Education and Sport Development

Department of Education and Sport Development
Departement van Onderwys en Sport Ontwikkeling
Lefapha la Thuto le Tlhabololo ya Metshameko
NORTH WEST PROVINCE

PROVINCIAL ASSESSMENT

GRADE 12

AGRICULTURAL SCIENCES

JUNE 2018

MARKING GUIDELINE

MARKS: 150

TIME: 2½ hours

This marking guideline consists of 11 pages

SECTION A

QUESTION 1

1.1	1.1.1	C √√		
	1.1.2	B √√		
	1.1.3	C √√		
	1.1.4	A √√		
	1.1.5	C √√		
	1.1.6	B √√		
	1.1.7	D √√		
	1.1.8	A √√		
	1.1.9	D √√		
	1.1.10	A √√	(10 X 2)	(20)
1.2	1.2.2	B only √√		
	1.2.2	B only √√		
	1.2.3	Both A and B √√		
	1.2.4	None √√		
	1.2.5	A only √√	(5 x 2)	(10)
1.3	1.3.1	Urea √√		
	1.3.2	Domestic poultry √√		
	1.3.3	Vas deferens/ sperm duct √√		
	1.3.4	Ejaculation √√		
	1.3.5	Stethoscope √√	(5 x 2)	(10)
1.4	1.4.1	Copper √		
	1.4.2	Monozygous/ Identical √		
	1.4.3	Tapeworm √		
	1.4.4	Docking √		
	1.4.5	Oxytocin √	(5 x 2)	(5)
			TOTAL SECTION A:	**45**

SECTION B

QUESTION 2: ANIMAL NUTRITION

2.1 **Path of food in the stomach of a farm animal**

2.1.1 Ruminant √ (1)

2.1.2 **Identification of the process**

A-Swallowing √/Peristalsis √/Ingestion √/Intake of food √

B-Regurgitation √/ Retro-peristalsis √

C-Re- swallowing √/ Peristalsis √ (3)

2.1.3 **Differences between the alimentary canal of an adult and young animals**

Adult	Young calf
Rumen, reticulum, omasum and abomasum are fully developed and functional√ / has complex stomach√	Only abomasum is fully developed and functional√ / has single stoamch√
Chew the cud√ / ruminate√	Drink milk only√ / cannot ruminate√

(Any 2 each) (4)

2.2 **Difference between the end products of cellulose and that of lipids**

- Cellulose- fatty acids and gasses √
- Fats- fatty acids and glycerol√ (2)

2.3

2.3.1 **Part of the body mainly involved**

Bones√ (1)

2.3.2 **Diseases that is associated with lack of vitamin D in an animal body**

- Osteomalacia√
- Rickets√ (2)

2.3.3 **Ways on how vitamin D can be supplemented in an animal body**

- Injection√
- Supplementing ration√ (2)

2.4 **Information of different types of feeds and their components**

2.4.1 **Feed with the highest protein**

Feed 3 √ (1)

2.4.2 **The type of NR**

Narrow NR √ (1)

2.4.3 **Feed classified as roughage and motivation**

- Feed 2√
- because it has high CP√
- CP is 24% √ (Any 2) (2)

2.4.4 **Calculation of DC**

DM of FEED 3 = 89%

Average feed intake= 12kg

Excretes =6kg of manure

89/ 100 X 12 = 10.68kg

DC= DMI/ DMI- DME X 100 √

= 10.86- 6/ 10.68X 100

= 4.68X 100/ 10.68

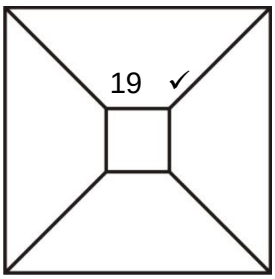
= 468/10.68 √

= 43.8√ % √ (4)

2.4.5 **Pearson Square method** 3 19-12 = 7 part√ 16: 7√

12

12% RP = 16 part√



(4)

2.5 **Factors influence the digestibility of feed**

(a) **Age of plant**- The younger the plant the more the digestibility√ and the older the plant the less the digestibility√ (2)

(b) **Quantity of feed taken in**- The more the food taken in, the lesser the digestibility√ and the less the food taken in , the lesser the digestibility√ (2)

2.6 **Functions of water in animal body**

- Regulate body temperature√
- Act as a solvent√
- Medium through which waste products are excreted√
- For most chemical reactions to take place in the body√
- Protects sensitive tissues in the body√

(Any 4) (4)

[35]

QUESTION 3: ANIMAL PRODUCTION, PROTECTION AND CONTROL

3.1 **The animal farming system followed in South Africa depends on the environment and the level of management**

3.1.1 **Picture representing subsistence farming system and a reason for your answer.**

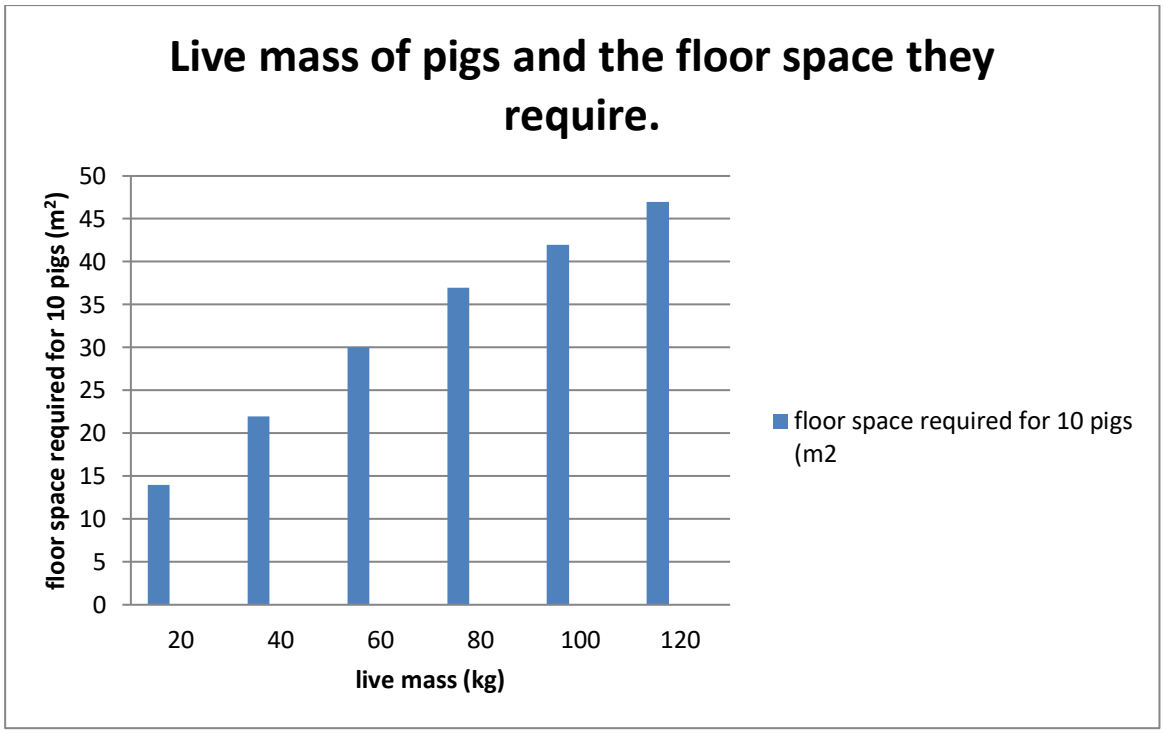
- Picture A √
- because they are using animals for ploughing/use indigenous knowledge√ (2)

3.1.2 **Main differences between the farming system A and farming system**

- Farming system A the farmer is farming for family household needs√
- and Farming system B the farmer is farming for profit. √
- Farming system A is a small- scale farming√
- and farming system B is a large scale farming√ (4)

3.2 **Information on the floor space required for pigs pre live mass.**

3.2.1 **Bar graph**



Criteria/ rubric/ marking guidelines

- Correct heading√
- X-axis- correct calibrations and labelled(Live mass) √
- Y- axis- correct calibrations and labeled (Floor space required) √
- Both units are correct unit (m^2/ kg) √
- Bar graph√
- Accuracy√ (6)

3.2. 3 **The trend in terms of floor space required in relation to the live mass of pigs.**

- The increase in live mass leads to √
- Increase in floor space required √ (2)

3.3 Case study

3.3.1 From the case study basic guidelines when handling farm animals

- Handle them in the way that makes them feel calm√
- Ensure that there are no rushed movements or loud noises√
- Ensure that objects are not thrown√
- Ensure that animals are not injured√
- Ensure that correct facilities and equipments are used√
- Keep to the safety measures of a particular animal√

(Any 3) (3)

3.3.2 Types of equipment used to handle large farm animals

- Strong rope√
- Strong pen√
- Head clamp√
- Nose pliers√
- A prodder√
- A whip√
- A strong truck √

(Any 3) (3)

3.4 Ways a farmer can use to administer medication orally to an animal

- A pill√
- A powder√
- A liquid√

(3)

3.5 Plant poisoning

3.5.1 Label the parts

A Poison bulb√

B Thorn apple√ (2)

3.5.2 **Metallic poisons associated with the above mentioned plant poisoning**

- Urea√
- Salt√ (2)

3.6 **China university of Agriculture and NWU Mafikeng joined forces on research**

3.6.1 **Universities that joined forces**.

- China University√
- North west University/ NWU√ (2)

3.6.2 **Micro- organism that causes mastitis**

Bacteria√ (1)

3.6.3 **Effect of this disease in production**

Results in loss of production√ (1)

3.6.4 **Role played by the government in minimising the spread of this disease in the province according to the case study?**

The government invited the university of China to come and join forces with the University of North West and make a research concerning the disease √√ (2)

3.7 **Examples of internal parasite**

- Liver fluke√
- Round worm√
- Tapeworm √

(Any 2) (2)

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QUESTION 4: ANIMAL REPRODUCTION

4.1 **Reproductive systems of the animals**

4.1.1 **The processes**

Spermatogenesis√ (1)

4.1.2 **The part where the process takes place**

Testes/testicles√ (1)

4.1.3 **Cell divisions**

A- mitosis√

B- meiosis√ (2)

4.1.4 **Labelling**

1 – head√

2 – nucleus/ DNA√

3 – tail/ flagellum√ (3)

4.1.5 **Number of chromosomes**

30 chromosomes√ (1)

4.2 **Usually after detecting signs of oestrus in the cow, the farmer takes a bull to the cows for mating to take place.**

4.2.1 **Definition *of oestrus***

Urge towards mating which overtakes non- pregnant matured female animals at a particular time√√ OR when a female is receptive and allows a cow to mate her√√ (2)

4.2.2 **Devices a farmer may use to detect oestrus in a cow.**

- Pedometer√
- Chin- ball marker√
- Tail- chalking√
- Kamar heat mount detector√ (Any 3) (3)

4.2.4 **The processes of reproduction between ovulation and resting period**

- Fertilization√
- Pregnancy/gestation√
- Birth/ parturition√
- Lactation √ (4)

4.3

4.3.1 **The condition**

- Mummification√ (1)

4.3.2 **How the condition in 4.3.1 occurs**.

- Mummification occurs when the foetus dies after the hard skeleton and skin have been formed√√
- The placenta and the fluids of the foetus are reabsorbed and the skin become hard and dries√√ (Any 1) (2)

4.3.3 **Causes of abortion in animals.**

- Metabolic or hormonal disabilities√
- Nutritional deficiencies/ malnutrition√
- Trauma/ injuries√
- Poisoning√
- Infections√
- Genetic or chromosomal defects of ova/ sperm√
- Allergies√
- Twinning√ (Any 3) (3)

4.3.4 **The difference between monozygous and dizygous twins**

Monozygous	Dizygous
Develop from fertilization of one ovum√	Develop from fertilization of two ova√

√ for table (3)

4.4 **Reproductive process in sheep.**

4.4.1 **The type of reproductive process in the diagram above**.

- Cloning/ nuclear transfer√ (1)

4.4.2 **Definition of cloning**

- A process through which an identical copy of the donor animal is produced from its nucleus√√ (2)

4.4.3 **Description of stage B**

- Removal of the nucleus of the egg cell√ (1)

4.4.4 **Disadvantages of cloning**

- Requires skills and experience√
- It is expensive√
- Cloned animals seem to age prematurely√

- Dystocia problems can arise because clones can be very large at birth√ (Any 2) (2)

4.5 **The correct time for artificial insemination and motivation**.

- In the afternoon√ because ovulation takes place 14 hours after the 1st signs of oestrus have disappeared√ (2)

4.6 **The first milk of a cow**

- Colostrum√ (1)

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TOTAL SECTION B: 105
GRAND TOTAL: 150