higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

ANIMAL PRODUCTION
NQF LEVEL 4

27 February 2020

This marking guideline consists of 8 pages.

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SECTION A (COMPULSORY)

QUESTION 1

1.1

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

(10 × 1) (10)

1.2

1.2.1	J
1.2.2	I
1.2.3	F
1.2.4	H
1.2.5	A
1.2.6	D
1.2.7	M
1.2.8	L
1.2.9	K
1.2.10	B

(10 × 1) (10)
[20]

QUESTION 2

2.1

2.1.1 Hydrogenation is the process of adding hydrogen to a liquid to turn it into a solid. Hydrolysis is the breaking down of substances using water.

2.1.2 Inoculation is the introduction of a pathogen in the body of an animal to stimulate the production of antibodies. Dosing means feeding/giving animals a chemical to control internal parasites.

2.1.3 Anabolism (constructive metabolism) is the collection of processes that synthesises small molecules into larger and more complex compounds that the body requires. Catabolism (destructive metabolism) is the collection of processes that break down food and liquid molecules into useable forms of energy.

(3 × 4) (12)

2.2
- Mix two portions of Fehling solution A and B of 2 mℓ each.
- Shake the mixture to obtain a deep blue colour.
- Prepare 5 g of glucose in 50 mℓ of water.
- Add the 5 g of glucose to the Fehling station.
- Shake thoroughly.
- Heat the task tube over a flame until the solution boils.
- The result is a reddish-orange, yellow or brown precipitate of copper oxide. (7)

2.3
- Repairs worn-out tissue
- Forms part of hormones and enzymes
- Source of energy
- Building blocks in the synthesis of bone tissue
- Production of wool, eggs and milk
- Reproduction and metabolism (6)

2.4
- Genetic variation
- Level of production
- Temperament
- Growth stimulants
- Farming and climate conditions (5)

[30]

TOTAL SECTION A: 50

SECTION B (COMPULSORY)

QUESTION 3

3.1
- Fertile
- Good milk production
- Fast growth
- Good conformation (4)

3.2
- No maintenance of a bull
- Prevents spread of diseases – safe method of impregnating a cow
- Progeny testing at an early stage
- Semen of aged bulls used when bulls are dead
- Helps in keeping accurate records
- Used in old, heavy and injured sires
- Helps to mate animals that refuse to stand for a bull
- Increases conception rate
- Collected semen used in rural areas (Any 6 × 1) (6)

3.3
- Removing the corpus luteum
- Administering progesterone
- Administering oestrogen (3)

3.4
- Spacious
- Clean
- Well drained
- Well ventilated
- Dry
- Free from manure and urine
- No protruding objects (Any 5 × 1) (5)

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3.5 3.5.1
- Production of new breeders
- Hybrid vigour/heterosis
- Improved production
- Produces new breeds
- Improved growth
- Improved disease resistance
- Improved carcass quality (Any 4 × 1) (4)

3.5.2
- Labour intensive
- Expensive to get pure breeds
- New breeds
- Crossbred animals cannot pass traits to second generation
- Offspring differ from parents (Any 3 × 1) (3)

[25]

QUESTION 4

4.1 4.1.1 Foot-and-mouth disease (1)

4.1.2
- Isolate/Quarantine the animals.
- Vaccinate the animals.
- Report the disease to the veterinary department. (3)

4.2 4.2.1 Bulged/Swollen rumen/left flank

4.2.2 Gas trapped in rumen

4.2.3 Red water

4.2.4 Protozoa

4.2.5 Skin nodules and ulcers
Nasal discharge Fever (Any ONE)

4.2.6 Virus

4.2.7
- Twitching of muscles and eyelids
- Animal turns in circles (Any ONE)

4.2.8 Bacterial

4.2.9
- Drowsy
- Ruffled feathers
- Droopy wings
- Diarrhoea with pasting at vent (Any ONE)

4.2.10 Salmonella bacteria

(10 × 1) (10)

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4.3 4.3.1
- Dipping:✓ Animals are dipped in a tank filled with water mixed with an acaricide.✓
- Spray race:✓ Animals are driven through a race where they are sprayed with tick poison.✓
- Pour-on chemicals:✓ Pouring the tick poison on the back of the animal so that the chemical will be absorbed in the bloodstream and distributed to areas of tick infection.✓ (3 × 2) (6)

4.3.2
- The larva climbs on the first host, sucks blood, changes to a nymph and falls to the ground.
- The nymph climbs on the second host, sucks blood, changes to an adult and falls to the ground.
- The adult climbs on the third host, sucks blood, mates and falls to the ground to lay eggs and die. (3)

4.3.3
- Sucking blood
- Transmitting diseases
- Irritating the animal
- Causing wounds
- Reducing skin quality (Any 2 × 1) (2)

[25]

TOTAL SECTION B: 50

SECTION C

QUESTION 5

5.1 5.1.1 Bacteria (1)

5.1.2
- Swollen udder
- Milk with puss/blood
- The cow refuses to be milked

(3)

5.1.3
- Use clean milking utensils/equipment
- Cleanliness among the milkers
- Milk the cow completely so that there is no milk remaining in the udder
- Test every teat for mastitis before milking
- Apply teat deep after every milking to prevent entry of bacterial

(5)

5.2 5.2.1
- the standard plate count (SPC)
- the plate loop count (PLC)
- the Bactoscan (3)

5.2.2
- It shows the source of infection/bacteria
- It shows the type of bacteria in the tank
- It enables the identification of the method of control/prevention required (3)

5.3
- Pre-rinse the system with warm water
- Use hot chlorinated water (70-72 degrees) for 8-10 minutes
- Use acid rinse to neutralise the chlorine residue
- Sanitise the system with a product made for dairy installation before milking
- Use the air injector to improve the wash up process (5)

5.4 Good drainage
Appropriate chemicals
Safety of the cleaner (3)

5.5 The milk temperature inside the tank
Functioning of the agitator
Proper working of the working unit
Cleaning water temperature (Any 2x1) (2)
[25]

QUESTION 6

6.1 Oxytocin (1)

6.2
- Bacteria enter through the teat when the cow is grazing in pastures.
- The teat is open immediately after milking and bacteria enters.
- When the cow sleeps on the ground bacteria enters the teat. (3)

6.3 6.3.1
- Central ligaments
- Lateral ligaments (2)

6.3.2
- Secretory tissue✓ – secretes the milk in the udder✓
- Gland/Teat cistern✓ – stores milk✓
- Teat✓ – passage through which milk comes out✓
- Duct system ✓ – transports/carries milk to the gland cistern✓

(4 × 2) (8)

6.4 6.4.1 Adrenalin (1)

6.4.2
- Blocks the release of oxytocin
- Causes blood vessels to constrict preventing the oxytocin from reaching the udder
- Directly contracts the effects of oxytocin on the contraction of myoepithelial cells (3)

6.5 6.5.1 Creates the vacuum in the milking machine by sucking air (2)

6.5.2 Prevents a drop in vacuum whenever air enters and protects the pump from internal damage (2)

6.5.3 Keeps the vacuum level constant during milking (1)

6.6
- Quantitative tests involving checking the numbers of bacteria in milk
- Qualitative tests involving monitoring the type of bacteria in the milk (2)
[25]

TOTAL SECTION C: 50

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OR

SECTION D

QUESTION 7

7.1 7.1.1 Newcastle disease (1)

7.1.2
- Isolate the chicks.
- Quarantine the chicks.
- Vaccinate the chicks. (3)

7.1.3
- Well-ventilated
- Warm
- Adequate space
- Free from strong wind, sun and cold
- Electricity
- Biosecurity (Any 5 × 1) (5)

7.1.4 Contagious diseases are spread through contact.✓✓

Examples
- Rabies
- Tuberculosis
- Influenza (Any ONE)

Infectious diseases are caused by microorganisms like bacteria, viruses and protozoa.✓✓

Examples
- Chicken pox
- Rift Valley fever
- Influenza
- Tetanus
- Tuberculosis (Any ONE)

(3 + 3) (6)

7.2 7.2.1 Pathogens (1)

7.2.2
- Clean the house and remove all litter.
- Turn the bedding to expose the pathogens to sunlight.
- Keep the bedding dry to avoid the multiplication of pathogens.
- Avoid ostriches from being exposed to the litter.
- Bury all dead birds. (5)

7.3
- Cheap
- Easily available
- Provides warmth
- Absorptive from moisture in droppings (4)

[25]

QUESTION 8

8.1
- Alfalfa
- Plant shoots
- Leaves
- Flowers
- Seeds
- Fruits
- Lucerne
- Succulent plant (Any 6 × 1) (6)

8.2 8.2.1
- Cost-effective
- Birds roam around
- Birds pick a variety of food from outside
- Birds not overcrowded (4)

8.2.2
- Day-old chicks not protected from poor weather
- Birds exposed to diseases and parasites
- Low production (Any 2 × 1) (2)

8.3 8.3.1
- Gently fanning movements of feathers helps birds to remain cool.
- Feathers can be used to cover the birds from direct sunlight.

8.3.2
- Feathers are used to cover the bird to prevent heat loss.
- Feathers cover its legs when in a sitting position.

(2 × 2) (4)

8.4
- Harvested crops like oats, barley or wheat or pasture such as lucerne
- Forage crops like soya beans
- Products from agro-processing like soya-bean cake, cotton-seed cake or sunflower cake
- Silage like chopped maize or green grass (4)

8.5
- Short breed
- Docile
- Good feather quality
- Good egg production
- Light grey (5)

[25]

TOTAL SECTION D: 50
GRAND TOTAL: 150

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