?
3 marks

Area of study 2 – Resource management and maintenance

Question 19

What steps should a landowner undertake to ensure that a new agricultural or horticultural venture is economically viable?

4 marks

Question 20

A large piggery is to be established within a few kilometres of a small town. It is estimated that fifty new jobs will be created as a result of the piggery. Explain how this will impact on the local community.

5 marks

Question 21

Explain how increasing the biodiversity on a farm contributes to environmental sustainability.

4 marks

Question 22

Lyn, who has a mixed agricultural/horticultural business, decides to fence her property according to the types of land on the property. Explain how this may improve the sustainability of the property.

3 marks

Question 23

What is the purpose of a control in a scientific investigation?

3 marks

Area of study 3 – Business plan implementation and evaluation

Question 24

Agriculturalists and horticulturalists need to meet certain quality standards with their products. Choose a product you have studied this year.

- a. Explain the meaning of this product ‘meeting a quality standard’.
2 marks
- b. Give an example of a quality standard for this product.
1 mark
- c. A manager needs to monitor quality standards regularly. Identify a factor that a manager needs to monitor.
1 mark
- d. If a manager fails to meet expected quality standards for this product, explain how this might have an impact on their business.
2 marks

Question 25

Inputs to and processes used in an agricultural or horticultural business can be measured quantitatively and used to determine the ecological impacts on a business. Identify three inputs or processes (or a combination of inputs and processes) that can be measured quantitatively and explain how they can have an ecological impact on an agricultural or horticultural business.

5 marks