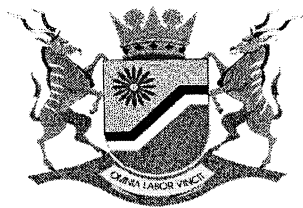


MPUMALANGA PROVINCIAL GOVERNMENT



DEPARTMENT OF EDUCATION

GRADE 12

AGRICULTURAL SCIENCES P1
PREPARATORY EXAMINATIONS 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	X✓✓	C	D
1.1.3	X✓✓	B	C	D
1.1.4	A	X✓✓	C	D
1.1.5	A	B	X✓✓	D
1.1.6	X✓✓	B	C	D
1.1.7	A	B	C	X✓✓
1.1.8	A	B	X✓✓	D
1.1.9	A	B	C	X✓✓
1.1.10	A	X✓✓	C	D

(10 x 2) (20)

QUESTION 1.2

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

(5 x 2) (10)

QUESTION 1.3

1.3.1 Rumen ✓✓

1.3.2 Nutritive ratio✓✓

1.3.3 Feedlot✓✓

1.3.4 "Freemartin"/"Queen" ✓✓

1.3.5 Prostate✓✓

(5 x 2) (10)

QUESTION 1.4

1.4.1 Salivary amylase/ptyalin/

1.4.2 Pica/

1.4.3 Legume pasture / Roughage/

1.4.4 Pistolette/

1.4.5 Cryptochidism/

(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 A – Ileum ✓
E – liver ✓
I – pancreas ✓
H – ventriculus / muscular ✓
N – cloaca / vent ✓ (5)
- 2.2.3 Common opening for both digestive ✓
and urogenital systems ✓ (2)
- 2.2.4 C ✓ (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 Schematic presentation of energy

(A) Digestible energy:

Gross energy minus energy lost through the faeces

(B) Digestible energy minus

■ energy lost in faeces

■ energy lost in urine

■ energy lost in gaseous end products (methane)

(5)

Nett energy:

(C) Metabolic energy minus energy lost in heat

(Any 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 ✓

(Any 1) (1)

3.2 **Schematic representation of three rations**

3.2.1 (a) Feed A ✓

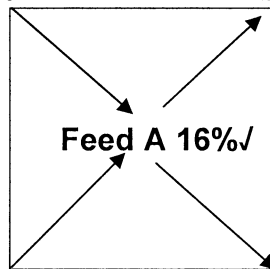
Good balance between protein, carbohydrates and lipids for working horses ✓ (2)

(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 ✓

Most common carbohydrate concentrate used in animal feeding ✓ (1)

Contains lots of starch ✓

Contains lots of digestible carbohydrates ✓

It has high TDN ✓

(Any 1) (1)

3.3 **Lactation in cows:**

3.3.1 Cow B ✓

- Body mass and feed intake correlates ✓

- Feed intake is very low and milk production is high ✓

- Uses its energy reserves for milk production ✓ (Any 1)

(2)

3.3.2 Oxytocin ✓

(1)

3.3.3

- Gives tissue and glandular material a chance to recover

- Accommodates process of mating to take place

- Accommodates cow to gather strength, energy for parturition

- Ensures that milk production does not decrease (Any 2)

(2)

[5]

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)
- [35]**

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)
- [35]**

TOTAL SECTION B: 105**GRAND TOTAL: 150**