



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

AGRICULTURAL SCIENCES P2

MEMORANDUM

NOVEMBER 2008

MARKS: 150

This memorandum consists of 11 pages.

SECTION A**QUESTION 1.1**

1.1.1	A	B	C	X₁₁
1.1.2	A	B	C	X₁₁
1.1.3	A	X₁₁	C	D
1.1.4	A	X₁₁	C	D
1.1.5	A	X₁₁	C	D
1.1.6	A	X₁₁	C	D
1.1.7	A	X₁₁	C	D
1.1.8	A	B	C	X₁₁
1.1.9	A	X₁₁	C	D
1.1.10	X₁₁	B	C	D

(10 x 2)(20)

QUESTION 1.2

1.2.1	H₁₁
1.2.2	F₁₁
1.2.3	L₁₁
1.2.4	E₁₁
1.2.5	G₁₁

(5 x 2) (10)

QUESTION 1.3

1.3.1	solubility ₁₁
1.3.2	75%/seventy five percent ₁₁
1.3.3	grading/classification ₁₁
1.3.4	diversification ₁₁
1.3.5	maltose/malt sugar ₁₁
(5 x 2) (10)	

Take note:**1.3.1 solubility in fat/water ₁₁****QUESTION 1.4**

1.4.1	chemical ₁
1.4.2	rumen / reticulum / reticulo-rumen large stomach/net stomach/honeycomb stomach ₁
1.4.3	fluctuation/elasticity ₁
1.4.4	seasonal/temporary ₁
1.4.5	Iodine ₁
(5 x 1) (5)	

TOTAL SECTION A: 45

SECTION B**QUESTION 2****2.1 INTERNAL STRUCTURES OF A RUMINANT STOMACH**

- 2.1.1
- A – abomasums/true stomach/milk stomach ✓
 - B – omasum/leaf stomach ✓
 - C – reticulum/honeycomb stomach/net stomach/hardware stomach ✓
- (3)
- 2.1.2 (a) B ✓ (1)
- (b) C ✓ (1)
- (c) A ✓ (1)
- [6]

2.2 FODDER FLOW

- 2.2.1 $\frac{60}{100} \times \frac{50\,676}{1} \checkmark = 30\,405,6 \text{ kg} / 30\,406 \text{ kg} \checkmark$ (2)
- 2.2.2 $37\,000 \text{ kg} \div 30\,405,6 \text{ kg} \checkmark = 1,22 \text{ cows} \checkmark$ (2)
- 2.2.3 **Roughage**
- contain a small percentage of digestible nutrients/TDN < 60% ✓
 - much crude fibre ✓
 - large/high volume per mass unit/bulky ✓ (any 1)
- Concentrates**
- contain a large percentage of digestible nutrients/TDN > 60% ✓
 - little crude fibre ✓
 - small/low volume per mass unit ✓ (any 1) (2)
- [6]

2.3 NUTRITIVE RATIO

- 2.3.1 **Feed type A:** $81,9\% - 6,9\% = 75,0\% \checkmark$
 $= 1 : \frac{75,0}{6,9} \checkmark$
 $= 1 : 10,9 \checkmark \quad / \quad 1:11 \checkmark$ (any 2) (2)
- Feed type B:** $78,0\% - 13,2\% = 64,8\% \checkmark$
 $= 1 : \frac{64,8}{13,2} \checkmark$
 $= 1 : 4,9 \checkmark \quad / \quad 1:5 \checkmark$ (any 2) (2)

- 2.3.2
- Feed type B ✓
 - High concentration of/much protein with high biological value is essential for growth/ratio is less than 1:6/ratio is narrow ✓
- (2)
[6]

2.4 BUSINESS PLAN

2.4.1

Farm foreman	Farm worker
<ul style="list-style-type: none"> • 50%/medium ability for insight to make sure the tasks is well implemented. ✓ 	<ul style="list-style-type: none"> • 10-20%/Very low ability for insight, because farm manager and foreman are responsible. ✓
<ul style="list-style-type: none"> • 50%/medium ability to work with people. He is responsible for optimum work conditions. ✓ 	<ul style="list-style-type: none"> • 50%/medium ability to work with people. Collaborates with other workers to get the work done. ✓
<ul style="list-style-type: none"> • 50%/medium ability to work with his hands. He must be able to show the workers how the work must be done and some of the work is his responsibility. ✓ 	<ul style="list-style-type: none"> • Must be 100%/high technically proficient, because the farm worker must be able to do all the physical labour on the farm. ✓

(6)

- 2.4.2 **Steps of planning:**
- estimations and predictions✓
 - state aims/goals/objectives ✓
 - policy laid down✓
 - programmes determine what should be done/plan of action✓
 - schedules state when it should be done✓
 - procedures state how an activity ought to be carried out ✓
 - rules require actions in a specific and defined way ✓
 - SWOT analysis ✓
 - budget express the plans ✓
 - control and evaluation ✓
- (any 4) (4)

- 2.4.3 Farm manager/entrepreneur/farm foreman/Agri-business person✓ (1)
[11]

2.5 BREEDING PROGRAMME

2.5.1 Upgrading ✓ (1)

2.5.2 **Advantages:**

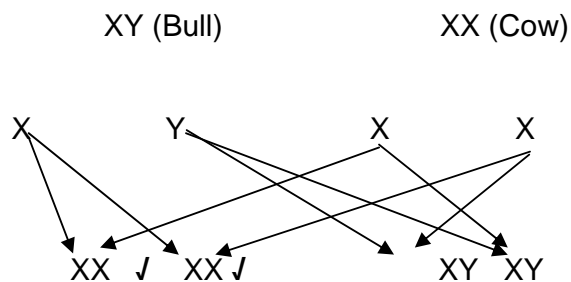
- an economic form of breeding, only a pure-bred male is bought/cheap form of breeding ✓
- rapid system of breeding ✓
- no specialised knowledge is required ✓
- poor recessive characteristics suppressed ✓ (any 1) (1)

2.5.3

		Cow	
		X	X
Bull	X	XX	XX
	Y	XY	XY

or

Please note: This could also be in a alternative format



(2)

2.5.4 F_1 generation = 50%
 F_2 generation = $50\% + \frac{50\%}{2}$
 $= 75\%$
 F_3 generation = $75\% + \frac{25\%}{2}$
 $= 87,5\%$

3 generations ✓✓

(2)

[35]

QUESTION 3**3.1 AI (ARTIFICIAL INSEMINATION)**

- 3.1.1 High levels✓
of oestrogen secreted ✓ (2)
- 3.1.2
- Responsible for the final preparation of uterine wall ✓✓
 - Increased blood supply to the uterus ✓✓
 - Relaxing of the muscles of the cervix ✓✓
 - Preventing bacterial infection ✓✓
 - Delay the secretion of FSH ✓✓
 - Responsible for heat signs ✓✓ (any 2) (2)
- 3.1.3 The afternoon/after 12 hours ✓ (1)
- 3.1.4 Ovulation /release of ripe ovum (egg)/bursting or rupturing of graafian follicle ✓✓ (2)
[7]

3.2 EXTERNAL PARASITES

- 3.2.1 A – Tick ✓
G – Flea ✓ (2)
- 3.2.2 (a) D ✓
(b) A or H ✓ (2)
- 3.2.3 A or H ✓✓ (2)
- 3.2.4
- Spot treatment/spray method/systemic methods/veld fires/rotation grazing✓
 - Biological/using predators✓ (any 1) (1)
[7]

3.3 INDIGENOUS CATTLE

- 3.3.1
- Utilise poor pastures ✓
 - Strong walkers ✓
 - Loose skin – radiating surface/dewlap ✓
 - Sleek hair/short hair ✓
 - Hump ✓
 - Long scrotum ✓
 - Longer bodies ✓ (any 2) (2)
- 3.3.2 Bonsmara/Drakenburger/Afrikaner/Pedi/Nguni ✓ (1)
[3]

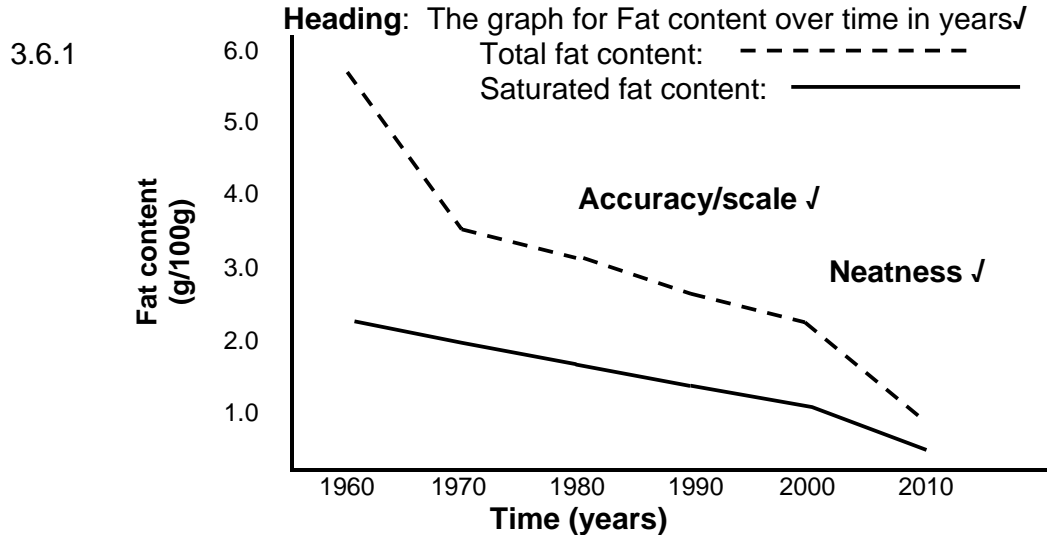
3.4 HIV/Aids

- 3.4.1
- productivity will decrease ✓
 - because experience and knowledge have been lost ✓
 - shortage of skilled labour ✓
 - loss of young productive labour force ✓ (any 2) (2)
- 3.4.2
- Establishment of HIV/AIDS support groups ✓
 - Media coverage of HIV/AIDS/awareness campaigns ✓
 - Abstinence from unprotected casual sexual activities ✓
 - Access to condoms ✓
 - Access to treatment for sexually-transmitted infection ✓
 - Access to anti-retroviral drugs ✓
 - Encourage religious practices (church) ✓ (any 4) (4)
- 3.4.3
- Labour Relations Act ✓
 - Basic Conditions of Employment Act ✓
 - Occupational Health and Safety Act ✓
 - Compensation for Occupational Injuries and Diseases Act ✓ (any 1) (1)
- [7]

3.5 CAPITAL

- 3.5.1
- Produced goods can be utilised for further production ✓
 - Production factor which is created by the economic process, i.e. by human endeavour/money or equipment accumulated by savings for production purposes ✓ (1)
- 3.5.2
- Land Bank ✓
 - Agricultural Credit Board ✓
 - Agricultural co-operatives ✓
 - Commercial banks ✓
 - Insurance companies ✓
 - Trust companies ✓ (any 2) (2)
- 3.5.3 Fixed capital/movable capital ✓ (1)
- [4]

3.6 RESEARCH



Both indicators ✓

Use the following simple rubric to mark this graph:

Criteria	0 mark	1 mark
Accuracy/scale	No scale/ not correctly plotted/ inaccurate lines	Proper scale/ correctly plotted/ accurate lines
Headings	No heading	Correct headings
Indicators	No indicators	Correct indicators for x- and y-axis
Neatness	Very untidy/ no ruler used	Used ruler to draw straight lines

(4)

3.6.2 Drop/decrease/decline ✓

(1)

3.6.3 Health consciousness/Genetic modifications of animals ✓

(1)

- 3.6.4
- Consumer demands ✓
 - Supplier is now aware of the eating/consumer behaviour or needs ✓

(any 1)

(1)

[7]

[35]

QUESTION 4**4.1 Handling of farm animals**

- 4.1.1
- Breed B/ and any 1 of the following:
 - Fluctuation in milk production show that the animals were nervous during the milking process ✓
 - Annual milk production seems to be higher ✓ (2)

4.1.2 Breed A/B/ (1)

- 4.1.3
- young animals stressed and might die ✓
 - can cause serious injuries (stampede) ✓
 - loss of production (e.g. milk production) ✓
 - lower the grading of animal products ✓
 - delayed rigor mortis (tough meat) ✓
 - poor meat quality (meat which has been bruised) ✓ (any 4) (4)
- [7]

4.2**Example:**

Owner : _____

Contact details: _____

Name of farm: _____

District : _____

Date : _____

Type/description of animals: _____

Number of animals: _____

Transport detail: _____

(Owner)

(Buyer)

Use the following checklist to mark this question:

Item	Not visible 0	Visible 1
Details of owner/farm		
Date		
Description/Number of animals		
Signatures (owner/buyer)		

(4)
[11]

4.3 NUTRITION OF ANIMALS IN SUMMER RAINFALL AREA

- 4.3.1 Vitamin A ✓ **and any 1 of the following:**
- normal vision sharpness ✓
 - maintenance of the mucus layers ✓
 - normal reproduction ✓
- (2)
- 4.3.2
- Pastures are dry/brown in colour/seems dead✓✓
 - Carotene is the pro-vitamin of vitamin A, which is found in green plant parts/pastures are then deficient in carotene ✓✓
- (4)
[6]

4.4 CRITICAL AND SCARCE SKILLS IN THE AGRICULTURAL SECTOR (AgriSETA)

- 4.4.1
- Improve the productivity of their workers ✓
 - More proficient workforce ✓
 - Higher production outputs ✓
 - Funding from government is available ✓
 - Workers develop a sense of achievement/motivation improve ✓
- (any 3) (3)
- 4.4.2
- Higher income possibilities ✓
 - Improved living conditions ✓
 - Better career opportunities ✓
- (any 2) (2)
- 4.4.3
- Offer better salaries/income possibilities ✓✓
 - Train agricultural workforce ✓✓
 - Skilled, accountable labourers ✓✓
 - Remunerate over time by industry ✓✓
 - Better labour management in industry ✓✓
 - Better working conditions in industry might loose labours ✓✓
- (any 2) (2)
[7]

4.5 MARKETING OF BEEF

- 4.5.1 **Open-ended question/Answer depends on the reason**
e.g. Auctions/ **and any 1 of the following**
there are lots of capital and buyers together and/or ✓
they are in competition to offer the highest prices ✓
- (2)
- 4.5.2 Local people who buy directly from the farm (security risk) ✓
Criminals might use such opportunity to rob farmers ✓
- (2)
[4]

4.6 BELL-SHAPED CURVE FOR MILK PRODUCTION

- 4.6.1
- Most (% of population) of the population produce at the average (number of population at the average value) ✓
 - Some (% of population) of the population produce above the average (number of population above average) ✓
 - Some (% of population) of the population are producing below the average (number of population below average) ✓ (3)
- 4.6.2
- The genes of the later generation improved with regard to milk production ✓✓ or
 - there was a response to selection in this herd ✓✓ (any 2) (2)
- 4.6.3
- The animals in the population that produce above the average/the animals that produce the most milk ✓✓ (2)

[7]

[35]**TOTAL SECTION B: 105**