

Instructions

Answer **all** questions in the spaces provided.

In **Question 6**, choose only **one** case study and answer the questions. There are five case studies to choose from.

Question 1

a. Plant and animal environments may be modified in many ways to improve production.

Specify one way each of the following changes could be made.

i. Increase the temperature of a glasshouse

ii. Decrease the humidity in a crop

iii. Increase the drainage of a clay soil

iv. Increase the water-holding capacity of a potting mix or soil

v. Reduce the wind chill on sheep in a paddock

vi. Increase the air-filled porosity of a potting mix or soil

vii. Improve the structure of a compacted soil

viii. Increase the pH of a soil or potting mix

8 marks

- b.** Often there are a number of ways to modify a specific aspect of a plant or animal's growing environment.
- i.** What are the advantages and disadvantages of using a nitrogen fertiliser application instead of a clover/lucerne pasture crop to improve a soil's nitrogen availability for future crops?

- ii.** What are the advantages and disadvantages of mulching with wood chips instead of using plastic sheeting between ornamental plants to conserve soil moisture?

3 + 3 = 6 marks

Total 14 marks

TURN OVER

Question 2

- a. Choose a pest **or** disease from the list provided in Table 1. Indicate your choice by placing a **tick** in the appropriate box.

Table 1. Selected pests and diseases

Diseases		Pests	
mosaic virus		lice	
damping off		red-legged earth mite	
downy mildew		rabbits	
grass tetany		sheep blow fly	
pulpy kidney		aphids	
Newcastle disease		slugs	

- i. Name a specific agricultural or horticultural industry that the pest or disease affects.

- ii. Explain how a manager would **prevent** your chosen pest or disease from occurring.

- iii. Explain how a manager would **treat** your chosen pest or disease when it does occur.

1 + 3 + 3 = 7 marks

b. Weeds can be a problem for all agricultural and horticultural businesses. Government legislation controls the management of some weeds.

i. State **three** ways weeds reduce production in an agricultural or horticultural business.

ii. Blackberry (*Rubus fruticosus*) is a regionally controlled declared noxious weed. What does this mean for landowners with blackberry on their property?

iii. Choose a weed that you are familiar with from Table 2. Indicate your choice by placing a tick in the appropriate box.

Table 2. Selected weeds

Weeds	
oxalis (<i>Oxalis spp.</i>)	
blackberry (<i>Rubus fruticosus</i>)	
Paterson’s curse (<i>Echium plantagineum</i>)	
Cape weed (<i>Arctotheca calendula</i>)	
wild oats (<i>Avena fatua</i>)	
serrated tussock (<i>Nassella trichotoma</i>)	

Describe an integrated management strategy for your selected weed.

3 + 1 + 3 = 7 marks

Total 14 marks

TURN OVER

Question 3

Table 3. Selected agricultural and/or horticultural practices

Practices	
modifying climate	
modifying soil/growing media	
modifying topography	
water management	
soil management	
controlling weeds, pests and diseases	
decision making	
managing animals and their products	
managing plants and their products	

a. From the list in Table 3 select **two** practices for which there are innovations (**new or emerging** technologies, methods or developments) that you are familiar with. Place a tick in the box next to each selection.

i. Name an innovation used in one of the practices selected from Table 3 and describe how it works or how it is done.

Name _____

Description _____

ii. Name an innovation used for the other practice you selected from Table 3 and describe how it works or how it is done.

Name _____

Description _____

(1 + 3) + (1 + 3) = 8 marks

Question 3 – continued

- b.** For **one** of the innovations you described in **part a.** of this question, explain the advantages and disadvantages it has over previously used technologies.

3 marks

- c.** For the innovation you described in **part b.** above, explain the effect it will have on businesses that use it.

3 marks

Total 14 marks

TURN OVER

Question 4

Table 4. Selected business types

cereal cropping	
poultry for meat	
poultry for eggs	
beef cattle	
pigs	
sheep	
dairy cows	
grape vines	
fish or yabbies	

design/construct a garden	
maintain an ornamental garden	
plants in glasshouse	
container-growing of ornamentals	
field-growing vegetables, herbs or flowers	
production of indigenous plants	
hydroponic production	
fruit tree management	
horses for recreation	

From Table 4, choose an agricultural or horticultural business that you are familiar with in terms of its business management. Place a tick in the box next to your selection.

- a. List **four** different aspects that need to be considered when developing a business plan for your chosen business type.

4 marks

- b. List **four** different aspects of your chosen business type that should be regularly monitored to ensure the business is operating successfully.

4 marks

- c. Explain how a manager of your chosen business type could ensure quality control.

3 marks

- d.** Managers are unable to control all the things that influence the sustainability of a business.
 - i.** List **three** factors that could affect sustainability of your chosen business type that the manager **cannot** control.

- ii.** For **one** of the factors listed in **i.** above, explain how you would minimise its risk to the sustainability of the business.

3 + 3 = 6 marks

- e.** Explain how the sustainability of your chosen business type should be evaluated.

3 marks

Total 20 marks

Question 5**Soil acidification**

Soil acidification affects many areas of Victoria.

a. Describe **two** different land management practices that often lead to an increase in soil acidification.

i.

ii.

2 + 2 = 4 marks

b. Explain **two** ways the sustainability of a business is reduced by soil acidification.

i.

ii.

3 + 3 = 6 marks

c. Describe one method of treating and one method of preventing soil acidification.

i. Treating soil acidification

ii. Preventing soil acidification

2 + 2 = 4 marks

Total 14 marks

Question 6

On the following pages there are five case studies (Table 5) and their questions.

It is suggested that you read the **two** case studies you are most familiar with, then **select one** and answer the questions.

In Table 5 (below), **place a tick** in the box next to the case study that you are going to answer. (Answer only **one** case study. If you answer more, only the first one in the book will be marked.)

Table 5. Case studies

	Title	
1	Field- or container-grown plants (Pages 14–16)	
2	Organic or non-organic crop management (Pages 17–19)	
3	Shed-fed or open-grazed animal production (Pages 20–22)	
4	Free-range or shed production (Pages 23–25)	
5	Pasture management alternatives (Pages 26–28)	

c. Tran is keen to make sure that the small business is sustainable.

i. What is the most probable cause of the muddy water?

ii. Describe one way of **treating** the muddy water to make it clearer.

iii. Explain two management practices Tran could use to **prevent** the muddy water problem.

Management practice 1 _____

Management practice 2 _____

1 + 1 + (3 + 3) = 8 marks

d. Tran is concerned with looking after the **land and water** resources of the property.

i. List two environmental indicators Tran should monitor for the field-grown plants.

Environmental indicator 1 _____

Environmental indicator 2 _____

ii. Describe what each of these indicators measures.

Environmental indicator 1 _____

Environmental indicator 2 _____

(1 + 1) + (2 + 2) = 6 marks

e. Government regulations (Acts) exist concerning management of natural resources on privately owned land.

i. Name one such regulation (Act) of which Tran should be aware.

ii. Describe what effect this regulation (Act) has on the management of businesses such as Tran's.

1 + 3 = 4 marks

Total 24 marks

c. Bruce is keen to make sure that the small business is sustainable.

i. What is the most probable cause of the muddy water?

ii. Describe one way of **treating** the muddy water to make it clearer.

iii. Explain two management practices Bruce could use to **prevent** the muddy water problem.

Management practice 1 _____

Management practice 2 _____

1 + 1 + (3 + 3) = 8 marks

- d. Bruce is concerned with looking after the **land and water** resources of the property.
 - i. List two environmental indicators Bruce should monitor for the conventional non-organic vineyard.

Environmental indicator 1 _____

Environmental indicator 2 _____

- ii. Describe what each of these indicators measures.

Environmental indicator 1 _____

Environmental indicator 2 _____

(1 + 1) + (2 + 2) = 6 marks

- e. Government regulations (Acts) exist concerning management of natural resources on privately owned land.

- i. Name one such regulation (Act) of which Bruce should be aware.

- ii. Describe what effect this regulation (Act) has on the management of businesses such as Bruce's.

1 + 3 = 4 marks

Total 24 marks

c. Sarah is keen to make sure that the small business is sustainable.

i. What is the most probable cause of the muddy water?

ii. Describe one way of **treating** the muddy water to make it clearer.

iii. Explain two management practices Sarah could use to **prevent** the muddy water problem.

Management practice 1 _____

Management practice 2 _____

1 + 1 + (3 + 3) = 8 marks

- d. Sarah is concerned with looking after the **land and water** resources of the property.
 - i. List two environmental indicators Sarah should monitor for her paddock-grazed cows.

Environmental indicator 1 _____

Environmental indicator 2 _____

- ii. Describe what each of these indicators measures.

Environmental indicator 1 _____

Environmental indicator 2 _____

(1 + 1) + (2 + 2) = 6 marks

- e. Government regulations (Acts) exist concerning management of natural resources on privately owned land.

- i. Name one such regulation (Act) of which Sarah should be aware.

- ii. Describe what effect this regulation (Act) has on the management of businesses such as Sarah's.

1 + 3 = 4 marks

Total 24 marks

c. Mario is keen to make sure that the small business is sustainable.

i. What is the most probable cause of the muddy water?

ii. Describe one way of **treating** the muddy water to make it clearer.

iii. Explain two management practices Mario could use to **prevent** the muddy water problem.

Management practice 1 _____

Management practice 2 _____

1 + 1 + (3 + 3) = 8 marks

- d. Mario is concerned with looking after the **land and water** resources of the property.
- i. List two environmental indicators Mario should monitor if he changes to free-range egg production.

Environmental indicator 1 _____

Environmental indicator 2 _____

- ii. Describe what each of these indicators measures.

Environmental indicator 1 _____

Environmental indicator 2 _____

(1 + 1) + (2 + 2) = 6 marks

- e. Government regulations (Acts) exist concerning management of natural resources on privately owned land.

- i. Name one such regulation (Act) of which Mario should be aware.

- ii. Describe what effect this regulation (Act) has on the management of businesses such as Mario's.

1 + 3 = 4 marks

Total 24 marks

c. Charlie is keen to make sure that the small business is sustainable.

i. What is the most probable cause of the muddy water?

ii. Describe one way of **treating** the muddy water to make it clearer.

iii. Explain two management practices Charlie could use to **prevent** the muddy water problem.

Management practice 1 _____

Management practice 2 _____

1 + 1 + (3 + 3) = 8 marks

- d. Charlie is concerned with looking after the **land and water** resources of the property.
 - i. List two environmental indicators Charlie should monitor when maintaining a pasture for grazing horses by only using fertiliser and herbicide.

Environmental indicator 1 _____

Environmental indicator 2 _____

- ii. Describe what each of these indicators measures.

Environmental indicator 1 _____

Environmental indicator 2 _____

(1 + 1) + (2 + 2) = 6 marks

- e. Government regulations (Acts) exist concerning management of natural resources on privately owned land.

- i. Name one such regulation (Act) of which Charlie should be aware.

- ii. Describe what effect this regulation (Act) has on the management of businesses such as Charlie's.

1 + 3 = 4 marks

Total 24 marks