higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

ANIMAL PRODUCTION
NQF LEVEL 4

15 November 2024

This marking guideline consists of 9 pages.

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SECTION A

QUESTION 1

1.1

1.1.1	D✓	
1.1.2	B✓	
1.1.3	C✓	
1.1.4	B✓	
1.1.5	C✓	
1.1.6	A✓	
1.1.7	C✓	
1.1.8	C✓	
1.1.9	A✓	
1.1.10	A✓	
		(10 × 1) (10)

1.2

1.2.1	G✓	
1.2.2	L✓	
1.2.3	H✓	
1.2.4	O✓	
1.2.5	J✓	
1.2.6	A✓	
1.2.7	D✓	
1.2.8	E✓	
1.2.9	N✓	
1.2.10	C✓	
		(10 × 1) (10)

[20]

QUESTION 2

2.1
- Mix equal quantities of Fehling's solution A and B in a test tube, about 2 mℓ each.✓
- Shake the mixture to get a deep blue colour.✓
- Prepare a glucose solution of about 5 g of glucose in 50 mℓ of water.✓
- Add 10 mℓ of this solution to Fehling's solution A and B. ✓
- Shake thoroughly.✓
- Heat the test tube over a flame.✓
- Result: A reddish-orange, yellow or brown precipitate of copper oxide is formed.✓ (7)

2.2
- Lipids are part of the cell membrane. ✓
- They are a concentrated source of energy. ✓
- They insulate the body to prevent heat loss. ✓
- They protect/cushion internal organs. ✓
- They regulate hormones. ✓
- They transport fat soluble nutrients. ✓ (Any 5 × 1) (5)

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2.3 2.3.1
- Pepsin✓
- Hydro-chloric acid✓
- Rennin✓ (3)

2.3.2 Pepsin✓
Rennin ✓ (2)

2.4 2.4.1 Rumen✓ (1)

2.4.2
- Fungi✓
- Bacteria✓
- Protozoa ✓ (3)

2.4.3
- Sufficient micronutrients for the growth and reproduction of the microbes✓
- Fatty acids produced by the microbes✓
- Sufficient easily digestible carbohydrates such as starch and sugars✓
- Sufficient nitrogen in the form of ammonium compounds✓
- Correct pH in the rumen✓ (5)

2.4.4
- Fibrous parts of the roughages such as cellulose and lignin are digested into soluble products. ✓
- Amino acids from non-protein nitrogen compounds are synthesised. ✓
- Proteins are hydrolysed into amino acids and simple nitrogen. ✓
- Vitamins such as vitamin B and K are synthesised. ✓ (4)

[30]

TOTAL SECTION A: 50

SECTION B

QUESTION 3

3.1
- High milk production✓
- They are fertile✓
- Easy calving✓
- Early maturity✓
- They are good grazers✓
- Docile and friendly
- Longevity (Any 5 × 1) (5)

3.2 3.2.1
- Increased fertility✓
- Disease resistance✓
- Hybrid vigour/ Heterosis✓
- High feed conversion✓
- Longevity✓ (5)

3.2.2
- To Meet market demands✓
- To produce breeds that are well-adapted to local conditions✓
- Improve health and vitality✓
- Improve fertility✓
- The type of production wanted in future✓
- Improve uniformity of the breeding stock✓
- Outstanding performance of parents or closely related animals✓
- Evaluation of environmental and genetic influences on animals ✓

(Any 5 × 1) (5)

3.3
- Contains antibodies that protect the calves against diseases. ✓
- It is a highly digestible and concentrated feed that is best and able to satisfy the calves. ✓
- Is rich in vitamins especially vitamin A which enables the calves to resist diseases of the lungs. ✓
- Has a laxative effect which sets the alimentary canal in action. ✓
- Is rich in minerals. ✓
- Is rich in protein and fat which give the calves a good start in growth. ✓ (6)

3.4
- Feeding must be done at regular times of the day. ✓
- The milk fed from a bucket must be heated up and fed at body temperature. ✓
- Increase or change in ration per day must be done slowly and carefully. ✓
- All equipment used for feeding the calves must be put in hot water or sterilised after use to prevent diseases. ✓ (4)

[25]

QUESTION 4

4.1 4.1.1
- Animal factor✓– Greedy feeders that eat fast are more likely to be affected by bloat.✓
- Plant factor✓ − Leguminous plants like lucerne and clover are likely to cause bloat especially when they are still young and in their vegetative stage of growth.✓ (2 × 2) (4)

4.1.2
- The gas accumulates and causes distention of the rumen✓
- The inflated rumen interferes with respiration✓
- The animal may die due to suffocation. ✓ (3)

4.1.3
- Feeding animals with dry hay before they graze the legume pastures. ✓
- Avoid feeding animals with pastures that are wet/moist with dew/rain/or irrigation. ✓ (2)

4.2 4.2.1 Caused by organisms like bacteria, fungi and viruses when they get entry into the animal and cause illness as they multiply quickly. ✓

4.2.2 Caused by shortage of essential vitamins, amino-acids or minerals in the diet of animals/giving animals a diet that is not balanced. ✓

4.2.3 When animals eat plants that are poisonous they can get ill. ✓

(3 × 1) (3)

4.3
- They are hardy animals✓
- They are strong walkers✓
- They are fertile✓
- Easy calving✓
- Have good maternal ability✓
- Tolerant to internal and external parasites ✓
- Resistant to tropical disease✓
- They are docile/Have a good temperament✓
- Good carcass quality✓
- Mature fast ✓

(Any 6 × 1) (6)

4.4 4.4.1 1 − Ovaries✓
3 − Fallopian tube✓/Oviduct✓
5 − Uterus✓
8 − Cervix ✓ (4)

4.4.2
- That is where fertilisation takes place. ✓
- It is the passage through which the sperms and egg move. ✓ (2)

4.4.3 Fertilisation will not take place. ✓ (1)

[25]

TOTAL SECTION B: 50

Mark the questions of either SECTION C or SECTION D.

SECTION C

QUESTION 5

5.1 5.1.1
- Central suspensory ligaments✓
- Lateral suspensory ligaments ✓ (2)

5.1.2
- Secretory tissue✓ − it secretes milk ✓
- Gland cistern✓ − It stores the milk/reservoir for milk✓
- Teat✓ − it is the passage through which milk comes out✓
- Ducts✓ − they transport milk to the cistern✓/collect and store milk from the secretory tissue✓ (Any 4 × 2) (8)

5.2
- Pus/clots in the milk✓
- Swollen udder✓
- Cows refuse to be milked✓
- Fever✓
- Hardness of the udder✓
- Milk has a watery appearance✓
- Heat✓ (Any 5 × 1) (5)

5.3
- The milkers should always wear gloves when milking. ✓
- Apply teat dip before and after milking. ✓
- Sterilise the clusters between all cows. ✓
- Use one paper towel per cow. ✓
- Keep cows standing for up to 30 minutes after milking so that the teat may close before the cow comes into contact with the soil. ✓ (5)

5.4 Clinical mastitis causes visible inflammation of the udder and abnormal milk✓✓ whereas Sub-clinical mastitis occurs but does not cause visible symptoms✓✓ (4)

5.5
- Bacteria✓
- Fungi✓ (Any 1 × 1) (1)

[25]

QUESTION 6

6.1 6.1.1
- Food source ✓
- Weeds ✓
- Disinfectants ✓
- Water ✓
- Phenols ✓
- Hew polymer floor ✓ (6)

6.1.2
- Check the raw milk supply for taints. ✓
- Check if the cleaning and disinfecting chemicals are being used at the correct concentration. ✓
- Check that the phenol-based chemicals are not in use inside the dairy or the vicinity of the dairy. ✓
- Check the water source and treatment. ✓
- Check for factory building material, cleaning material and packaging. ✓

(5)

6.2 6.2.1 The process by which liquids (milk) are heated to a specific temperature for a set period of time✓ to kill harmful bacteria's that can cause diseases✓

6.2.2 The process where milk is heated for a period of time ✓to kill all microorganisms ✓

6.2.3 The process used to make an emulsion appear to be made up of the same substance throughout✓✓

(3 × 2) (6)

6.3
- Public health✓ − It renders milk and milk products safe for human consumption by destroying all pathogens like bacteria that may be harmful to human health.✓
- Keeping quality✓ − It improves the keeping quality of milk and milk products so that they last longer.✓ (2 × 2) (4)

6.4
- Food products for humans✓
- Human health✓
- Body building✓
- Feeding of livestock ✓

(4)
[25]

TOTAL SECTION C: 50

SECTION D

QUESTION 7

7.1 7.1.1
- Docile✓
- Superior feathers ✓
- Good egg production✓

(3)

7.1.2
- Aggressive ✓
- Tall breed✓

(2)

7.2
- Meat production✓
- Egg production✓
- Confirmation✓
- Docility✓
- Growth rate✓
- Time taken to reach maturity✓ (6)

7.3 7.3.1
- Avoid contaminating the eggs. ✓
- Avoid wet conditions for the eggs. ✓ (2)

7.3.2
- The incubation facility should be able to maintain a constant temperature range. ✓
- Adequate ventilation and humidity to ensure embryo development. ✓
- Human traffic into the area should be controlled. ✓
- Materials on the floor should allow for daily sanitation. (4)

7.3.3
- Eggs should be allowed to hatch on their own. ✓
- Chicks should be allowed to leave/exit the shell on their own. (2)

7.4
- Less feed wastage ✓
- Less dust✓
- Less separation of ingredients ✓ (3)

7.5
- The birds grow better when they are not overcrowded. ✓
- Birds are less stressed. ✓
- Birds are exposed to a variety of feeds. ✓
- Less spread of diseases. ✓ (Any 3 × 1) (3)

[25]

QUESTION 8

8.1
- Infra-red brooders✓
- Gas brooders and electrical bar heaters ✓
- Whole space brooding system✓ (3)

8.2 8.2.1 It leads to overgrazing and destruction of plants✓ caused by the eating habits and trampling of ostriches. ✓

8.2.2 Results in reduced feed intake✓ which leads to retarded growth.✓

8.2.3 It leads to malnutrition,✓ retarded growth, poor carcass quality and egg production. ✓ (Any 2 × 1) (3 × 2) (6)

8.3
- The housing environment of the ostrich✓
- Waste management ✓
- Rodent and insect control (3)

8.4 8.4.1
- Improving grazing management practices ✓
- Flock management ✓
- Hygiene✓
- Feeding management ✓ (4)

8.4.2
- The farmer must know the difference between sick and healthy ostriches. ✓
- The farmer must know the diseases that can be spread from the ostriches to other animals like chickens. ✓
- The farmer should know when the ostriches are more susceptible to different diseases. ✓ (3)

8.4.3
- Heartwater fever ✓
- Avian influenza✓
- Newcastle disease (3)

8.4.4
- Through mucous membrane of the mouth✓
- Intestinal tract✓
- Air passages✓
- Wounds✓ (Any 3 × 1) (3)

[25]

TOTAL SECTION D: 50
GRAND TOTAL: 150

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