Province of the
EASTERN CAPE
EDUCATION

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REPUBLIC OF SOUTH AFRICA

CHIEF DIRECTORATE – CURRICULUM MANAGEMENT

GRADE 12 LEARNER SUPPORT PROGRAMME

REVISION AND REMEDIAL TEACHING INSTRUMENT: ANSWERS

SUBJECT: AGRICULTURAL SCIENCES – FIRST PAPER

June 2009

This document consists of 8 pages.

Strictly not for test/examination purposes

SECTION A/AFDELING A

SURNAME:..... NAME:.....

QUESTION 1.1

1.1.1	A	B	~~C~~	D
1.1.2	A	~~B~~	C	D
1.1.3	A	B	C	~~D~~
1.1.4	A	~~B~~	C	D
1.1.5	~~A~~	B	C	D
1.1.6	A	B	~~C~~	**D**
1.1.7	A	B	C	~~D~~
1.1.8	~~A~~	B	C	D
1.1.9	A	~~B~~	C	D
1.1.10	A	B	~~C~~	D

(10 x 2) (20)

QUESTION 1.3

1.3.1 Crop

1.3.2 Enterocrynin

1.3.3 Superovulation

1.3.4 Glycogen/animal starch

1.3.5 Weaning (5 x 2) (10)

QUESTION 1.2

	ONLY A	ONLY B	A and B	None
1.2.1	A	B	~~C~~	D
1.2.2	~~A~~	B	C	D
1.2.3	A	B	C	~~D~~
1.2.4	A	~~B~~	C	D
1.2.5	~~A~~	B	C	D

(5 x 2) (10)

QUESTION 1.4

1.4.1	Emulsification
1.4.2	Hypoplasia
1.4.3	Iodine
1.4.4	Homeothermic /homothermic / warm-blooded
1.4.5	Met-oestrus

(5 x 1) (5)

TOTAL SECTION A: 45

SECTION B

QUESTION 2

2.1 Case Study – Nutrition

2.1.1
- No legumes in the pasture√
- No supplements in ration√
- Not fed with concentrates √ (Any 2) (2)

2.1.2
- Ration should be well-balanced √with a high protein content√ having a high biological value. √ (Max 2) (2)

2.1.3 Iron/iron chelate/ferrous sulphate√ (1)

2.1.4 Vitamin B_2 / riboflavin√ (1)

2.1.5 Soya beans√ (1)

2.2 Calculation: co-efficient of digestibility

Moisture content of feed (green lucerne) = $\frac{58}{100}$ x 3 200 g
= 1 856 g√

Dry matter content of feed = (3 200 – 1 856) g
= 1 344 g√

Moisture content of faeces = $\frac{45}{100}$ x 1 250 g
= 562,5 g√

Dry matter in faeces = (1 250 – 562.5) g
= 687,5 g√

Dry matter digested and absorbed = (1 344 – 687,5) g
= 656,5 g √

Co-efficient of digestibility = $\frac{656,5\ g}{1\ 344\ g}$ x 100√
= 48,85 %√ (7)

2.3 **Reproductive organs – cow**

2.3.1 A = ovary√
D = fallopian tube/oviduct /egg tube√
F = vulva√
G = vagina√
H = uterine body/uterus/womb√
I = uterine horn√ (6)

2.3.2 D√
fallopian tube/oviduct/egg tube√ (2)

2.3.3 Oestrogen√
Progesterone√
Relaxin√ (3)

2.4 **Infertility in bulls**

Lack of libido/sexual urge√
Impotence/inability to copulate√
Sterility/inability to fertilise√ [3]

2.5 **Case Study – Breeding methods**

2.5.1 Cross-breeding√ (1)

2.5.2
- Heterosis/hybrid vigour√√
- Grow faster√√
- Resistance to diseases√√
- Better mother instinct√√
- Increased fertility√√
- Better adaptability√√
- Better utilisation of feed/high feed efficiency ratio√√
- Greater strength and viability√√
- Improved production√√ (Any 2 x 2) (4)

2.5.3 Indigenous animal production is usually through inbreeding. √√ (2)

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QUESTION 3

3.1 Animal production

- Age√
- Health status√
- Type of feed/level of feeding√
- Environmental climate/weather√
- Type of animal√
- Breed of animal√
- Tameness√
- Physiological state√
- Housing/provision of shelter√
- General management√ (Any 5) (5)

3.2 Breeding methods

- Cross breeding/hybridisation√
- Up-grading/grading up√
- Species crossing√ (Any 2) (2)

3.3 Nutrition – alimentary canals

3.3.1 A = Ruminant/cow/bull/goat/sheep√
B = Fowl √
C = Monogastric animal/pig/horse√ (3)

3.3.2 2√ = abomasum/true or milk stomach√
4√ = proventriculus/gland or glandular stomach/true stomach√
7√ = simple stomach√ (6)

3.3.3. 1√ (1)

3.3.4
- Inability of proteoses and peptones to undergo digestion√√
- Lack of trypsin and chemotrypsin√√
- Improper digestion of lipids/Insufficient lipase in digestive system√√
- Absence of insulin/blood sugar-not polymerised√√
- Absence of glucagon√√
- Absence of pancreatic amylase to assist in carbohydrate digestion√√ (Any 3 x 2) (6)

3.4 **Artificial insemination**

3.4.1 Artificial vagina√. Used for the collection of semen. √√ (3)

3.4.2 Electrical stimulation√ (1)

3.4.3 For artificial insemination√ (1)

3.4.4
- Superior male animals can fertilise more females. √
- Semen from male animals from other countries can be used. √
- A quick method to improve quality of the herd. √
- Quick and valuable method to do progeny testing. √
- Improves commercial value of herd. √
- Semen from superior animals could kept and used long after their death. √
- Decreases inbreeding. √ (Any 3) (3)

3.5 **Pregnancy problems**

Maceration: foetus dies in uterus and body decays. Loose bones are left in uterus. √ (Any 1 x 1) (1)

Cow may die if loose bones of foetus are not removed by surgical means. √ (Any 1 x 1) (1)

Mummification: foetus dies in uterus after skin and bones have been formed. √ Placenta and body fluids are absorbed, √ leaving a dead, dried foetus in the uterus. (Any 1 x 1) (1)

If mummy is not aborted or surgically removed from uterus the cow may die. √ (Any 1 x 1) (1)

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QUESTION 4

4.1 **Lactation – graph**

4.1.1 Eighth (8^{th}) week√ (1)

4.1.2 As percentage√ butter fat content decreases, √ milk yield increases √ (as percentage√ butter fat content increases, √ milk yield decreases√).

OR

Percentage√ butter fat content is inversely proportional√ to the quantity of milk produced. √ (3)

4.1.3
- Contains antibodies/Provides partial immunity to calf√
- Rich in vitamins√
- Rich in minerals√ (Any 2) (2)

4.2 **Oestrus cycle**

4.2.1 Ovulation√
Luteinizing hormone (LH) √ (2)

4.2.2 Enlargement of fallopian tube as a result of the development of zygote√ which may lead to bursting of fallopian tube. √ (2)

OR

Ectopic condition√ may result in the death of animal. √

4.2.3
- Maintenance of pregnancy√ through the production of progesterone. √
- Secretes relaxin at the end of pregnancy for parturition. √ (3)

4.2.4 Follicle-stimulating hormone (FSH) √ (1)

4.2.5 Triggers oestrus/heat (1)

4.3 **Calculation: Nutritive ratio**

4.3.1 TDN = 96%
DP = 24%
Digestible non-nitrogen substances (DNNS) = 96 – 24
= 72% √

Nutritive Ratio (NR) = 1: $\frac{\%DNNS}{\%DP}$ √

$= 1: \frac{72}{24}$ √

NR = 1:3√ (4)

4.3.2 High protein content√ resulting in narrow nutritive ratio. √ (2)

4.4 Animal production

4.4.1 Burdizzo pincers/knife/emasculator/rubber ring√ (Any 1) (1)

4.4.2 Mealie plants√ (1)

4.4.3
- Peanuts√
- Sunflower√ (2)

4.4.4
- Essential for optimal growth√
- Rich in nutrients — proteins; minerals; vitamins; carbohydrates√
- Used to balance rations√
- Necessary for fattening√
- Used for increased milk, egg, wool and meat production√
- Indispensable in the rations of pigs and fowls√ (Any 5) (5)

4.4.5
- Exposure to extreme climatic conditions√
- Loss of appetite on hot days√
- Restlessness√
- Inactivation of enzymes in animal's body√
- Poor production√ (5)

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TOTAL SECTION B: 105

GRAND TOTAL: 150