



HIGHER SCHOOL CERTIFICATE EXAMINATION

1996

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

Developments in Australian agriculture are often based on research. For a stated area of agricultural research that you have studied:

- (a) outline issues that researchers should consider before undertaking this research; **4**
- (b) discuss the possible impact of this research on Australian agriculture. **4**

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) An animal breeder was reported to have said that ‘carrying out a breeding program without the objective measurement of characteristics such as growth rate, fat depth, and muscling, is like operating blindfold. Despite this, objective measurement without some form of visual appraisal, would be a disaster’.
- (i) Discuss, using examples from a named livestock industry, the role of objective measurement in a breeding program. **5**
 - (ii) Comment on the place of visual appraisal in the breeding program. **3**
 - (iii) Explain how knowledge of heritability is important in the breeding program. **4**

OR

- (b) Discuss the impact of advances in breeding and reproductive techniques on:
- (i) reproductive efficiency; **4**
 - (ii) product quality and specification; **4**
 - (iii) animal adaptability. **4**

Use relevant examples to illustrate your answer.

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

- (a) The consumers' drive for convenience and their ever-increasing concern with eating healthy foods, have given rise to many innovative marketing ideas.
- (i) Discuss some marketing ideas that have been applied to a horticultural product that you have studied. **5**
 - (ii) Discuss the effects that market feedback has on the development of the horticultural products. **3**
 - (iii) Describe the potential economic importance of the horticultural product on the domestic and international market. **4**

OR

- (b) Innovative technological practices have led to an increase in productivity and quality in horticultural crops. For a crop you have studied:
- (i) describe technological innovations introduced to improve the quality of the product; **6**
 - (ii) discuss the role of the manager in manipulating the parts of the horticultural production system to increase productivity. **6**

QUESTION 4. Alternative Agricultural Systems**Marks***EITHER*

- (a) Many alternative enterprises have attracted large amounts of capital, but failed to survive in the long term. The likelihood of success of new ventures can be enhanced if careful planning is undertaken.

Describe, using examples, how the following factors are used in the planning of the establishment of the alternative enterprises:

- (i) possible markets and prices; **4**
- (ii) environmental constraints; **3**
- (iii) management skills and knowledge. **5**

OR

- (b) Change and innovation to traditional agricultural systems have been a feature of agriculture in the 1980s and 1990s.

For ONE traditional agricultural system:

- (i) discuss some of the factors that have led to changes in marketing and production; **4**
- (ii) describe the way in which the products are now being produced and marketed; **4**
- (iii) outline the areas of research that were needed to make these changes possible. **4**

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

- (a) Changes in technology are a characteristic of agricultural production and marketing.
- (i) Describe some recent technologies that have led to changes in production and marketing in *either* ONE plant *or* ONE animal product. **6**
 - (ii) Evaluate the impact of the technologies on the production and marketing processes in terms of productivity, product quality, and the environment. **6**

OR

- (b) Computers and software are becoming cheaper and more readily available, making them increasingly part of the farm office.
- (i) What criteria would a farmer need to consider when making a decision on purchasing computers and software packages? **3**
 - (ii) Describe the roles computers can play in management and marketing decisions on the farm. **6**
 - (iii) How might a farmer evaluate whether a computer enhances the management and productivity of the farm? **3**

QUESTION 6. Pasture Production*EITHER*

- (a)
- (i) Outline the establishment and management program for a pasture production system you have studied. **6**
 - (ii) Identify possible problems associated with this pasture production system. **2**
 - (iii) Evaluate the work of farmers and researchers in trying to overcome the possible problems. **4**

OR

- (b) For a grazing system that you have studied:
- (i) describe how the pasture management program maintains soil fertility, a suitable species mix, and production levels; **6**
 - (ii) describe and evaluate the characteristics of each of the pasture plants in the system that make them suitable for grazing. **6**

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

- (a) 'Our farmers need management practices that can cope with Australia's variable and often unpredictable climate.'
- (i) Discuss the impact of climatic factors on agriculture in a region that you have studied. **4**
 - (ii) Describe management practices that can be implemented to cope with the variable and unpredictable nature of climate. **4**
 - (iii) Evaluate these practices in terms of economic and environmental considerations. **4**

OR

- (b) Adapting agricultural management to a variable and unpredictable climate is essential to achieving sustainable agricultural systems. The collection of climatic data plays an important role in the development of these sustainable systems.
- (i) Outline techniques available for the collection and analysis of climatic data. **3**
 - (ii) Describe the features of short and long-term management plans that take into account the unpredictable nature of climate. **5**
 - (iii) Assess the financial and environmental effects of practices that modify the effects of climate. **4**

Please turn over

QUESTION 8. Agribusiness**Marks***EITHER*

- (a) Family farms are businesses that need appropriate financial resources and management.
- (i) Describe the techniques that could be used to analyse a farm's financial situation. **4**
 - (ii) Describe the various types of finance available for a farm's operation. **4**
 - (iii) Discuss the strategies that a farm manager could use to obtain finance for the farm operation. **4**

OR

- (b) 'Australian farmers have a long-standing history of producing commodities for world markets. After World War II, farmers enjoyed twenty-five years of prosperity because their products were in demand. Producers were king in the marketing chain. Today, it is the consumer who determines what will be sold, and the prices paid.'
- (i) Discuss how an *industry* that you have studied has adjusted to changes in world markets. **6**
 - (ii) Discuss the changes in individual farm businesses that have occurred in response to changes in the industry and world markets. **6**

QUESTION 9. Whole-Farm Planning*EITHER*

- (a)
- (i) Describe the steps you undertook in developing a whole-farm plan. **4**
 - (ii) Describe the key biological and physical factors of your plan that would enhance the sustainability of the farm. **4**
 - (iii) Discuss the budget implications for the farmer in implementing the plan. **4**

OR

- (b) Two important components of whole-farm planning are trees and enterprise selection.
- (i) Evaluate the benefits of trees in a whole-farm plan. **6**
 - (ii) Evaluate the importance of enterprise selection and its management within a whole-farm plan. **6**

Make extensive use of examples in your answer.