higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

ANIMAL PRODUCTION
NQF LEVEL 4

21 November 2023

This marking guideline consists of 10 pages.

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SECTION A

QUESTION 1

1.1	1.1.1	B		
	1.1.2	C		
	1.1.3	D		
	1.1.4	D		
	1.1.5	C		
	1.1.6	C		
	1.1.7	C		
	1.1.8	A		
	1.1.9	C		
	1.1.10	B		
			(10 × 1)	(10)
1.2	1.2.1	L		
	1.2.2	G		
	1.2.3	B		
	1.2.4	C		
	1.2.5	H		
	1.2.6	M		
	1.2.7	O		
	1.2.8	N		
	1.2.9	I		
	1.2.10	E		
			(10 × 1)	(10)
				[20]

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QUESTION 2

2.1 2.1.1
- Digestion of cellulose
- Synthesis of amino-acids
- Hydrolysis of proteins
- Synthesis of vitamin B and K (4)

2.1.2
- Easily digestible carbohydrates
- Sufficient mineral nutrients for growth and reproduction
- Sufficient nitrogen to make proteins
- Neutral environment
- Warm, moist and anaerobic environment
- Continual elimination of end products
- Fatty acids produced by the microbes (Any 6 × 1) (6)

2.2
- Use economically well-balanced rations throughout the year.
- Adjust the amount of concentration given to each cow according to its actual production.
- The rations must be palatable to prevent constipation.
- There should be an abundance of good quality roughage and succulent feeds like silage.
- Plenty of clean water should always be available. (5)

2.3 2.3.1 Digestion is the process whereby the ingested food is broken down to soluble substance that can be absorbed in the body of an animal. (1)

2.3.2 Pancreatic juice (1)

2.3.3
- Lipase✓ – changes emulsified fats✓ into glycerol✓and fatty acids✓
- Amylase✓ – changes starch✓ and glycogen✓ to maltose✓and glucose✓
- Trypsin✓ – changes proteins✓ and peptones✓ to peptides✓

(13)
[30]

TOTAL SECTION A: 50

SECTION B

QUESTION 3

3.1 3.1.1 **Nguni**

- Hardy animals/ Strong walkers
- Highly Fertile
- Fast growing
- Tolerant to external and internal parasites
- Tolerant to diseases
- Good maternal ability
- Good temperament
- Gives birth easily without complications (Any 6 × 1) (6)

3.1.2 **Hereford**

- Fertile
- Good maternal ability
- Early maturing/puberty
- Good feed conversion
- Large body
- Very gentle
- Good carcass quality for marbling and tenderness (Any 5 x 1) (5)

3.2 3.2.1

- The offspring is identical to the parents.
- There is no genetic variation/increases homozygosity.
- It assists in accumulation of desired genes and elimination of undesired genes.
- It can concentrate the genes of superior ancestors.
- It can fix the type of desired genes relatively fast.
- It guides in developing pure line breeds in any type of animal. (Any 3 × 1) (3)

3.2.2

- Heterosis is achieved/Hybrid vigour
- Production and growth are improved.
- Disease resistance is improved.
- Market value is increased because traits are combined.
- Improves longevity
- Improves disease resistance
- Increased fertility
- Longevity
- Feed efficiency (Any 3 × 1) (3)

3.3 3.3.1

- It contains antibodies that protect the young calf from diseases.
- It is a highly digestible and concentrated feed that is able to satisfy the calf.
- It is rich in vitamin A, which assists the calf in resisting lung, alimentary canal and mucous membrane diseases.

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- It has a laxative effect that sets the alimentary canal moving and reduces constipation.
- It is rich in minerals.

(6)

- It has a high fat and protein content, which gives the calf a good start for growth.

3.3.2
- Green hay is rich in minerals.
- It is a good source of Vitamin A. (2)

[25]

QUESTION 4

4.1 4.1.1 Infections – disease causing organisms like bacteria and fungi get into the animal and cause illness as microorganisms multiply.

4.1.2 Poor nutrition – shortage of certain nutrients like vitamins, amino acids or minerals leads to deficiency diseases.

4.1.3 Poisonous substances – if an animal eats plants that are poisonous it becomes ill or dies.

(3 × 2) (6)

4.2 4.2.1
- Suck blood✓
- Transmit diseases✓
- Irritate the animal✓
- Cause wounds✓
- Reduce the quality of hides and skin✓
- Reduce production✓
- Cause weight loss✓
- Cause death in severe cases✓ (Any 5 × 1) (5)

4.2.2
- Spray race✓ – the animals are driven through a passage or race which has spray nozzles inside. A poisonous chemical to ticks is sprayed on the animal through the nozzles. ✓
- Plunge Dip✓ – a dipping tank is filled with water mixed with a tick poison/acaricide and the animals are dipped in there. ✓
- Pour-on✓ – a tick poison is poured externally on the animal skin and it is absorbed in the blood stream and distributed to the points of tick infection. ✓ (3 × 2) (6)

4.2.3
- Red water
- Heart water
- East coast fever
- Gall sickness/Anaplasmosis

(Any 3 × 1) (3)

4.2.4
- Giving animals a balanced diet.
- Providing enough ventilation, light and space.
- Controlling disease-causing organisms like ticks and insect vectors.
- Giving animals an abundance of clean drinking water.
- Keeping sick animals separate from the healthy ones.
- Keeping young animals separate from old ones.
- Avoiding dampness where animals sleep. (Any 5 × 1) (5)

[25]

SECTION C

QUESTION 5

5.1
- Central suspensor ligaments
- Lateral suspensor ligaments (2)

5.2 5.2.1 Secretory tissue is the basic unit that produces/secretes milk. (1)

5.2.2 A gland cistern is the main reservoir for the storage of milk in the udder. (1)

5.2.3 The teat is the passage through which milk leaves the udder during milking. (1)

5.2.4
- The duct system collects and stores synthesised milk from the alveolus.
- The duct system transports produced milk to the cistern. (2)

5.3 5.3.1 Adrenalin (1)

5.3.2
- It blocks the release of oxytocin hormone, which is the one that stimulates milk production.
- It constricts the blood vessels and this prevents the oxytocin from reaching the udder.
- It counteracts the effects of the oxytocin on the constriction of the myoepthelial cells. (3)

5.4
- It activates the smooth muscles to prepare for milk flow.
- It initiates teat erection.
- It widens the blood vessels and milk passages.
- It opens the teat sphincter. (4)

5.5.1 Vacuum pump sucks and removes air from the system/pipes. (1)

5.5.2
- A vacuum reserve tank prevents the drop in vacuum whenever there is a sudden inrush of air into the system.
- A vacuum reserve tank protects the pump from internal damage by trapping the liquid during milking. (2)

5.5.3 Pulsator alternates the vacuum and atmospheric air between the shell and liners of the milking cup. (1)

5.5.4 Receiver collects all the milk during the milking process. (1)

5.5.5 Cluster is inserted on the teats to suckle milk from the udder. (1)

5.6
- Thermometer
- Agitator
- Draining valve
- Automatic cleaning system (4)

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QUESTION 6

6.1
- Teat surface should thoroughly and constantly be cleaned before each milking session.
- Keep teat surfaces clean between milking.
- Milking equipment should be sanitised, cleaned and operated correctly.
- Milk should always be stored at 4 degrees Celsius for it not to get spoiled. (4)

6.2 Quantitative test is used to assess the bacterial quality of raw milk✓✓ whereas the qualitative test is used for identifying the source of bacteria in milk.✓✓
(2 × 2) (4)

6.3
- Butter
- Cheese
- Whey
- Maas
- Buttermilk
- Yoghurt
- Pasteurised, homogenised sterilised whole milk (Any 4 × 1) (4)

6.4
- Clinical mastitis causes visible inflammation of the udder✓ and abnormal milk in terms of colour and clots.✓
- Subclinical mastitis indicates the presence of infection but there will be no visible symptoms to show that the udder is infected✓ or no signs of inflammation and illness.✓ (2 × 2) (4)

6.5
- Through air/aerosol transmission.
- During milking through the hands of those who milk by hand, or through the liners of the milking machine/cluster.
- From the bedding where the cow sleeps. (3)

6.6
- To know if they are making profit or loss.
- To know the production of each cow.
- To determine the ration for each cow.
- To assist farmers in selecting the cows for breeding or culling.
- To compare the production of the herd with itself or other herds.
- Record helps in the management of diseases.
- To help to know when to dry the cow.
- To help the farmer to know when to inseminate the cow. (Any 6 × 1) (6)

[25]

TOTAL SECTION C: 50

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SECTION D

QUESTION 7

7.1 7.1.1
- Gentle fanning movement of the feathers to create a cold air to cool the bird.
- Covering its legs with its wings while in a sitting position. (2)

7.1.2 Covering its legs with its wings to prevent heat loss. (2)

7.1.3 They survive on water✓ from succulent plants and nutrients✓ contained in the plants they will be feeding on. (2)

7.2
- Plant shoots
- Succulent leaves
- Flowers
- Seeds
- Grass (Any 4 × 1) (4)

7.3
- Egg production
- Meat production
- Conformation
- Docility
- Growth rate
- How quickly it grows into maturity
- Broadline of the bird (7)

7.4.1
- The birds are exposed to a variety of food like grain, grass and insects.
- The birds are not stressed by confinement.
- It is cheap to keep the birds as there is low cost for food and housing. (3)

7.4.2
- The birds are protected from predators.✓
- It is easy to diagnose sick birds✓
- The birds are protected from pests and parasites.✓
- It is easy to manage the birds.✓
- There is more production✓ as the birds do not waste energy looking for food. (Any 3 × 1) (3)

7.5 It is low in fat✓ and cholesterol.✓ (2)

[25]

QUESTION 8

8.1 8.1.1
- When moving from one place to another.✓
- When fetching ostriches that have escaped.✓
- For purposes of identifying,✓ sexing✓ and medicating.✓
- When having to provide maintenance to the ostriches' enclosure.✓
- For physical examination.✓ (Any 6 × 1) (6)

8.1.2
- Method 1: grasp the bird at the top of the neck✓ and then lower the head close to the ground✓
- Method 2: grasp the head and place a hood over the eyes and neck.✓
- A combination of the two methods is the best approach.✓ (4)

8.2
- Good feeding enables the ostrich to reach a mature reproductive age earlier than when they are poorly fed.
- It improves growth when they are well fed, and this lowers the age of slaughter.
- It improves the meat quality of ostriches.
- It improves the quality of hides and skins of ostriches.
- It lowers the cost of production as the birds mature early.
- It improves health and resistance to disease attacks. (Any 5 × 1) (5)

8.3.1
- Reduced feed intake
- Reduced growth (2)

8.3.2 Urine excreted is thick✓ and white in colour.✓ (2)

8.4 8.4.1
- Sunflower seeds
- Almonds
- Hazel nuts
- Wheat germ
- Pine nuts
- Peanuts (Any 2 × 1)

8.4.2
- They are dustless.
- They are easy to pick.
- The nutrients do not easily separate. (Any 2 × 1)

8.4.3
- The production level of the bird.
- The age of the bird.
- The breeding season. (Any 2 × 1)

(3 × 2) (6)
[25]

TOTAL SECTION D: 50
GRAND TOTAL 150

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