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

(8 Marks)

The question in this Section is COMPULSORY.

Answer the question in a SEPARATE Writing Booklet.

QUESTION 1

Agricultural research has the potential to impact on agricultural production in many ways.

For an area of agricultural research you have studied:

(a) describe how the industry involved has benefited from the findings of this research; 3

(b) discuss ONE problem or controversial issue that has arisen as a result of the findings of this research; 3

(c) outline important responsibilities of researchers that aim to address this type of problem or issue when conducting research programs. 2
SECTION II

(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) For a breeding technique of your choice, answer the following questions.

(i) Describe the role of TWO reproductive hormones in the named breeding technique. 4

(ii) Explain why a knowledge of reproductive anatomy is important when using this breeding technique. 3

(iii) For a livestock enterprise you have studied, explain how this breeding technique affects:

1 reproductive efficiency;

2 product quality. 5

OR

(b) The field of animal genetics impacts at both the farm level and in laboratory research.

(i) Using examples, outline the role of objective measurement in farm breeding programs. 6

(ii) Describe the process of genetic engineering at the cellular level. (You may use diagrams.) 6
QUESTION 3  Horticulture

EITHER

(a)  (i) Using horticultural examples, explain the relationship between the level of output and the nature and level of inputs.  4

(ii) Present arguments for and against the use of a named input to horticultural systems.  4

(iii) For a named horticultural industry, evaluate a technological innovation aimed at improving quality.  4

OR

(b) An extensive knowledge of plant physiology is an essential requirement for a successful horticulturalist.

(i) Explain, using examples, how plant physiology relates to techniques of plant propagation.  3

(ii) Using an example, demonstrate that horticulturalists need to develop a knowledge and understanding of organisms other than crop plants.  3

(iii) Outline THREE additional areas of knowledge that are necessary to manage a successful horticultural enterprise.  6
QUESTION 4  Alternative Agricultural Systems

EITHER

(a) Before a farmer decides to adopt an alternative enterprise, it is essential that the farmer is well informed.

(i) Outline the types of information needed by the farmer to make an informed decision regarding adoption of an alternative enterprise. Suggest the possible sources of this information.  

(ii) For an alternative enterprise that you have studied, evaluate the existing and potential viability of the industry.  

OR

(b) Innovative farmers often develop alternative agricultural systems from existing production systems.

For an alternative agricultural system developed from an existing system that you have studied:

(i) outline the reasons why the innovations were necessary;  

(ii) describe the steps taken by the farmer prior to adopting this innovation;  

(iii) describe new marketing strategies associated with this innovation.
QUESTION 5  Technological Perspectives in Agriculture

EITHER

(a) For a named plant or animal production system you have studied, discuss how technological developments in information and communication have impacted on:

   (i) farm production; 6

   (ii) product marketing. 6

OR

(b) Computer use by farm managers has increased greatly in recent years.

   (i) Outline the diversity of computer applications in Australian agriculture. 4

   (ii) Explain the impact of increased computer usage on agricultural management. 4

   (iii) Evaluate ONE computer-based farm management program you have studied. 4

QUESTION 6  Pasture Production

EITHER

(a) There is an increasing interest in the use of native pasture species on Australian farms.

   (i) Using examples, outline reasons for this interest in native pastures. 4

   (ii) Outline some problems associated with the use of native pasture species. 4

   (iii) Evaluate the role of introduced pasture species in pasture management systems. 4

OR

(b) For a pasture production system you have studied:

   (i) outline the pasture establishment program; 4

   (ii) explain why it is desirable to have a mix of pasture species; 4

   (iii) describe the alternative pasture management strategies available to the farm manager to enable optimum animal productivity. 4
QUESTION 7  Coping with Climate

EITHER

(a) For a named agricultural enterprise you have studied:

(i) outline how climate and weather influence the timing of operations
within the production cycle for this enterprise;  4

(ii) describe strategies that could be implemented to minimise effects on the
enterprise if long-term weather forecasts predict low rainfall levels;  4

(iii) evaluate ONE of the strategies described in part (a) (ii) in terms of
economic and environmental considerations.  4

OR

(b) Climate is one of the most important environmental factors for farmers to
manage.

(i) Describe the methods used in collecting macro-climatic and
micro-climatic data.  5

(ii) Using examples, assess the financial and environmental effects of TWO
climatic modification practices.  7

QUESTION 8  Agribusiness

EITHER

(a)  (i) Using examples, describe the impact of changes in world and domestic
markets on farm businesses.  4

(ii) Outline the possible roles of farm advisory services in the producers’
response to these changing markets.  4

(iii) Describe methods that can be employed to develop new international
markets.  4

OR

(b) Finance for farming is an important issue for farm survival and sustainability.

(i) Describe techniques that are available to evaluate the financial situation
of a farm.  4

(ii) Describe the options available for a farm business to obtain finance for
its operations.  4

(iii) Explain strategies that could be used for a farm business to obtain
finance for its operations.  4

Please turn over
QUESTION 9 Whole Farm Planning

EITHER

‘Whole-farm planning generally has three interdependent segments dealing with physical, managerial and financial aspects.’

Reproduced from Roberts, Brian, The quest for sustainable agriculture and land use with permission of UNSW Press

(a) Describe the process you used to develop a whole-farm plan, with reference to:

(i) the physical and biological components of the farm; 4
(ii) selection and management of farm enterprises; 4
(iii) financial considerations. 4

OR

(b) Activities that enhance the quality of natural resources assist in achieving sustainability of agricultural systems.

(i) Describe types of interactions a farm may have with its immediate ecosystem and rural community. 4
(ii) Outline aspects of a whole-farm plan that promote sustainability of the farm. 4
(iii) Assess the impact the whole-farm plan may have on the broader agricultural ecosystem. 4

End of paper