
Student Number

2012
TRIAL HIGHER SCHOOL CERTIFICATE EXAMINATION

Agriculture - Multiple Choice Question Booklet

General Instructions

- Reading time – 5 minutes
- Working time – 3 hours
- Write using blue or black pen
- Board-approved calculators may be used
- Draw diagrams using pencil
- Write your Student Number at the top of this page

Total marks - 100

Section I – Pages 1-19

80 Marks

Part A – 20 marks
- Attempt questions 1 – 20
- Allow about 30 minutes for this section

Part B – 60 marks
- Attempt questions 21 – 26
- Allow about 1 hour and 45 minutes for this part

Section II – ELECTIVES Pages 20-21

20 marks
- Attempt ONE question from questions 28 – 30
- Allow about 45 minutes for this section

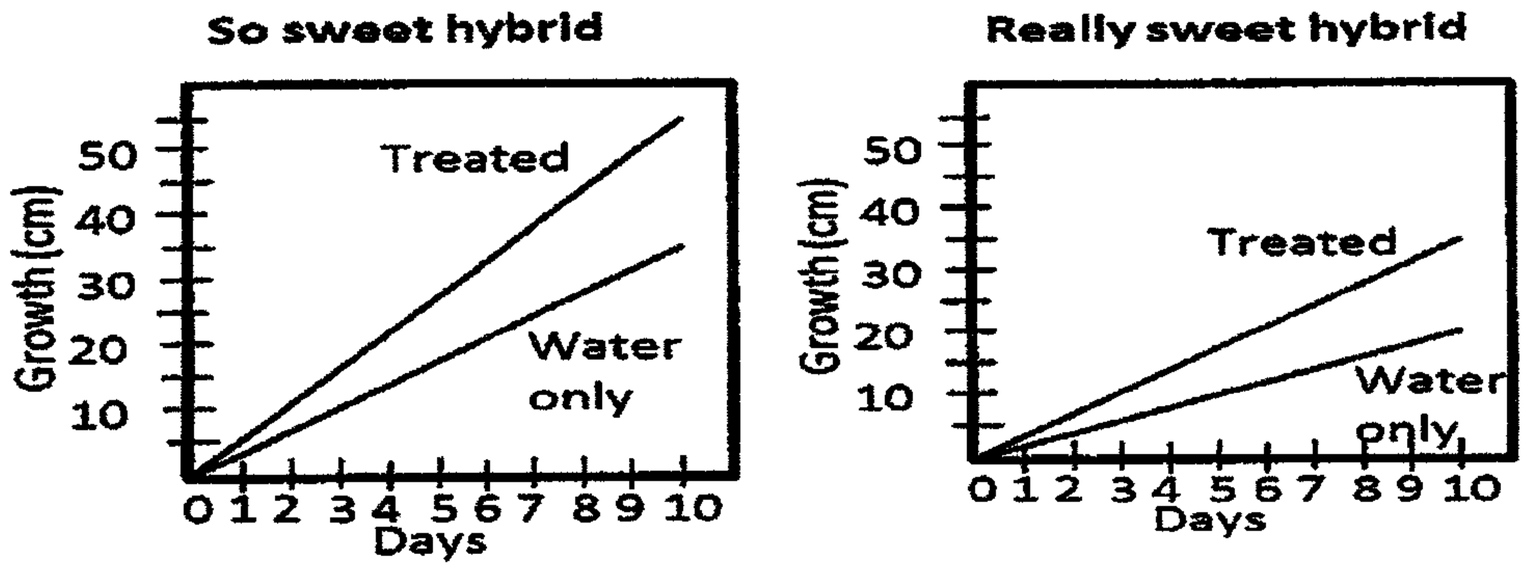
Section 1

80 marks

Part A - 20 marks
Attempt Questions 1-20
Allow about 30 minutes for this part.

Use the multiple-choice answer sheet for Questions 1-20

In an experiment to study the effect of a new fertiliser on the growth of two sweet corn varieties, So Sweet and Really Sweet from immediately after germination to ten days of growth, the data below was obtained. All other growing conditions such as water and sunlight were the same for both groups.



1. Which of the following is the most reasonable conclusion that can be drawn from the data above?

   (A) The new fertiliser influences the growth of both corn varieties tested

   (B) The new fertiliser causes faster growth rate for both varieties than do other fertilisers

   (C) The new fertiliser improves the root system of the So sweet hybrid to a greater extent than it does that of the Really sweet hybrid.

   (D) The new fertiliser is effective in producing faster growth for both varieties for the first ten days only

2. A plant trial has been set up to test the effects of a soluble fertiliser on the germination of seeds. The following results were obtained.

Treatment	A	B	C	D
Concentration of fertiliser	Og/L	4g/L	10g/L	20g/L
Percentage of seeds germinated	80	75	60	45

The results show that:

(A) High concentrations of soluble fertilisers enhance germination of seeds

(B) Any amount of soluble fertiliser inhibits germination of seeds

(C) Soluble fertiliser has no effect on germination of seeds

(D) High concentrations of insoluble fertiliser inhibit germination of seeds

3. In Experiments, the term 'variable' means.

(A) The repeat of the same experiment a number of times

(B) A particular feature that is being measured.

(C) A representative section of a population

(D) A measure of spread of the values

4. Which ruminant stomach has leaf like partitions?

(A) Abomasum

(B) Omasum

(C) Rumen

(D) Reticulum

5. Which of the following statement is NOT true of permanent stunting in animals?

(A) Starvation in young animals

(B) A young animal growing without adequate nutrition

(C) Periods of short term weight loss in mature animals

(D) Starvation in young animals during a drought

6. A common method used to control internal parasites in animals is:

(A) Vaccination

(B) Culling

(C) Dipping

(D) Drenching

7. The hormone responsible for potentially making animals aggressive is:

(A) Progesterone

(B) Relaxin

(C) Testosterone

(D) Follicle stimulating hormone

8. Allelopathy is an example of plant competition within a crop or pasture and it is best described as:

(A) Crop plants competing with each other for sunlight, water and nutrients

(B) Crop plants creating an ideal micro-climate for a fungal disease to take hold

(C) Weeds sheltering and feeding an insect pest that then moves onto a crop

(D) Weeds releasing a chemical into the soil to kill surrounding plants that may compete.

9. What causes weeds to become resistant to herbicides?

(A) Repeated use of the same herbicide

(B) Repeated use of different herbicides

(C) Using herbicides when conditions are not calm

(D) Increase use of crop rotations

10. The plant's naturally occurring hormones have the following roles:

(A) Auxin controls shoot and root growth and abscisic acid promotes fruit drop

(B) Ethylene initiates fruit ripening and abscisic acid closes stomates

(C) Cytokinin produces cell elongation and auxin produces leaf drop in deciduous trees

(D) Abscisic acid promotes cell division and ethylene stimulates leaf growth

11. The measure of plant growth in plants is the difference between photosynthesis and respiration. This is commonly known as

(A) Net Assimilation Rate

(B) Rate of Photosynthesis

(C) Transpiration

(D) Rate of Respiration

12. Which part of a flower will become the fruit after fertilisation?

(A) Anther

(B) Ovary

(C) Ovule

(D) Stigma

13. Why is saleyard auction a popular way to sell beef cattle?

(A) There is minimal handling and transport costs

(B) Feedback on carcase specifications is a standard component

(C) Payment is guaranteed by the agents

(D) It is easy to comply with the processor's requirements

14. Which of the following includes only variable costs associated with a Gross Margin for crop production?

(A) Seed, fertiliser, council rates

(B) Fuel, fertiliser, contract harvester

(C) Crop insurance, permanent labour, seed

(D) Home loan interest, contract harvester, fuel

15. Which of the following is the law of supply?

(A) At high prices, consumers buy more of the product; and as the price decreases, less of the product is purchased

(B) As producers supply less of the product, consumers demand more products

(C) At low prices, consumers buy more of the product, and as the prices increase, less of the product is purchased

(D) Producers are willing to supply more of the product onto the market as market prices increase

16. Which of the following is not a value added agricultural product?

(A) Woollen socks

(B) Marinated beef strips

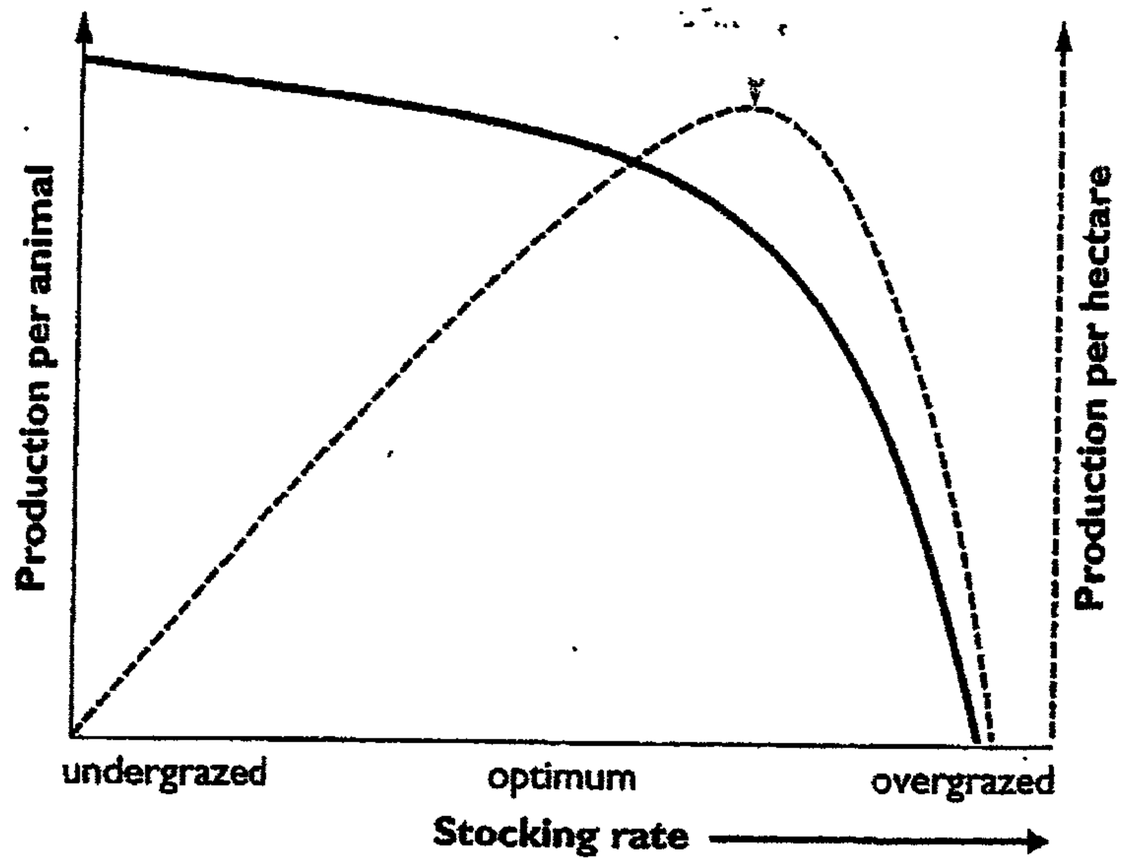
(C) Whole milk

(D) Cheddar cheese

17. Which structures are all part of the reproductive system of a male animal?

(A)	Cervix	Epididymis	Vulva
(B)	Cervix	Scrotum	Seminal Vesicle
(C)	Epididymis	Scrotum	Seminal Vesicle
(D)	Epididymis	Scrotum	Vulva

18. The following graph shows the relationship between the production per animal and the amount of animal product produced per hectare.



One conclusion that can be drawn from this graph is that:

(A) As the stocking rate increases, the production for the farm decreases

(B) As the stocking rate increases, the production for the farm increases

(C) As the stocking rate decreases, the production for the farm increases

(D) As the stocking rate increases, the production for the farm increases to a certain point and then decreases.

19. Environmental factors that could limit cow or bull fertility include:

(A) Genotype, climate, nutrition, pests and diseases

(B) Climate, nutrition, management, pests and diseases

(C) Genotype, climate, management, pests and diseases

(D) None of the above

20. What describes the length of the oestrus cycle?

(A) The duration of pregnancy

(B) The duration of the heat period

(C) The interval between birth and mating

(D) The interval between the start of heat periods

Part B - 60 marks
Attempt Questions 21-26
Allow about 1 hour and 45 minutes for this part

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

Question 21 (14 marks)

Name ONE farm product you have studied.

Name of farm product .....

(a) Explain the marketing chain for this product. 2

(b) Explain TWO on-farm management practices that improves the quality of the named farm product. 4

(c) Evaluate management strategies used to assess the market specificiations for the named farm product. 8

Question 22 (6 marks)

(a) Outline how the Government may influence agricultural production for a farm product. 2

(b) Explain how the irregular nature of income over time can affect decision making for a farmer. 4

Question 23 (6 marks)

Answer the two following questions about a plant or animal experiment that you have conducted at school.

(a) Propose a recommendation based on the interpretation of the results. 2

(b) Explain how the conditions were standardised in the experiment. 4

Question 24 (19 marks)

(a) Describe the fixing of nitrogen by plants via their association with legumes. 2

(b) Define the term 'weed'. Describe for a named weed species a physical control OR a biological control method. 3

(c) Plant breeders respond to changing environments and markets by developing new varieties for commercial use. Explain the method in developing a new plant variety by selective breeding or hybridisation. 4

(d) There are a number of environmental constraints on the growth and development of plants. Name two environmental constraints and for each describe a management practice that a farmer can undertake to maximise production. 4

Environmental Constraint _____

_____

_____

Named Environmental Constraint _____

_____

_____

(e) Discuss managment strategies used in an Integrated Pest Management (IPM) program for a named pest or disease of a plant production system you have studied. 6

Question 25 (7 marks)

(a) Identify a breeding system and explain its use in animal production. 3

(b) Husbandry practices that have been performed incorrectly on animals can result in stress and harm to animals. Explain TWO factors that should be considered to reduce the negative welfare impacts when performing animal husbandry operations. 4

Question 26 (8 marks)

Evaluate two Management techniques which are available to farmers to manipulate reproduction in farm animals. 8

Section II

20 marks
Attempt ONE question from Questions 28–30
Allow about 45 minutes for this section

Answer the question on the paper provided. Extra writing paper is available.

In your answers you will be assessed on how well you:
- demonstrate knowledge and understanding relevant to the question
- communicate ideas and information using relevant examples
- present a logical and cohesive response

Question 28 – Agri-food, Fibre and Fuel Technologies (20 Marks)

Answer part (a) of the question in a writing booklet.

(a) (i) Outline the implications of using biotechnology in agriculture. 2

(ii) During your study of this elective, you were required to analyse a research study, based on the development and/or implementation of one agricultural biotechnology product.

Analyse the design and methodology used in the study. 6

Answer part (b) of the question in a SEPARATE writing booklet.

(b) Evaluate biofuel production, with reference to world fuel demands, and sustainable and efficient use of carbon. 12

OR

Question 29 - Climate Challenge (20 Marks)

(a) (i) Outline the implication of Climate Variability for agricultural production. **2**

(ii) During your study of this elective, you were required to analyse a research study of climate variability or management strategies related to climate variability.

Analyse the design and methodology used in the study **6**

Answer part (b) of the question in a SEPARATE writing booklet.

(b) Evaluate management options that are available to farmers, for managing climate variability. **12**

OR

Question 30 - Farming for the 21st Century (20 Marks)

(a) (i) Outline the historical background of a recent technological development. **2**

(ii) Discuss issues that are related to patents that may have an impact on the implementation of technologies relating to Research and Development. **6**

(b) Analyse a research study of the development or implementation of ONE recent Agricultural technology for the 21st Century. **12**

End of paper