



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

AGRICULTURAL SCIENCES P1

EXEMPLAR 2009

MEMORANDUM

MARKS: 150

This memorandum consists of 8 pages.

SECTION A**QUESTION 1.1**

1.1.1	A	B	X_{✓✓}	D
1.1.2	A	B	C	X_{✓✓}
1.1.3	X_{✓✓}	B	C	D
1.1.4	A	B	X_{✓✓}	D
1.1.5	A	B	X_{✓✓}	D
1.1.6	X_{✓✓}	B	C	D
1.1.7	A	B	X_{✓✓}	D
1.1.8	A	B	C	X_{✓✓}
1.1.9	A	B	C	X_{✓✓}
1.1.10	A	B	X_{✓✓}	D

(10 x 2) (20)

QUESTION 1.2

1.2.1	A_{✓✓}
1.2.2	B_{✓✓}
1.2.3	C_{✓✓}
1.2.4	A_{✓✓}
1.2.5	B_{✓✓}

(5 x 2) (10)

QUESTION 1.3

1.3.1 Crop//

1.3.2 Potential / Gross / Combustion//

1.3.3 Feedlot//

1.3.4 "Freemartin"/"Queen" //

1.3.5 Cryptorchidism//

(5 x 2) (10)

QUESTION 1.4

1.4.1 Lipase ✓

1.4.2 Reticulum/

1.4.3 Legume pasture / Roughage/

1.4.4 Seminiferous tubules / Testis/

1.4.5 Sertoli/

(5 x1) (5)

TOTAL SECTION A: 45

SECTION B**QUESTION 2****2.1 Teeth of the ruminant animal**

- 2.1.1 Lower jaw ✓ (1)
- 2.1.2 D / E ✓
All permanent teeth and wearing (erosion) of the permanent teeth ✓ (2)
- 2.1.3 Cut off the grass during the intake of feed/grazing ✓
Breaking food particles into smaller pieces/chewing ✓
Re-chewing the cud during regurgitation ✓
Softening food particles (crushing them) ✓ (Any 3) (3)
- 2.1.4 A ✓ (1)
The incisors are not yet permanent ✓
Young animal whose rumen is not yet developed ✓ (Any 1) (1)

2.2 Alimentary canal of a farm animal

- 2.2.1 Fowl / Chicken / Non-ruminant ✓ (1)
- 2.2.2 B – oesophagus ✓
D – crop ✓
F – proventriculus / glandular stomach ✓
H – ventriculus / muscular ✓
N – cloaca /vent ✓ (5)
- 2.2.3 Common opening for both digestive ✓
and urogenital systems ✓ (2)
- 2.2.4 Bile ✓ (1)
- 2.2.5 (a) H ✓ (1)
(b) D ✓ (1)
(c) J ✓ (1)

2.3 Nutrient element deficiency

- 2.3.1 Phosphorus (P) ✓ (1)
- 2.3.2 Iodine (I) ✓ (1)
- 2.3.3 Iron (Fe) ✓ (1)
- 2.3.4 Copper (Cu) ✓ (1)
- 2.3.5 Zinc (Zn) ✓ (1)

2.4 Calculation of digestibility

Moisture content = 10% of 5 kg
= 0,5 kg ✓

Dry weight of hay = 5 kg – 0,5 kg
= 4,5 kg ✓

$$\frac{\text{Dry material intake (kg)} - \text{Dry mass of manure}}{\text{Dry material intake (kg)}} \times \frac{100}{1} \checkmark$$

$$= \frac{4,5 \text{ kg} - 2 \text{ kg}}{4,5 \text{ kg}} \times \frac{100}{1} \checkmark$$

$$= 55,5\% \checkmark \quad (5)$$

2.5 The relationship between the different measures of energy

A – loss of energy ✓

B – loss of energy in the manure ✓

C – loss of energy through the urine ✓

D – metabolic energy ✓

E – loss of energy through heat losses ✓

(5)
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QUESTION 3**3.1 Sources of protein used in feeding rations of farm animals**

3.1.1 Animal protein ✓
Plant protein ✓

(2)

3.1.2 Amino-acids ✓

(1)

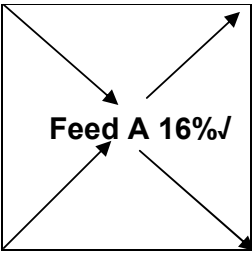
3.1.3 Fish meal ✓
Animal proteins are more expensive ✓
They are more in demand ✓
They are more scarce ✓
The processing of feed is costly/machines are involved in processing ✓

(1)

(Any 1) (1)

3.2 Schematic representation of three rations

- 3.2.1 (a) Feed A ✓
Good balance between protein, carbohydrates and lipids for working horses ✓ (2)
- (b) Feed B ✓
Most protein for growth / most lipids for energy ✓ (2)
- (c) Feed A ✓
Lots of carbohydrates and less protein needed for old ewes ✓ (2)

- 3.2.2 Maize meal 9% **24 parts** of Maize meal ✓
- 
- Soya bean meal 40% ✓ **5 parts** of Soya bean meal ✓ (4)

- 3.2.3 Maize meal ✓ (1)
Most common carbohydrate concentrate used in animal feeding ✓
Contains lots of starch ✓
Contains lots of digestible carbohydrates ✓
It has high TDN ✓ (Any 1) (1)

3.3 Lactation curve

- 3.3.1 Drop in milk production at about 18 weeks ✓
Diseased cow will experience such a drop in production ✓ (2)
- 3.3.2 Milk production recovered to its normal position ✓ (1)
- 3.3.3 Production dropped between 18 to 24 weeks ✓
Loss of income because of lower milk production in this period ✓ (2)

3.4 Table of animal production

- 3.4.1 The lowest temperature an animal can endure before major portions of the feed is utilised to maintain production (2)
- 3.4.2 Piglets ✓
 High lower critical temperature ✓
 High optimum temperature required ✓
 Lowest heat produced ✓ (Any 3)
 OR
 Chickens (day old) ✓
 High lower critical temperature ✓
 High optimum temperature required ✓
 Lowest heat produced ✓ (Any 3) (3)
- 3.4.3 (a) piglets ✓ (1)
 (b) dairy cows ✓ (1)
 (c) dairy cows ✓ (1)

3.5 Heat movement in an animal enclosure

- 3.5.1 Convection ✓
 Radiation ✓
 Conduction ✓ (3)
- 3.5.2 Radiation controlled through the walls of the building ✓
 Hot air released through the roof of the building ✓ (2)
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QUESTION 4**4.1 Diagram depicting reproductive process of the cow**

- 4.1.1 Mounting ✓ (1)
- 4.1.2 Oestrus ✓ (1)
- 4.1.3 21 days ✓ (1)
- 4.1.4 FSH ✓ (1)
- 4.1.5 Ovulation ✓ (1)
- 4.1.6 If observed in the morning ✓, then you inseminate in the afternoon,
 ✓ if observed in the afternoon ✓, then you inseminate in the morning
 ✓ (2)
 (Any 2)

4.2 Drying up and resting of cows

- 4.2.1 The ideal resting period is two months ✓ (1)
- 4.2.2 It allows a cow to restore her body reserves ✓
which have been broken down during lactation period ✓ (2)
- 4.2.3 The beneficial effect on the unborn calf (foetus) is its development ✓ (1)
- 4.2.4 The cow should not become too fat. ✓ (1)
- 4.2.5 Because the cow has to restore her body reserves ✓ (1)

4.3 Identification of the veterinary instruments

- 4.3.1 A=Burdizzo ✓
B=Elastrator ✓
C=Emasculator ✓ (3)
- 4.3.2 They are used for castration ✓
cutting of the thin ducts that carry the sperms from testes to the
penis ✓ (Any 1) (1)
- 4.3.3 No swelling of the testicles during healing ✓
No bleeding ✓
No pain is felt during the process ✓ (Any 2) (2)
- 4.3.4 Place instruments in boiling water before use ✓
Use a disinfectant like an ammonium solution to sterilise them ✓ (2)

4.4 Basic veterinary equipment and the health of the farm animal

- 4.4.1 The farm animal is sick ✓ (1)
- Two signs of the sick animal:**
- The animal is very lean/emaciated/bony ✓
Seems to walk with difficulty/limping ✓
Facial expression showing partially closed eyes and back-
bending ears are signs of a sick animal. ✓ (Any 2) (2)
- 4.4.2 (a) E ✓ (1)
(b) B ✓ (1)
(c) D ✓ (1)
(d) C ✓ (1)

4.5 The viral disease that affects farm animals

- 4.5.1 Rabies ✓ (1)
- 4.5.2 The sick animal salivates ✓
The sick animal appears to be mad ✓ / runs around ✓ / restless ✓ (2)
- 4.5.3 Sick animals are injected with the correct antibiotic / germicide ✓
Prevent it by inoculating/vaccinating the healthy animals ✓
Keep sick animals under quarantine conditions ✓ (Any 2) (2)
- 4.5.4 Rabid animals (dogs) may bite human beings who may also
become sick / the disease is infectious ✓
Meat of infected animals may be consumed by man who may also
be affected by the disease ✓ (Any 2) (2)
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TOTAL SECTION B: 105**GRAND TOTAL: 150**