



HIGHER SCHOOL CERTIFICATE EXAMINATION

1997

AGRICULTURE

3 UNIT (ADDITIONAL)

(32 Marks)

*Time allowed—One hour and a quarter
(Plus 5 minutes reading time)*

DIRECTIONS TO CANDIDATES

- Answer each question in a *separate* Writing Booklet.
- You may ask for additional Writing Booklets if you need them.
- Board-approved calculators may be used.

Section I (8 marks)

- The question in this Section is **COMPULSORY**.

Section II (24 marks)

- Attempt **TWO** questions.
- All questions are of equal value.

SECTION I**Marks**

(8 Marks)

The question in this Section is **COMPULSORY**.
Answer the question in a *separate* Writing Booklet.

QUESTION 1

In agriculture, different perspectives lead to debate on a range of issues. For an issue associated with an area of research you have studied:

- | | |
|--|----------|
| (a) outline the issue; | 2 |
| (b) construct a table that lists the key aspects of the two contrasting arguments about the issue; | 4 |
| (c) outline the responsibility of the researcher. | 2 |

SECTION II**Marks**

(24 Marks)

Attempt TWO questions.

Each question is worth 12 marks.

Answer each question in a *separate* Writing Booklet.**QUESTION 2. Animal Breeding and Reproduction***EITHER*

(a) Managers of animal production systems must have a good understanding of reproductive hormonal cycles.

(i) Discuss the role of reproductive hormones in animal reproduction. **4**

(ii) Explain how this knowledge has been used to develop a range of reproductive techniques and to design breeding programs. **8**

OR

(b) Agricultural research in animal production is important in developing new reproductive technologies that can improve product specification and improve animal adaptability.

(i) Describe a new reproductive technology that has improved product specification *or* improved animal adaptability in ONE animal industry. **4**

(ii) Discuss the way in which the new technology has been incorporated into breeding programs. **4**

(iii) Evaluate the effectiveness of the new reproductive technology in achieving improved outcomes for the animal industry. **4**

QUESTION 3. Horticulture**Marks***EITHER*

- (a) Many commentators have noted that increasing wealth in Asia should create a strong demand for horticultural products that could be supplied by Australia.
- (i) Outline the potential economic importance of horticulture internationally for Australia. **2**
 - (ii) Discuss how the type of products, production techniques, and post-harvest handling can be varied to produce goods required for new markets. **6**
 - (iii) Assess innovative marketing strategies that Australian horticulture has used to achieve a significant share of new overseas markets. **4**

OR

- (b) Using examples from a horticultural industry you have studied, critically analyse the role of the manager in manipulating parts of the horticultural system to balance economic viability, environmental sustainability, and new developing markets. **12**

QUESTION 4. Alternative Agricultural Systems*EITHER*

- (a) Alternative enterprises are often viewed as 'get rich quick' schemes.
- (i) Describe the economic and management factors that a potential investor should consider to ensure viability of the enterprise. **6**
 - (ii) For a new enterprise you have studied, evaluate the existing and potential viability of the industry. **6**

OR

- (b) Many producers are introducing changes and innovations to their existing enterprises. For ONE such innovative system you have studied:
- (i) discuss how the management of the system is related to the biology of the plant or animal involved and its environmental needs; **6**
 - (ii) evaluate the future of the innovative system in terms of production, marketing, and research. **6**

QUESTION 5. Technological Perspectives in Agriculture **Marks**

EITHER

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|-----|------|--|----------|
| (a) | (i) | Using examples, explain how farm managers use computer technology in production and marketing processes. | 6 |
| | (ii) | Assess the impact of these computer technologies on current farm management practices. | 6 |

OR

- | | | | |
|-----|-------|---|----------|
| (b) | (i) | Outline factors that a farmer would need to consider before implementing any new technology. | 3 |
| | (ii) | Describe how management practices would change due to the impact of evolving technologies in farm-chemical usage. | 3 |
| | (iii) | How would a farmer evaluate whether these evolving technologies enhance the productivity of the farm? | 6 |

QUESTION 6. Pasture Production

EITHER

- | | | | |
|-----|---|--|----------|
| (a) | Pasture improvement is a means of increasing stocking rate to an optimum level. | | |
| | (i) | Discuss the major factors that should be considered in establishing a pasture for grazing animals. | 6 |
| | (ii) | Evaluate the alternative management strategies available to ensure the ongoing productivity and quality of the pasture for animal grazing. | 6 |

OR

- | | | | |
|-----|------|---|----------|
| (b) | (i) | Using examples, explain the relationship between the biological characteristics of plants and their suitability as pasture species. | 6 |
| | (ii) | Assess the impact of introduced plant species on pasture management systems. | 6 |

QUESTION 7. Coping with Climate**Marks***EITHER*

- (a) Extended periods of drought or flood are characteristic of Australia's climate that adversely affect agricultural production. Describe and evaluate the range of strategies to overcome such climatic hazards available to farm managers. **12**

OR

- (b) Droughts and floods, while appearing random results of weather, are in fact influenced by large scale global patterns. As a consequence, data relating to weather, and data relating to large global cycles, are both important to agriculture.

- (i) Explain the importance of data relating to weather on the timing of operations in a production cycle. **6**
- (ii) Evaluate long-term strategies within farm management plans which take account of data relating to large global cycles. **6**

QUESTION 8. Agribusiness*EITHER*

- (a) Farm managers have to cope with the impact of domestic and international forces when taking advice and making decisions about their business management.
- (i) Discuss the impact of international and domestic forces on farm business management. **6**
- (ii) Using examples, assess the roles of farm advisory services in farm business management. **6**

OR

- (b) For a farm product that you have studied:
- (i) discuss the on- and off-farm value-adding opportunities; **6**
- (ii) describe and evaluate the available range of alternative selling systems. **6**

QUESTION 9. Whole-farm Planning**Marks***EITHER*

- (a) Sustainable agricultural practices are those activities that maintain or enhance the quality of the land and water resources on which agriculture and the wider ecosystem depend.
- (i) Discuss the factors that you had to consider when developing a whole-farm plan. **4**
 - (ii) Discuss factors that may affect the rate of implementation of this whole-farm plan. **4**
 - (iii) Evaluate how the whole-farm plan might enhance the sustainability of the farm. **4**

OR

- (b) Off-farm agencies play an important role in the development of whole-farm plans.
- (i) For off-farm agencies that you have studied, assess their role in the planning and/or implementation of individual whole-farm plans. **6**
 - (ii) Analyse the role of such plans in improving the interaction of the farm with the wider ecosystem and rural community. **6**

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