



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

AGRICULTURAL SCIENCES P1

FEBRUARY/MARCH 2011

MEMORANDUM

MARKS: 150

This memorandum consists of 9 pages.

SECTION A**QUESTION 1.1**

1.1.1	A	X ✓✓	C	D
1.1.2	A	X ✓✓	C	D
1.1.3	A	B	X ✓✓	D
1.1.4	A	X ✓✓	C	D
1.1.5	A	X ✓✓	C	D
1.1.6	X ✓✓	B	C	D
1.1.7	A	B	C	X ✓✓
1.1.8	X ✓✓	B	C	D
1.1.9	A	B	C	X ✓✓
1.1.10	A	B	X ✓✓	D

(10 x 2) (20)

QUESTION 1.3

- 1.3.1 Proventriculus/glandular stomach ✓✓
-
- 1.3.2 Vitamin A ✓✓
-
- 1.3.3 Feedlot/pig unit/broiler unit/intensive production unit ✓✓
-
- 1.3.4 Quarantine station ✓✓
-
- 1.3.5 Testes ✓✓
-

(5 x 2) (10)

QUESTION 1.2

1.2.1	B ✓✓
1.2.2	C ✓✓
1.2.3	D ✓✓
1.2.4	A ✓✓
1.2.5	B ✓✓

(5 x 2) (10)

QUESTION 1.4

- 1.4.1 Bile ✓✓
-
- 1.4.2 Shed/shelter/enclosure/housing/tree ✓✓
-
- 1.4.3 Milking parlour/milking shed/crush ✓✓
-
- 1.4.4 Cryptochidism ✓✓
-
- 1.4.5 Milk fever/Hypocalcaemia ✓✓
-

(5 x 1) (5)

TOTAL SECTION A: 45

SECTION B**QUESTION 2**

- 2.1 The passage/movement of food in the alimentary canal
- 2.1.1 Name of the specific food mixed with saliva
• Bolus ✓ (1)
- 2.1.2 Identification of the tube
• Oesophagus/gullet ✓ (1)
- 2.1.3 The process of moving down the food in the alimentary canal
• Peristalsis/ ✓ (1)
- 2.1.4 Name of the enzyme found in the food/bolus.
• Ptyalin/salivary amylase ✓ (1)
- 2.1.5 The chemical change created by ptyalin/salivary amylase
Breaks down/converts/changes starch/polysaccharides ✓ into maltose ✓ (2)
- 2.2 **Diagrams of digestive systems of farm animals**
- 2.2.1 A: Rumen ✓
B: Omasum ✓
C: Abomasum ✓ (3)
- 2.2.2 Diagram 2 ✓ and
Small structures/compartments ✓
Undeveloped structures/compartments/rumen not developed ✓ (2)
- 2.2.3 Roughage/hay ✓
Water ✓ (2)
- 2.2.4 The young ruminant stomachs/rumen/reticulo-rumen are not yet developed ✓ and do not have the ability to digest cellulose ✓ (2)
- 2.2.5 Milk is a liquid and water intake will influence the quantities of milk intake/animal should not be thirsty or too full with water or oversupplied with water ✓ (1)

2.3 Urea as a NPN source

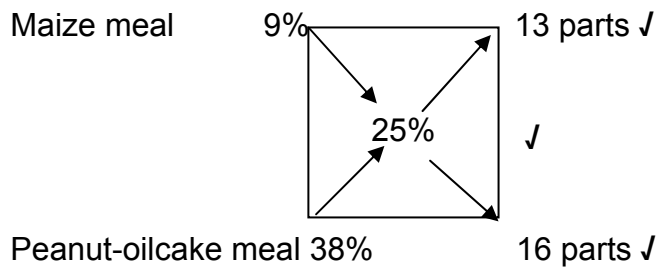
- 2.3.1 In the season when the pastures are dry/winter in summer rainfall area/summer in winter-rainfall area/during droughts ✓
The plants are pale and not green – no chlorophyll or other components that are rich in protein ✓ (2)
- 2.3.2 Nitrogen ✓ (1)
- 2.3.3 Supplied to supplement feed components/vitamins/proteins/minerals/carbohydrates ✓
that are not sufficiently available to the animal ✓
To improve the growth of the animal ✓
To improve the production of the animal ✓ (Any 2) (2)
- 2.3.4 Urea should be hydrolysed ✓ (1)

2.4 Lucerne pasture

- 2.4.1
$$\text{NR} = 1: \frac{\%TDN - \%DP}{\%DP} \checkmark$$

$$= 1: \frac{75\% - 13\%}{13\%} \checkmark$$

$$= 1:4,8 \checkmark$$
 (3)
- 2.4.2 Not suitable ✓ and
The ratio is below 1 : 6 ✓
Lucerne is a good protein source/rich in proteins ✓
It is more expensive than other sources of carbohydrates which can rather be used for fattening purposes ✓ (Any 2) (2)
- 2.4.3 The digestibility of younger plants are higher/at this stage the plant has a high digestibility ✓
The plants has plenty of green nutritious leaves/has a higher protein value at this stage ✓
The plants are still succulent/herbaceous ✓ (Any 1) (1)

2.5 Ratio in which feeds are mixed

Ratio: 13 : 16 ✓

or

13 parts maize meal mixed with 16 parts peanut-oilcake meal ✓ (4)

2.6 Feed Components

2.6.1 Feed A ✓ (2)
It has the highest protein content for growth ✓

2.6.2 Sodium/Na ✓ (1)
[35]

QUESTION 3**3.1 Structures for animal control**

3.1.1 C ✓ (1)

3.1.2 F ✓ (1)

3.1.3 A/D/E ✓ (1)

3.1.4 B ✓ (1)

3.1.5 E ✓ (1)

3.2 Increasing production

3.2.1 Characteristics of the Drakensberger:

(a) Resistant to heat and drought/hardy animal Dark skin/
pigmentation/adapted to local harsh conditions ✓ (1)

(b) Very good walkers/strong legs ✓ (1)

(c) Very resistant to pests and parasites ✓ (1)

3.2.2 Reasons for good production:

- Very fertile ✓
- High milk production /produce healthy and heavy weaners ✓
- Strong maternal instincts ✓ (Any 2) (2)

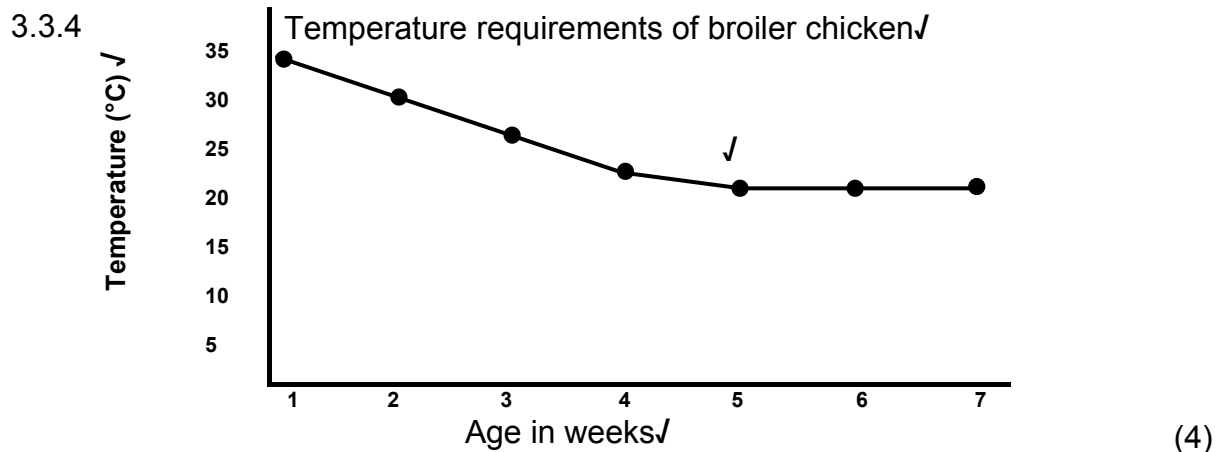
3.2.3 The heat energy that was supposed to be used to keep them warm ✓
will now be used to maximize production ✓
or
by the provision of shelter animals are kept cooler/more protected from the heat ✓
and will produce at higher levels ✓ (2)

3.3 **Graph of temperature requirement for broiler chickens**

3.3.1 35 °C (1)

3.3.2 4 weeks (1)

3.3.3 At a very young age the temperature requirements is high (35 °C) and gradually becomes less up to 4 weeks of age ✓
It then stays constant at 20 °C ✓ (2)

3.4 **Abnormal behaviours of livestock**

- Mutilation/behaviour that hurts the animals or another ✓
- Repetitive behaviours ✓
- Abnormal reproductive behaviours ✓
- Aggressive behaviours ✓ (Any 2) (2)

3.5 Goat handling facility

- 3.5.1 Yes an intensive unit ✓ and
Capital intensive ✓
Kept in high density/restricted area ✓
Special feeding facilities/specially formulated feeds ✓
Animals controlled and carefully supervised ✓
There is a control of environmental factors ✓ (Any 2) (2)
- 3.5.2 (a) E ✓ (1)
(b) D ✓ (1)
(c) C/E ✓ (1)
(d) B ✓ (1)
(e) A ✓ (1)
- 3.5.3 Animal manure is placed in a pit/compost heap/dumping site/landfill site ✓ (1)

3.6 Animals in transit

- 3.6.1 Do not combine young and old animals together ✓
The floor of the truck must not be slippery ✓
Obtain a movement permit/other relevant documents ✓
Strong structures/enclosure ✓ (Any 3) (3)
- 3.6.2 Meat is bruised/bloody ✓
Delayed rigor mortis ✓
Poor colour/pale meat ✓
Meat gets tough ✓ (Any 2) (2)
- [35]**

QUESTION 4**4.1 The process of spermatogenesis**

- 4.1.1 The primary male sex cells develop in the tubules of the testis ✓
and
form spermatozoa ✓ (2)
- 4.1.2 Testis ✓ (1)
- 4.1.3 Spermatocytogenesis ✓ (1)

- 4.1.4 The halving of the number of chromosomes in the reproductive cells ✓
To transport the genetic information to the reproductive cells (outflanking) ✓ (2)
- 4.1.5 Hypoplasia ✓
Cryptorchidism ✓
Sperm defects ✓ (Any 2) (2)
- 4.2 **Hormone levels of farm animals**
- 4.2.1 A – FSH ✓
C – progesterone ✓ (2)
- 4.2.2 Symptoms of oestrus ✓ (1)
- 4.2.3 Ovulation/rupturing of the follicle/release of ovum ✓ (1)
- 4.2.4 The corpus luteum secrete the hormone progesterone ✓ (1)
- 4.2.5 FSH ✓ (1)
- 4.3 Technique used in animal reproduction
- 4.3.1 Flushing of fertilised eggs/embryos from the female uterus/embryo transplantation ✓ (1)
- 4.3.2 The liquid flushing medium is used to move the embryos in the uterus ✓
The flushing medium is firstly injected into the uterus through the reproduction canal ✓ and
Then the flushing medium is forced out of the animal to catch the embryos ✓
The liquid medium protects the embryos while it is moved ✓ (Any 3) (3)
- 4.3.3 A large number of offspring from a single superior animal ✓
Surrogate/recipient cows now reproduce valuable offspring ✓ (Any 1) (1)
- 4.4 **Indigenous knowledge of controlling animal diseases and pests**
- 4.4.1 Acaricides/contact poison ✓
Systemic formulation/drugs ✓
Ricin/organic extracts ✓ (3)

4.4.2 TWO reasons for using ricin:

- Ricin is easily obtainable from the castor-bean plant ✓
- Very cheap✓
- The extraction process of ricin is not complicated✓
- No threat of environmental pollution ✓
- They are not highly poisonous to the human beings/farm workers✓ (Any 2) (2)

4.4.3 The name of the pest that is associated with mange:

- Mites/ascaris✓ (1)

4.4.4 Poor penetration✓ into the fur and skin✓

(2)

4.5 **Label of Lintex medication**

4.5.1 Act 36 of 1947 ✓ (1)

4.5.2 Cool ✓
Dry places ✓ (Any 1) (1)

4.5.3 50% effective in more than 50% of the treated animals ✓ (1)

4.5.4 Sheep: 80 x 15 ml
= 1 200 ml/1,2 litre ✓
Lamb: 30 x 5 ml
= 150 ml ✓
Total: 1 200 ml + 150 ml = 1 350 ml ✓ (3)4.5.5 Rotational grazing ✓
Avoid wet places ✓
Avoid keeping animals in pens ✓
Use biological/indigenous methods of control ✓ (Any 2) (2)
[35]

TOTAL SECTION B: 105
GRAND TOTAL: 150