higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

ANIMAL PRODUCTION
NQF LEVEL 3

4 November 2022

This marking guideline consists of 7 pages.

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SECTION A

QUESTION 1

1.1
1.1.1 D
1.1.2 D
1.1.3 B
1.1.4 B
1.1.5 A
1.1.6 A
1.1.7 A
1.1.8 C
1.1.9 B
1.1.10 A

(10 × 1) (10)

1.2
1.2.1 Lactic acid fermentation
1.2.2 Tanning
1.2.3 Reflex action
1.2.4 Ultrafiltration
1.2.5 Coma
1.2.6 Accommodation
1.2.7 Skeletal muscle
1.2.8 Homeostasis
1.2.9 Adrenalin
1.2.10 Respiration

(10 × 1) (10)

1.3 1.3.1
- The scrotum helps the testes in the following ways:
- Encloses testes✓
- Protects testes✓
- Regulates their temperature✓ and controls their functions✓ (4)

1.3.2 When it is cold, the scrotum muscles contract✓ to bring the testes closer to the body,✓ where it is warmer.✓ When it is hot, the scrotum muscles relax,✓ causing the testes to hang away✓ from the body to a cooler temperature.✓ (6)

[30]

QUESTION 2

2.1
- The water and salt (sodium) content of the cell in the body must be maintained to allow water and salt to move in and out of the cells through the process of osmosis.
- A water and salt balance is achieved by actioning the kidneys that are controlled by an antidiuretic hormone (ADH).
- If cells lose water, they become dehydrated and they can no longer perform important metabolic reactions.
- When the salt levels of the blood increase, the hypothalamus detects the rise in these levels and sends nerve impulses to the pituitary gland.
- The pituitary gland then secretes more ADH into the blood.
- ADH causes the kidneys to reabsorb more water into blood.
- The salt concentration of the blood drops back to the default point.
- When the salt levels of the blood decrease too much, the hypothalamus detects the drop in these levels and sends nerve impulses to the pituitary gland.
- The pituitary gland then reduces its ADH secretion, which decreases the ADH in the blood.
- The kidneys then reabsorb less water into the blood.
- The salt concentration of the blood rises back to the default point. (12)

2.2 When the central nervous system receives nerve impulses from sensory receptors, it interprets them✓✓ and sends out nerve impulses to the appropriate effectors.✓✓ (4)

2.3
- The primary genital system of the male includes the testes,✓ the epididymis and the vas deferens✓ (seminal tube).
- The secondary organs of the male genital system include the seminal vesicles (vascular gland),✓ Cowper's gland and the prostate gland.✓ (4)
- **[20]**

TOTAL SECTION A: 50

SECTION B

QUESTION 3

3.1 3.1.1 Merino (1)

3.1.2
- Produce a lot of wool of equal thickness✓ and length✓
- Have many body folds✓
- Big body✓
- Produce clean wool✓ (5)

3.1.3 Sheep-shearing (1)

3.2 3.2.1 Dorset Horn✓ and Black-headed Persian✓ (2)

3.2.2
- Covered with hair✓
- Large-framed body✓
- High fertility✓ and
- can be mated at any time of the year✓
- Very hardy✓
- Can produce high-quality lamb at any time of year
- Good mothering ability✓ (6)

3.2.3 Round-ribbed Afrikaner✓ and Black-headed Persian✓ (2)

3.3
- Breeding
- Production performance
- Type
- Size
- Conformation
- Fleece properties
- Fertility (Any 6 × 1) (6)

3.4
- Dorset Horn✓
- Corriedale✓
- South African meat Merino✓
- Hampshire✓
- Letelle✓ and Southdown✓ (Any 2 × 1) (2)

[25]

QUESTION 4

4.1
- Produces more than pure breed
- Usually has a better adaptability than most pure breeds
- Disease resistant
- Grows faster and has a weaning mass
- Leads to the development of new breeds
- Possesses good maternal instinct (Any 5 × 1) (5)

4.2
- It is a bloodless method by which spermatic cords are closed/cut.
- The testicles are taken each between the jaws of the Burdizzo pincer.
- The plier is kept closed for some time to cut/close the cords.
- The cords are closed/cut at various levels, and must avoid crushing the testicles.
- The scrotum/skin remains undamaged, with the cords completely cut out. (5)

4.3
- Avoid moist areas✓ – most internal parasites require an intermediate host found in moist conditions.✓
- Practise rotational grazing✓ – this practice helps to break life cycle of the parasites.✓
- Medical treatment✓ – medical control programmes must be implemented, with good management.✓ (3 × 2) (6)

4.4
- To prevent blowflies from laying eggs around the tail
- To facilitate the process of mating (2)

4.5
- Sheep must be loaded onto the transport, using a ramp or raising loading bay.
- The angle of the ramp should not be too steep and gaps between the truck and the ramp should be covered well to avoid injuries.
- Sheep must not be loosely loaded, as this might cause injuries.
- Injured or blind sheep should be loaded separately to avoid injuries.
- Transporting in very hot or cold weather should be avoided, where possible.
- Sheep loaded onto a double-deck truck must have a supply of fresh air.
- No journey should take longer than 24 hours; otherwise, they should rest for 12 hours after they have been provided with fresh food and water.

(7)
[25]

TOTAL SECTION B: 50

SECTION C

QUESTION 5

5.1 A pigswill is the kitchen refuse and scraps of waste food mixed with water for feeding pigs. (2)

5.2 5.2.1

- It is essential to ensure that piglets receive colostrum soon after birth to protect them from disease.
- Piglets start eating solid food from the third week after birth, therefore it is important to give them extra feed in addition to their mother's milk given as creep-feed.
- Good-quality creep rations should be made available and should be provided in small quantities.
- Creep-feed must be palatable and easily digestible and should be given in small quantities.
- Extra feed will make piglets grow faster and increase weaning mass.
- Clean drinking water near creep ration feeder will encourage feed intake.
- With early weaning, all piglets must consume enough feed and take sufficient nutrients to make them independent of the sow.
- When planning to wean early, the average mass of the litter should be criterion, rather than their age.
- After weaning, piglets must receive enough protein-rich concentrates to provide in growth requirements.
- Piglets can be allowed to consume at least 1 kg concentrates which can be increased daily until they reach 3 kg concentrates at 6 weeks of age. (10)

5.2.2

- The quantity of feed given must allow for the efficient rearing of litter and also for successful conception at the next mating.✓
- The sow must be in a fairly good condition at the end of lactation.
- The number of piglets that the sow suckles will determine the amount of milk she produces.✓
- The number of piglets therefore must determine the quantity of feed that should be given.✓
- The sow should be fed 2 kg of a balanced ration per day✓ and between 0,5 and 0,7 kg per piglet above four piglets per litter.✓
- The change in live mass which the sow undergoes, is the best criteria for determining the feed level.✓
- Sow with an average litter should not receive less than 600 g of protein/day.✓
- Lactation diet of 14% to 14,5% protein provides adequate protein during lactating stage.✓
- Regular supply of clean, fresh water is vital.✓ (10)

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5.3
- It helps to uncover genes that cause abnormalities or death.
- It nurtures uniform families because it increases hereditary power.
- It maintains a close relationship between successive generation and superior ancestors.
- It helps in maintenance of desires traits and types. (Any 3 × 1) (3)

[25]

QUESTION 6

6.1 *Trait* – is a genetic characteristic that is passed on from one generation to another. (2)

6.2
- Feed conversion efficiency✓ – It is a vital factor to consider because feed cost constitutes 75% and more of the total production of pigs.✓
- Carcass quality✓ – Heavy muscles with little fat, and carcass is of a good quality.✓
- Growth rate✓ – A high growth rate reduces production costs.✓
- Fertility✓ – Fertile pigs are required for producing more piglets and large litters.✓ (4 × 2) (8)

6.3
- The boar house should be constructed in such a way that it has enough ventilation.✓
- The floor must not be slippery to prevent slipping and injuries.✓
- The house should be situated in such a way that is easy to reach when sows are served.✓
- It must have an automatic feeding and water supply system.✓
- The house must have proper insulation to protect pigs against the bright sun and heavy rain.✓
- Boars must be kept within sight,✓ sound✓ and smell✓ of the sows.
- The smell, sight and sound of the boar helps stimulate sows to be on heat easily.✓
- Provide the boars with an exercise area where they can keep fit and healthy.✓ (Any 5 × 2) (10)

6.4
- Colibacillosis
- Swine erysipelas (diamond skin disease)
- Greasy pig disease
- Leptospirosis
- Parvovirus
- Anaemia (Iron deficiency) (5)

[25]

TOTAL SECTION B: 50
GRAND TOTAL: 150

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