

2010
HIGHER SCHOOL CERTIFICATE
EXAMINATION

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Centre Number

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Student Number

Agriculture

Paper 1

General Instructions

- Reading time – 5 minutes
- Working time – 2 hours
- Write using black or blue pen
- Draw diagrams using pencil
- Board-approved calculators may be used
- Write your Centre Number and Student Number at the top of this page and pages 5, 7, 9 and 13

Total marks – 70

Section I Pages 2–8

25 marks

- Attempt Questions 1–3
- Allow about 40 minutes for this section

Section II Pages 9–15

30 marks

- Attempt Questions 4–5
- Allow about 50 minutes for this section

Section III Page 17

15 marks

- Attempt ONE question from Questions 6–9
- Allow about 30 minutes for this section

Section I

25 marks

Attempt Questions 1–3

Allow about 40 minutes for this section

Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

Question 1 (9 marks)

Name ONE farm product you have studied.

Name of farm product

(a) Outline a market specification for this farm product. **2**

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(b) Explain, using an example, the effect of government intervention in agricultural production. **3**

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Question 1 continues on page 3

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Centre Number

Section I (continued)


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Student Number

Question 2 (8 marks)

(a) A chemical label for urea fertiliser is shown.

2

	Urea 46-0-0
Product analysis	
Total Nitrogen (N):	46%
Metal impurities:	<1%
Appearance:	White solid
pH:	8.6
<u>Directions for use:</u>	Surface-apply before rain or irrigation, or add to irrigation water.
<u>Safety directions:</u>	Do not swallow and avoid contact with eyes and skin.
<u>Storage:</u>	Store in a cool, dry area.

How would a farmer ensure that the safety directions for this fertiliser are met?

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Question 2 continues on page 6

Question 2 (continued)

- (b) Explain how microorganisms can convert applied urea to a form of nitrogen that is readily available for plants. **3**

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- (c) How can farmers use plants to increase levels of readily available soil nitrogen as an alternative to the use of fertilisers? **3**

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End of Question 2

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Centre Number

Section I (continued)

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Student Number

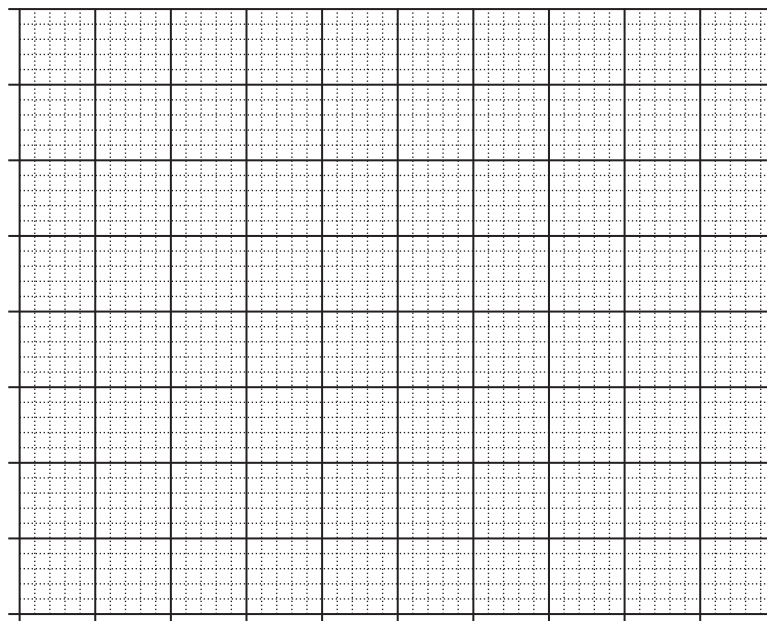
Question 3 (8 marks)

The results of an experiment conducted to compare the yields of five varieties of corn are provided.

<i>Variety of corn</i>	<i>Yield (t/ha)</i>
A	12
B	13
C	8
D	11
E	10

(a) Construct a graph representing the data from the table.

3



Question 3 continues on page 8

Question 3 (continued)

- (b) Outline a procedure that would have been carried out to ensure the reliability of results in this experiment. **2**

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- (c) Justify why a farmer might choose to grow variety C. **3**

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End of Question 3

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Centre Number

Section II

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Student Number

30 marks

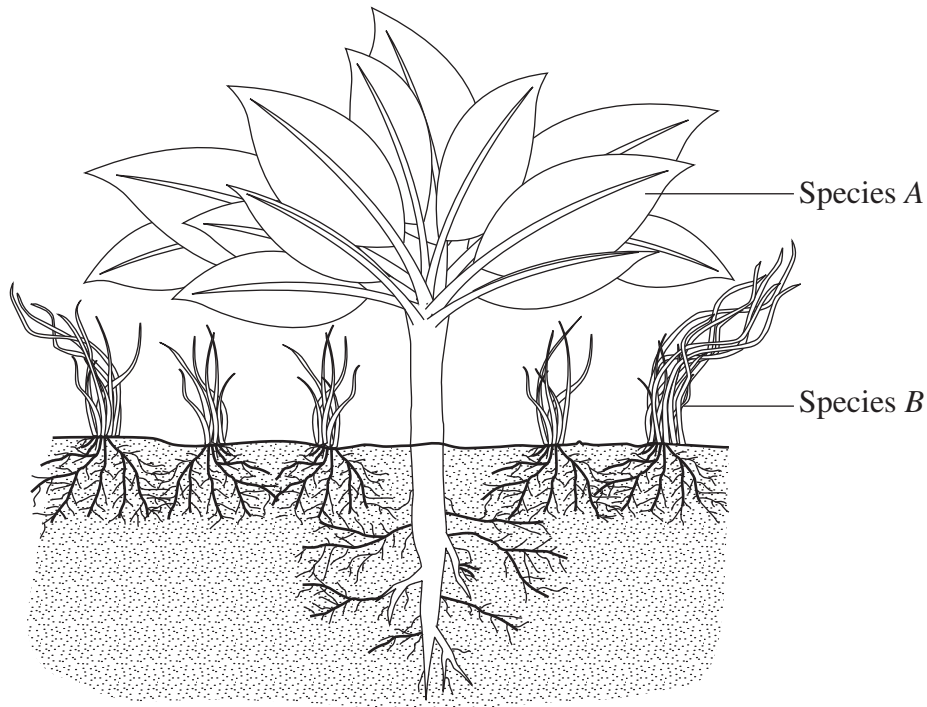
Attempt Questions 4–5

Allow about 50 minutes for this section

Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

Question 4 (15 marks)

(a) The diagram illustrates the growth of two species in a pasture.



(i) Outline a type of plant interference that may be occurring in this pasture. 2

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Question 4 continues on page 10

Question 4 (continued)

- (ii) How can a management technique affect the level of plant interference in this pasture? **3**

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- (b) Explain how planting density may affect plant productivity. Use an example from an investigation you have carried out. **4**

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Question 4 continues on page 11

Question 4 (continued)

- (c) Plant breeding systems have developed to incorporate new genetic techniques aimed at improving plant quality and production. **6**

Discuss the implication of this development on Australian agricultural systems.

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End of Question 4

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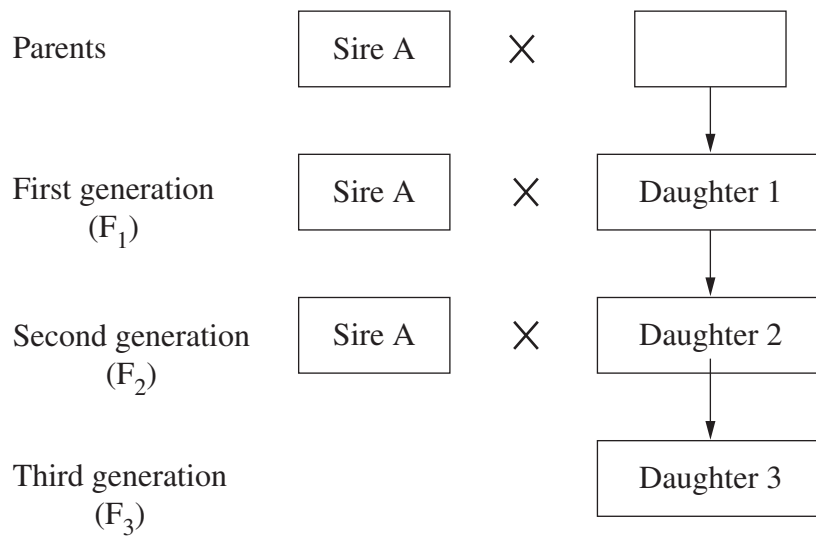
Section II (continued)

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Student Number

Question 5 (15 marks)

(a) The diagram shows a type of breeding system that can be used in animal production systems.



(i) Outline a reason for using this type of breeding system in animal production. 2

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(ii) Explain why a farmer might use an alternative breeding system to the one shown above. 4

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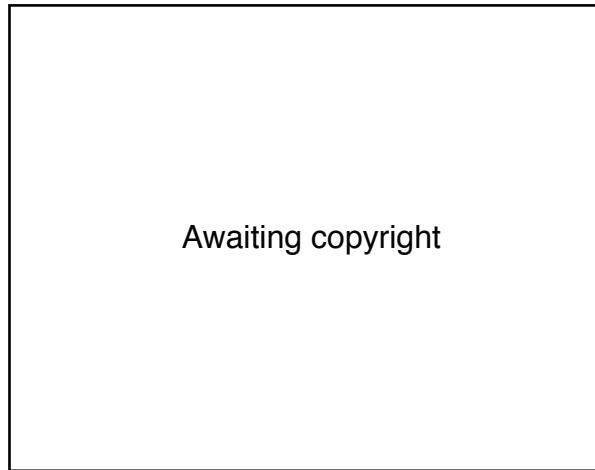
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Question 5 continues on page 14

Question 5 (continued)

- (b) Animal 1 and Animal 2 were provided with the same level of nutrition. Photographs from carcasses that were cut at the same site, show the components of body tissue and their proportions.

3



Name ONE component of body tissue labelled in the photographs and account for the variation of this component between Animal 1 and Animal 2.

Part identified (<i>A</i> or <i>B</i>): Name of component:
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Question 5 continues on page 15

Question 5 (continued)

- (c) Explain how the nutritional requirements of farm animals can be managed to influence their growth and development.

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End of Question 5

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Agriculture

Section III

15 marks

Attempt ONE question from Questions 6–9

Allow about 30 minutes for this section

Answer the question in a writing booklet. Extra writing booklets are available.

Question 6 (15 marks)

- (a) Explain how the types of climatic information that are available can influence agricultural production in Australia. **5**
- (b) Evaluate an Integrated Pest Management program for a named plant or animal production system. **10**

OR

Question 7 (15 marks)

- (a) Explain, using an example, the potential benefits of value-adding for an agricultural product. **5**
- (b) Compare selling by contract with selling through cooperatives when marketing agricultural products. **10**

OR

Question 8 (15 marks)

- (a) How are measures of animal performance used to manage animal production systems? **5**
- (b) Analyse the effects of the level of nutrition on the fertility of farm animals. **10**

OR

Question 9 (15 marks)

- (a) Compare the role of native plant species with that of introduced plant species in pasture management systems. **5**
- (b) Discuss the impacts of minimum tillage and crop rotation on the physical characteristics of soil. **10**

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