

SUPERVISOR TO ATTACH
PROCESSING LABEL HERE

--	--	--	--	--	--	--	--	--

Write your **student number** in the boxes above.

Letter

Agricultural and Horticultural Studies

Question and Answer Book

VCE Examination – Wednesday 29 October 2025

- Reading time is **15 minutes**: 9.00 am to 9.15 am
- Writing time is **1 hour 30 minutes**: 9.15 am to 10.45 am

Materials supplied

- Question and Answer Book of 20 pages

Instructions

- Answer **all** questions in the spaces provided.
- Write your responses in English.
- Use the additional space at the end of this book if you need extra space to complete an answer.

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

Contents

10 questions, 100 marks _____ pages
2–17

Question 1 (6 marks)

Stacked Farm is Australia's biggest vertical farm¹. It cultivates strawberries, tomatoes, baby lettuce and coriander in a facility of 4000 m² at Arundel on the Gold Coast. The fully automated facility, the first of its kind in Australia, can produce between 400 and 440 tonnes of produce a year, depending on the crop.



Source: Yang Zhen Siang/Shutterstock.com (photo)

¹**vertical farming** – a horticultural practice in which plants are grown on vertical surfaces rather than the traditional horizontal surfaces

- a. Describe **one** technique for measuring and assessing the effectiveness of an innovation such as commercial vertical farming.

2 marks

Do not write in this area.

b. Discuss **one** benefit of a new and emerging technology in farming, such as commercial vertical farming, compared to traditional farming methods.

4 marks

Question 2 (2 marks)

Describe **one** impact that may result from aphids feeding on crops.

Do not write in this area.

Question 3 (18 marks)

Artificial intelligence (AI) is an example of a new and emerging technology being used in agricultural and horticultural industries. AI can help determine crop health and detect crop diseases through computer vision models rather than through manual health inspections.



Sources: Adapted from <https://www.projectpro.io> (text); Field Master Systems, <www.fieldmastersystems.com> (photo); image © Field Master Systems, reproduced with permission

At the University of Melbourne's Dookie campus, AI technology has been employed across traditional agricultural and horticultural industries to target weeds in crops for precision spraying. Specifically, AI helps drones find weeds by studying their shape and colour. Once the weeds are found, the drones apply the correct amount of herbicide. This helps farmers to grow food in a more efficient and safe way. AI can also support the automation of feeding regimes, milking practices for dairy cows, and detect efficiently when crops require irrigation and flowers require watering.

Source: Adapted from Tim Lee, 'Artificial intelligence helps Aussie farmers target weeds, livestock illnesses and pests', ABC News, 12 October 2024, <www.abc.net.au>

Question 4 (6 marks)

In 2024/2025, Australia is experiencing the largest ever outbreak of bird flu, with a number of farms in regional Victoria under quarantine.

More than 800 000 hens have so far been euthanised or otherwise affected by the outbreak, representing about 10 per cent of the Victorian egg-laying flock.

Referring to economic sustainability and/or social sustainability, explain two potential challenges that bird flu presents in maintaining healthy rural and regional communities.

Challenge 1 _____

Challenge 2 _____

Question 5 (4 marks)

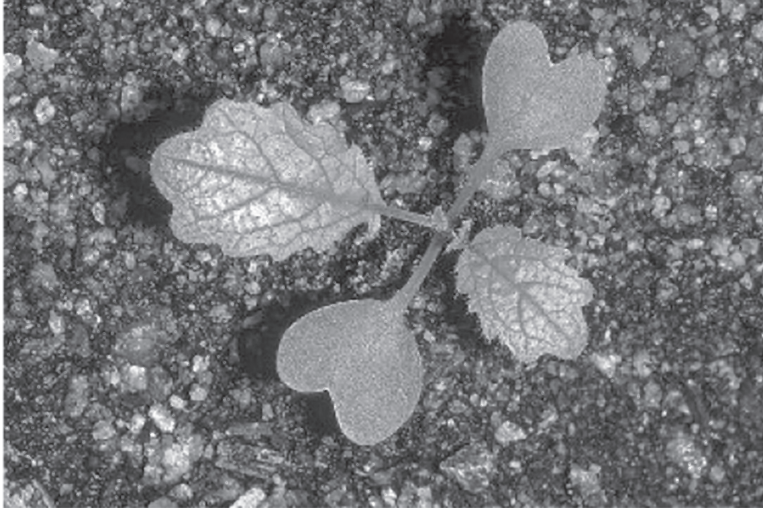
Outline two state or federal government regulations and/or policies that affect the sustainability of agriculture and/or horticulture.

Regulation/Policy 1 _____

Regulation/Policy 2 _____

Question 6 (14 marks)

Wild radish can cause substantial crop yield reduction, seed contamination and tainting¹... Wild radish is relatively unpalatable to stock and can be toxic if ingested. Wild radish is also an alternative host or reservoir for a number of [pathogens] and insect pests of grain crops.



Source: NSW Department of Primary Industries and Regional Development, <<https://weeds.dpi.nsw.gov.au/Weeds/Wildradish>>; © State of New South Wales photo by J.J. Dellow; licensed [CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/)

¹**tainting** – contamination or pollution of an agricultural or horticultural product

- a. Outline **one** way in which a farmer can identify wild radish in their fields without the use of AI.

2 marks

b. Explain two ways in which wild radish may spread from farm to farm.

6 marks

1. _____

2. _____

c. Discuss **one** impact that weeds such as wild radish may have on the food or fibre industry.

4 marks

Do not write in this area.

- d. Describe **one** way in which farmers may prevent or control weeds such as wild radish on farm without AI. 2 marks

Question 7 (18 marks)

Currently, 40% of the world's soil is degraded and projections indicate that this could escalate to 90% by 2050 without urgent intervention.

This degradation compromises the soil's ability to support plant life and regulate water cycles, thereby exacerbating climate change. The Aroura Soil Security Think Tank, a newly established group of scientists, has highlighted the critical need for global action to address this issue.

Source: Adapted from David Claughton, 'Soil degradation threatens food supply and scientists are calling for action', ABC News, 1 January 2025, <www.abc.net.au>

- a. Identify **two** major causes of soil degradation. 2 marks

Question 9 (18 marks)

Waratah Alpaca Fibre is a member-owned cooperative of Australian alpaca farmers supplying some of the world's finest alpaca wool fibre to both Australian domestic and international export markets.

Through collaborative farming, Waratah Alpaca Fibre can provide alpaca fleece producers with reliable markets for their fibre and maximise producer returns from the sale of this luxurious fleece.

Established in June 2018 with immediate strong international export orders, the cooperative provides reliable supply volumes for buyers through its strong network of alpaca fleece producers. The quality of supply is also assured through producer training, strict fleece preparation and pre-classing requirements, as well as by using Australian Wool Exchange Ltd (AWEX) stencilled alpaca classers.

Experienced with international orders, the cooperative can assist buyers with their export and freight requirements.

Due to copyright restrictions,
this material is not supplied.

Due to copyright restrictions,
this material is not supplied.

#511 off-station fleece (bagged) 131 kg

Do not write in this area.

- a. Based on your knowledge of Australian food and fibre marketing, outline **two** methods Waratah Alpaca Fibre might use to market or promote alpaca fibre. 4 marks

- b. Explain **one** strategy that can be used by an alpaca farmer to target niche markets. 3 marks

Do not write in this area.

Question 10 (6 marks)

Sarah has a grazing property in south-west Victoria, where she runs sheep and cattle. Her shearing shed is in poor repair. There is a piece of tin patching a hole in the floorboards where one of the three shearers would stand. There are holes in the roof that let rain in.

- a. Describe **one** possible course of action Sarah could take to keep her shearing shed safe for the shearing team, apart from building a new shearing shed.

3 marks

- b. Explain **one** way safe workplaces may benefit individual farmers or the agricultural and horticultural industries.

3 marks

Do not write in this area.

