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 1.2

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 1.3

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 1.4

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

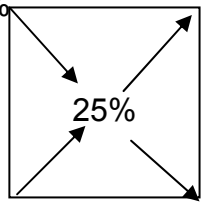
2.4.1 NR = 1: $\frac{\%TDN - \%DP}{\%DP}$ ✓
= 1: $\frac{75\% - 13\%}{13\%}$ ✓
= 1:4,8✓ (3)

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**

Maize meal 9% 13 parts ✓



✓

Peanut-oilcake meal 38% 16 parts ✓

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

2.6.2 Sodium/Na ✓ (1)
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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)

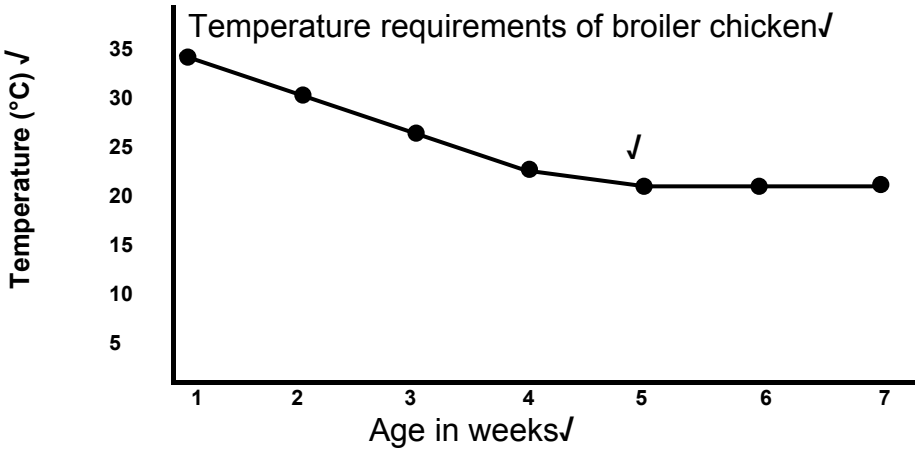
3.3 **Graph of temperature requirement for broiler chickens**

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)

3.3.4



(4)

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