



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATION – 2008

AGRICULTURAL SCIENCE P2

STANDARD GRADE

MAY/JUNE 2008

MARKS: 150

TIME: 2 hours

This question paper consists of 11 pages.

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. This question paper consists of TWO sections, namely SECTION A and SECTION B.
3. Answer ALL the questions in an Agricultural Science context in the ANSWER BOOK provided.
4. Number your answers exactly as the questions are numbered.
5. Start each question on a NEW page.
6. Read the questions carefully and answer what is asked.
7. Non-programmable calculators may be used.
8. Write neatly and legibly.

SECTION A**QUESTION 1**

1.1 Various possible options are provided as answers to the following questions. Choose the answer and write only the letter (A – D) next to the question number (1.1.1 – 1.1.5) in the ANSWER BOOK, for example 1.1.6 D.

1.1.1 Which ONE of the following organs does NOT belong to a cow's alimentary canal?

- A Rumen
- B Ventriculus
- C Reticulum
- D Caecum

1.1.2 The vitamin that can prevent osteomalacia in animals:

- A Vitamin C
- B Vitamin B
- C Vitamin D
- D Vitamin K

1.1.3 Long-term credit is used to ...

- A buy cattle.
- B pay salaries.
- C pay for fencing on the farm.
- D buy equipment.

1.1.4 ... is the production factor also known as a 'gift of nature'.

- A Capital
- B Management
- C Labour
- D Land

1.1.5 The main reason for conducting a soil survey is for ...

- A optimal soil utilisation.
- B pasture management.
- C planting of crops.
- D the construction of dams.

(5 x 2) (10)

- 1.2 Give ONE word/term for each of the following descriptions:
- 1.2.1 The soft, bag-like enlargement in the oesophagus of the fowl
 - 1.2.2 The hormone that is responsible for the regulation of the secretion of succus entericus
 - 1.2.3 The quantity of goods offered for sale at a certain price at a particular moment
 - 1.2.4 The ratio that exists between surface evaporation and evapo-transpiration
 - 1.2.5 The sparse plant growth that initially settles on an exposed piece of land (5 x 2) (10)
- 1.3 Choose a term from COLUMN B that matches an item in COLUMN A. Write only the letter (A – H) next to the question number (1.3.1 – 1.3.5) in the ANSWER BOOK, for example 1.3.6 K.

COLUMN A		COLUMN B	
1.3.1	Scrotum	A	Graafian follicle
1.3.2	Penis	B	seminal vesicle
1.3.3	Follicle stimulating hormone (FSH)	C	double cervical canal
1.3.4	Fertilisation	D	Sertoli cells
1.3.5	Infertility	E	spermatogenesis
		F	bladder
		G	semen deposition
		H	Fallopian tube

(5 x 2) (10)

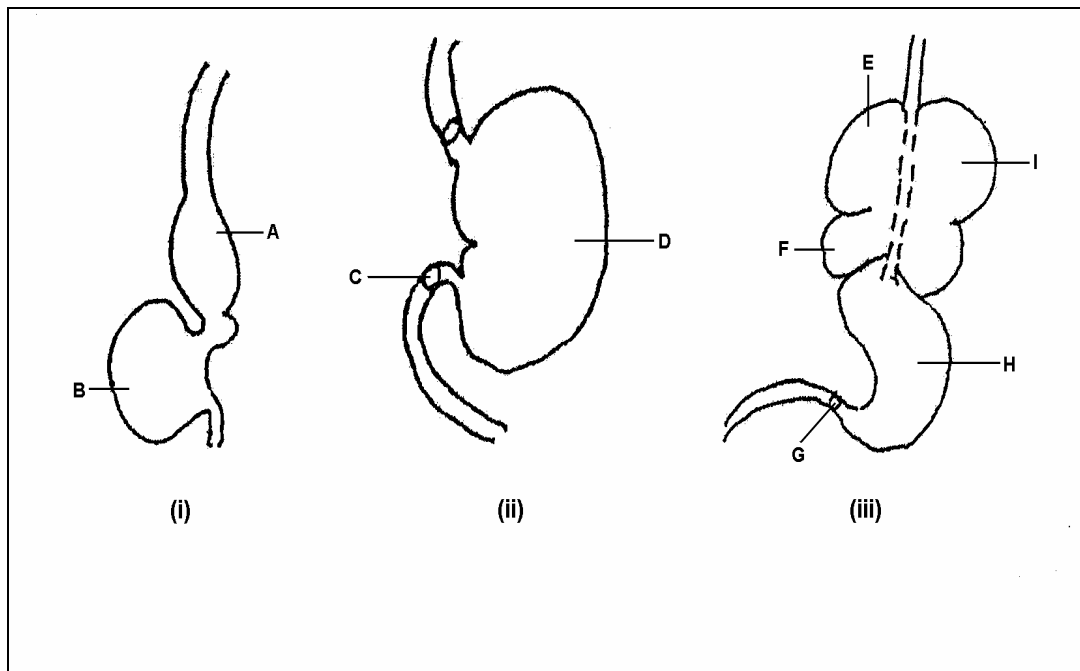
TOTAL SECTION A: 30

SECTION B

QUESTION 2: ANIMAL NUTRITION

Start this question on a NEW page.

2.1 The following diagrams are representations of the stomachs of certain farm animals. Use the diagrams to answer the following questions:



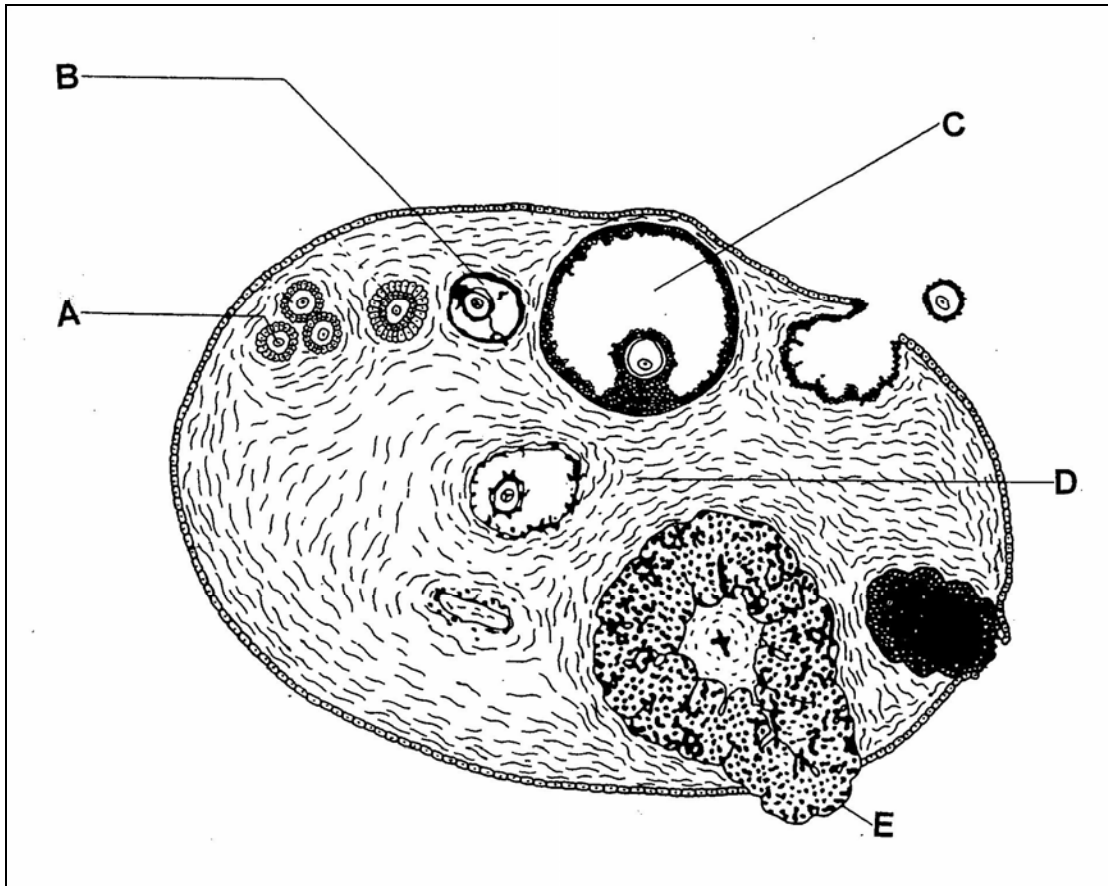
- 2.1.1 Identify the type of stomach represented by the following: (1)
- (a) (i) (1)
 - (b) (ii) (1)
 - (c) (iii) (1)
- 2.1.2 Which letters in (i) and (iii) represent the true stomach? (2)
- 2.1.3 Motivate why your answers to QUESTION 2.1.2 represent the true stomach. (2)
- 2.1.4 Give the common name for the parts labelled C and G. (1)
- 2.1.5 Name TWO micro-organisms which digest cellulose in the parts labelled E and I in diagram (iii). (2)

- 2.2 Answer the following questions based on the information on the nutritive ratio (NR).
- A feed sample contains 72% total digestible nutrients (TDN) and 8% digestible proteins (DP).
- 2.2.1 Calculate the nutritive ratio (NR) of the feed sample.
Show ALL the calculations. (4)
- 2.2.2 Explain the type of nutritive ratio (NR) that has been determined in QUESTION 2.2.1. (3)
- 2.3 Answer the following questions regarding vitamin A:
- 2.3.1 Name the forerunner (pro-vitamin) of vitamin A as it is found in nature. (1)
- 2.3.2 Briefly explain the reasons why roughages will lose vitamin A when dried in sunlight. (2)
- 2.3.3 Name TWO plant crops that can be used as good sources of pro-vitamin A. (2)
- 2.3.4 Briefly explain TWO reasons why vitamin A is essential for animals. (4)
- 2.4 Justify the inclusion of urea in the preparation of the lick for beef cattle. (3)
- 2.5 Roughages are essential in animal feeds. Answer the following questions on roughages:
- 2.5.1 State FOUR functions of roughages. (4)
- 2.5.2 Name TWO protein-rich roughages. (2)
- [35]**

QUESTION 3: ANIMAL REPRODUCTION

Start this question on a NEW page.

3.1 The following diagram represents a section through an ovary of a cow. Answer the questions that follow.



- 3.1.1 Identify the parts labelled A to E. (5)
- 3.1.2 Distinguish between A and C. (2)
- 3.1.3 Name ONE hormone secreted by E. (1)
- 3.1.4 Explain TWO functions of the hormone in QUESTION 3.1.3. (4)
- 3.1.5 Name TWO hormones responsible for ovulation. (2)

- 3.2 A farmer wishes to obtain more information on artificial insemination (AI).
 - 3.2.1 Suggest THREE important prerequisites for the successful insemination of dairy cows. (3)
 - 3.2.2 Name TWO instruments that are used for the collection of semen from a bull. (2)

- 3.2.3 State FOUR functions of semen dilutant. (4)
 - 3.3 Justify why commercial beef farmers use crossbreeding as the preferred method of breeding. (5)
 - 3.4 State THREE congenital defects that causes sterility in a bull. (3)
 - 3.5 Lack of libido plays a negative role in the breeding function of a bull. Explain how the following factors affect the libido (sexual urge) of bulls:
 - 3.5.1 Overwork/Exhaustion (2)
 - 3.5.2 Diseases (2)
- [35]**

QUESTION 4: OPTIMAL RESOURCE UTILISATION

Start this question on a NEW page.

- 4.1 Read the following case study based on optimal resource utilisation and answer the questions that follow.

Ms Phewa is an inexperienced emerging crop farmer. One day she visited a relative living far away, who was producing tomatoes and receiving good profit. When she looked at the tomatoes and the profit made, Ms Phewa was interested. On her return she decided to start tomato production in an area of about 1,5 ha. She did not consult agricultural officers regarding relevant information on tomato production. She also did not have readily available transport and a market outlet. She did not know whether people would buy her produce or not. Unfortunately her aspirations were never fulfilled because her tomato crop turned out to be a total failure.

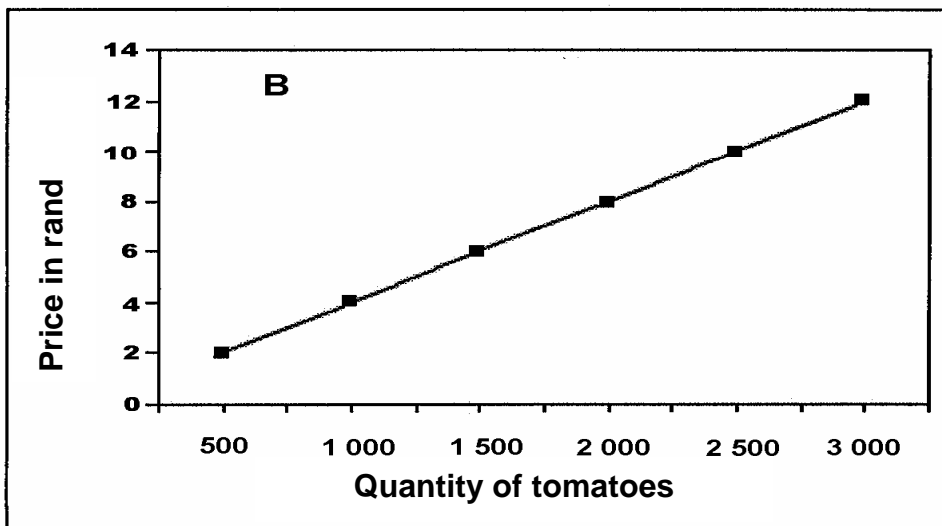
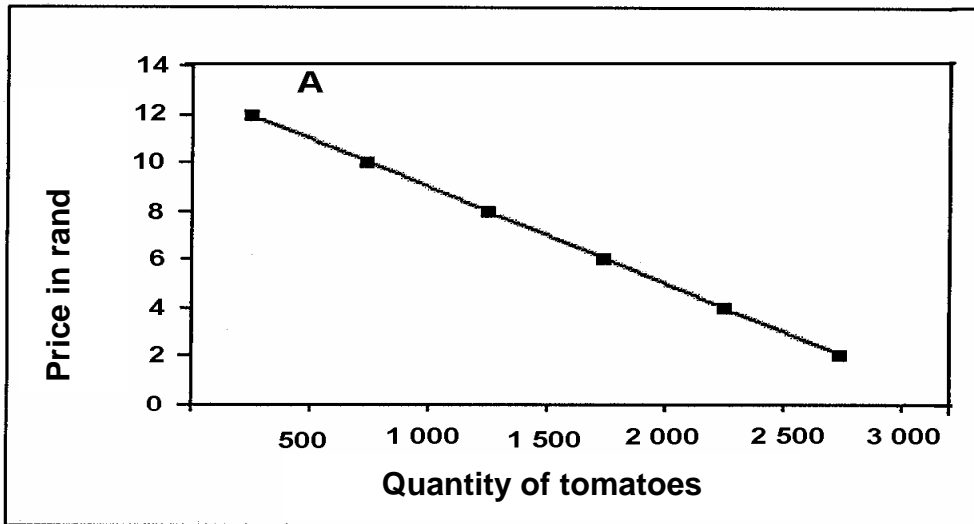
- 4.1.1 Name TWO principles Ms Phewa should have considered before growing tomatoes in order to avoid loss through total crop failure. (2)
- 4.1.2 Advise Ms Phewa regarding other principles not mentioned in QUESTION 4.1.1 that she should bear in mind in order to be successful when deciding on a crop to cultivate. (3)
- 4.2 Briefly explain why ploughing is an important practice in crop production. (5)
- 4.3 The world is currently experiencing climatic changes. Name the FIVE climatic factors that influence crop adaptation. (5)
- 4.4 Suggest TWO appropriate measures that can be used in reducing soil erosion on agricultural land. (4)
- 4.5 Injudicious agricultural practices contribute to the pollution of the environment. Name any SIX such agricultural malpractices. (6)

[25]

QUESTION 5: AGRICULTURAL ECONOMICS

Start this question on a NEW page.

5.1 The graphic representations A and B below illustrate the interaction between price, supply and demand. Answer the questions that follow.



5.1.1 Identify the graphic representation illustrated by A. (1)

5.1.2 Explain your interpretation of the graph illustrated as A. (2)

- 5.1.3 Indicate which graph (A or B) best illustrates a hypothetical supply curve. (1)
- 5.1.4 Explain your interpretation of the graph illustrated as B. (2)
- 5.2 Suggest solutions to the following problems associated with farm labour in South Africa:
- 5.2.1 Scarcity of labour (2)
- 5.2.2 Lack of skills (2)
- 5.3 Ms Phala is an emerging farmer in one of the provinces in South Africa. Name FIVE management principles she should apply in agricultural production. (5)
- 5.4 Explain the following types of capital that a farmer has access to, with an appropriate example of each:
- 5.4.1 Fixed capital (2)
- 5.4.2 Movable capital (2)
- 5.4.3 Working/Floating capital (2)
- 5.5 Assist your neighbour to identify FOUR advantages of the free-market system. (4)
- [25]**

TOTAL SECTION B: 120

GRAND TOTAL: 150