Education and Sport Development
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NORTH WEST PROVINCE

PROVINCIAL ASSESSMENT

GRADE 12

AGRICULTURAL SCIENCES

JUNE 2019

MARKING GUIDELINE

MARKS: 150

TIME: 2½ hours

This marking guideline consists of 8 pages

SECTION A

QUESTION 1

1.1	1.1.1	C √√		
	1.1.2	A √√		
	1.1.3	A √√		
	1.1.4	B √√		
	1.1.5	C √√		
	1.1.6	C √√		
	1.1.7	A √√		
	1.1.8	D √√		
	1.1.9	A √√		
	1.1.10	B √√	(10 X 2)	(20)
1.2	1.2.1	Both A and B √√		
	1.2.2	None √√		
	1.2.3	A only √√		
	1.2.4	A only √√		
	1.2.5	B only √√	(5 x 2)	(10)
1.3	1.3.1	Abomasum/True stomach/milk stomach √√		
	1.3.2	Nett energy √√		
	1.3.3	Bedding√√		
	1.3.4	Reproductive cloning√√		
	1.3.5	Free martin √√	(5 x 2)	(10)
1.4	1.4.1	Nutritional/ Nutrients/Feed/Ration/Feeding √		
	1.4.2	Silage √		
	1.4.3	Pistolet √		
	1.4.4	Intermediary/ Intermediate √		
	1.4.5	Endodermic √	(5 x 2)	(5)

TOTAL SECTION A: 45

SECTION B

QUESTION 2: ANIMAL NUTRITION

2.1 Digestive system of a farm animal

2.1.1 Pig √ (1)

2.1.2 Simple stomach √ (1)

2.1.3 Liver√ and Pancreas √ (2)

2.1.4 B - Jejenum

C – Colon (2)

2.2 Digestibility coefficient

2.2.1 8% (0,08) x 30kg = 2,4kg √

Dry material = 30kg – 2,4 kg = 27,6kg √

DC= Dry matter intake (kg) – Dry matter of manure x 100 √

Dry matter intake

= 27,6 kg – 12 kg x 100

27,6 kg

= 56,52√ %√ (5)

2.2.2 (a) **Preparation of feed –** Grilled,soaked,boiled,milled maize is more digestible√ than ordinary maize√ (2)

(b) **Composition of feed –** The higher the crude fibre content the lower the digestibility, √ the lower the crude fibre content the higher the digestibility√ (2)

2.3 Fodder requirements at different stages

2.3.1 Need per animal/ day x number of animals x 30days x 6 months√

15kg x 30 animals x 30 days x 6 months √

= 81000 kg√ (3)

2.3.2 **Reasons for number of cows to be reduced in dry season**

- To reduce the costs of feed required√
- Because during dry season there is less availability of feed√

(2)

2.3.3 **Measures a farmer should take**

- Cutting fodder during rainy season√
- Storage of fodder for dry season√
- Culling/ stock reduction√ (Any 2) (2)

2.4 **Feeds**

2.4.1 **TWO feeds classified as concentrates**

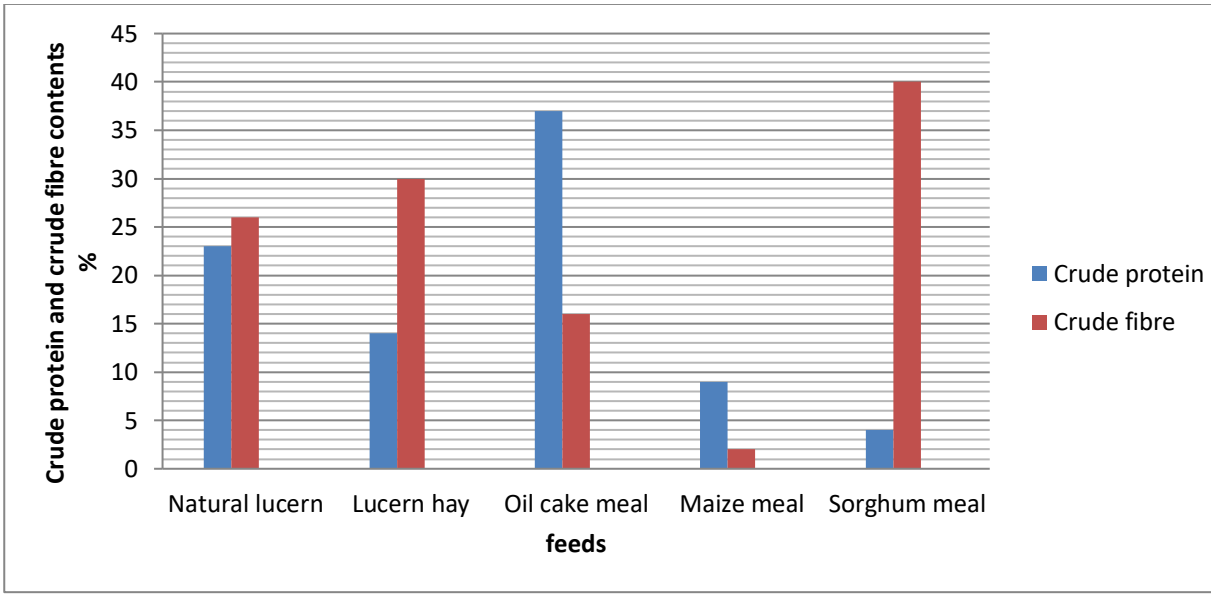
- oil cake meal√
- maize meal√ (2)

2.4.2 **Motivation for QUESTION 2.4.1**

Because they both have less crude fibre content √ (1)

2.4.3 **Bar graph**

Crude protein content and crude fibre of different feeds



Marking guideline for the graph

- Correct heading√
- Correct and labeled x- axis√
- Correct and labeled y- axis√
- Bar graph√
- Units√
- Accuracy√ (6)

2.4.4 **Pearson Square**

Oil- cake meal =30% **7% part**√

CP required 16%√

Maize meal= 9% **14% part**√ (3)

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QUESTION 3: ANIMAL PRODUCTION, PROTECTION AND CONTROL

3.1 Types of farming systems

3.1.1 A- Subsistence√
B- Commercial √ (2)

3.1.2 **Difference between farming systems**

	A/Subsistence	**B/ Commercial**
Farming scale	Small scale√	Large scale√
Use of technology	Less/no use of technology√	More usage of technology√

(4)

3.1.3 **Impacts of SYSTEM B on the environment**

- Outbreaks of diseases by practicing monoculture√
- Incorrect fertilizer usage can cause an imbalance in the nutrient content√
- Excessive irrigation can cause soil to become saline√
- Use of machines causes environmental pollution√

(Any 2) (2)

3.2 Equipments used for restraining animals

(a) D√
(b) E√
(c) C√ (3)

3.3 Differences between drenching gun and balling gun

- Drenching gun administer medication in the form of a liquid√
- . Balling gun administer medication in a form of a pill√ (2)

3.4 **Handling of farm animals**

3.4.1 **Tools for handling large animals**

- Strong rope√
- Strong pen√
- A head clamp√
- Nose pliers√
- A prodder√
- A whip√
- A strong truck√ (Any 3) (3)

3.4.2 **Management programmes**

- Dehorning√
- Marking/ ear tagging√
- Castration√
- Docking√ (3)
- Branding/tatoo√ (Any 3)

3.4.3 **Handling of a sheep and a cattle**

- A sheep can be handled by 1 person√
- A cattle can be handled by more than 2 people√ (2)

3.5 **Requirements of a driver who transports animals**

- Drivers license√
- Permit√
- experience√ (Any 2) (2)

3.6 **Parasites**

3.6.1 A- external parasite√
B- Internal parasite√ (2)

3.6.2 **Motivation**

- External parasites are found outside√
- Internal parasites are found inside√ (2)

3.7

3.7.1 (a) Non- contagious√

(b) Vector√ (2)

3.7.2 **Plant poisoning**

- Maize fungi√
- Thorn apple√
- Poison bulb√ (3)

3.7.3 **Principle adhere to in order for an animal to remain healthy**

- Shelter√
- Sanitation√
- Controlling of pest and parasites√
- Isolation of sick animals from healthy animals√
- Vaccination√ (Any 3) (3)

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QUESTION 4: ANIMAL REPRODUCTION

4.1 **Formation of male gametes**

4.1.1 **The processes**

Spermatogenesis√ (1)

4.1.2 **Defination of the part**

Formation of sperm cell√ (1)

4.1.3 **The difference between the sex cell and body cell**

Sex cell has single number of chromosomes i.e haploid√

Body cell has double number of chromosomes i.e diploid√ (2)

4.1.4 **Function of the parts**

(a) **Mitochondrion**- provides energy for mobility√

(b) **Acrosome**- penetrates an egg/ovum√

(c) **Tail** – assists with mobility/ swimming√ (3)

4.1.5 Cryptochidism√√ (2)

4.2 **Path of the sperm cell**

- From the testes to the epididymis√
- to the vas deference√
- / sperm duct to the urethra√
- and penis√ (4)

4.3 **Embryo development.**

4.3.1 **Pregnancy period**

- Gestation period√ (1)

4.3.2 **Identification of the parts**

A - Chorion√
B – Umblical cord√ (2)

4.3.3 **Function of the part**

D- Collects the urine from the unborn child√ (1)

4.4 **Difficulty of giving birth**

- Dystocia√√ (2)

4.5 **Biotechnology**

4.5.1 The scientific method used to develop or make products√√ (2)

4.5.2 (a) Artificial insermination√

(b) Cloning√

(c) Embryo transplantation/ transfer√ (3)

4.5.3 **Disadvantages of biotechnology**

- It can be expensive√
- Requires skills and experience√
- Possible rapid spread of diseases√
- Undesirable gene can be spread rapidly√
- Requires special facilities and hygiene√
- Require specialized equipment√ (Any 2) (2)

4.6 **Oesrus cycle**

A- Follicle Stimulating Hormone (FSH) √

B- 2- 5 days√

C- Dioestrus√

D- Corpus luteum√ (4)

4.7 **Milking period**

4.7.1 Lactating curve√ (1)

4.7.2 Colostrum√ (2)

4.7.3 When the butterfat increases, the milk production decreases√

and when the butterfat decreases, the milk production increases√ (2)

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TOTAL SECTION B: 105
GRAND TOTAL: 150