

MARKING GUIDELINES

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SECTION A

QUESTION 1

1.1

1.1.1 A ✓✓

1.1.2 B ✓✓

1.1.3 C ✓✓

1.1.4 C ✓✓

1.1.5 D ✓✓

1.1.6 C ✓✓

1.1.7 C ✓✓

1.1.8 A ✓✓

1.1.9 D ✓✓

1.1.10 A ✓✓

(10 x 2) = (20)

1.2

1.2.1 A only ✓✓

1.2.2 Both ✓✓

1.2.3 None ✓✓

1.2.4 B only ✓✓

1.2.5 A only ✓✓

(5 x 2) = (10)

1.3

1.3.1 Concentrates ✓✓

1.3.2 Shelter ✓✓

1.3.3 Corpus luteum / yellow body ✓✓

1.3.4 Impotence ✓✓

1.3.5 Prolactin ✓✓

(5 x 2) = (10)

1.4

1.4.1 Essential amino acids ✓

1.4.2 Endothermic ✓

1.4.3 Sigmoid flexure ✓

1.4.4 Vas deferens ✓

1.4.5 Prolapse ✓

(5 x 1) = (5)

TOTAL SECTION A: [45]



SECTION B

QUESTION 2: ANIMAL NUTRITION

2.1 Alimentary canals of farm animals.

2.1.1 Classification of animals.

DIAGRAM A - Ruminant/polygastric ✓

DIAGRAM B - Non-ruminant/monogastric ✓

(2)

2.1.2 TWO adaptation features of animal in DIAGRAM A.

- Complex/compound/polygastric/fore stomach/reticulo-rumen ✓
- Large fermentation vessel/rumen ✓
- Presence of rumen micro-flora/organisms ✓

(Any 2)

(2)

2.1.3 Reason for not feeding animal in DIAGRAM B with a ration high in crude fibre content.

- It has a monogastric/simple stomach/no fore stomach. ✓
- Absence of micro-flora/cannot digest crude fibre. ✓

(Any 1)

(1)

2.1.4 Explanation on how animal in DIAGRAM A benefits from non-protein nitrogenous substance.

Secretion of urease that changes urea into ammonia ✓ which is used to synthesise microbial protein that is later broken into amino acids ✓

(2)

2.2 Pearson square.

2.2.1 Parts of the ration representing maize meal and sunflower oil cake meal.

- Maize meal - 19 parts ✓
- Sunflower oil cake - 6 parts ✓

(2)

2.2.2 Calculation of the percentage of feed B in the mixture.

- $19 + 6 = 25$ ✓
- Feed B = $\frac{19}{25} \times 100$ ✓
- = 76% ✓

(3)

2.2.3 Calculation of the quantities of maize in a 450kg mixture

- $\frac{19}{25} \times 450\text{kg}$ ✓
 - = 342Kg ✓
 - OR
 - $\frac{76}{100} \times 450\text{kg}$ ✓
 - = 342kg ✓
- (2)

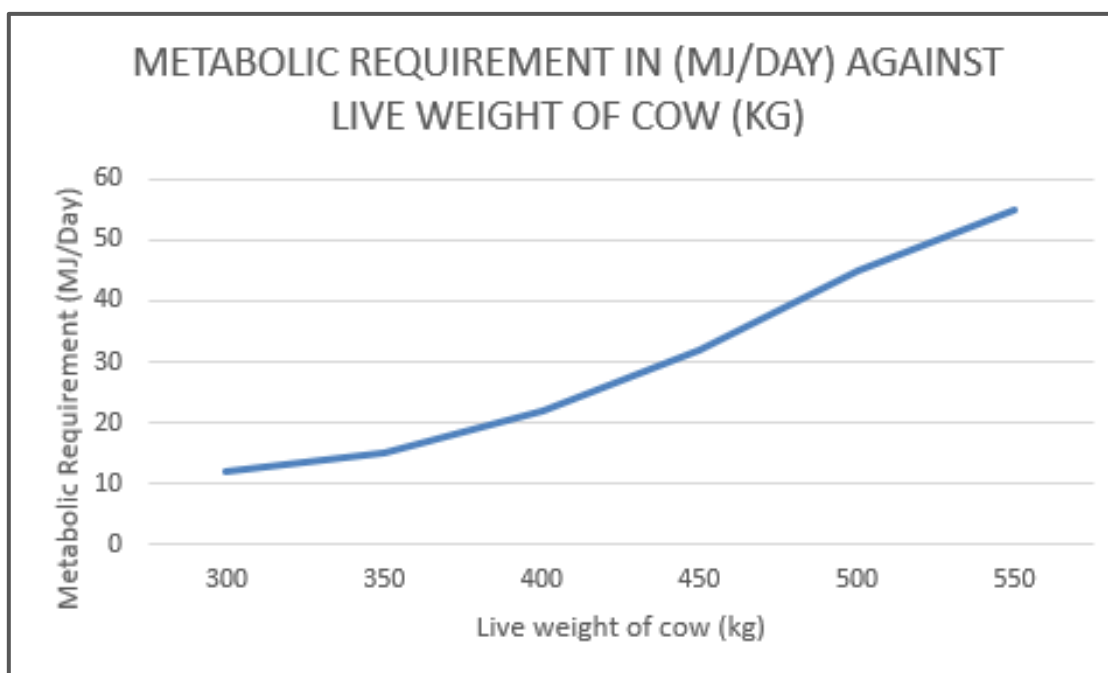
2.3 Mineral deficiency symptoms/supplementation and type of animal.

2.3.1 Writing the missing information.

- A – Calcium ✓
 - B – Iron ✓
 - C – Soil sods/injection ✓
 - D – Mineral lick ✓
- (4)

2.4 Metabolic requirement per live weight.

2.4.1



Rubric for line graph

Heading	1
x-axis correct scale and labelled	1
y-axis correct scale and labelled	1
Line graph	1
Accurate plotting	2

(6)

**2.4.2 Deduction of the trend of metabolic requirement per live weight of a cow.**

Metabolic energy requirement increases ✓ with the increase in live weight. ✓ (2)

2.4.3 Calculation of the metabolic energy requirement of a cow with a live weight of 400kg in 5 days.

Metabolic energy requirement x number of days
= 22 mJ/day x 5 days ✓
= 110 mJ ✓ (2)

2.4.4 TWO importance of calculating energy value of a feed.

- To determine animal's diet. ✓
 - To determine feeding standards. ✓
 - To determine ration formulation. ✓
- (Any 2) (2 x 1) = (2)

2.5 Vitamin deficiencies.

- 2.5.1 a) Vitamin D ✓
b) Vitamin A ✓
c) Vitamin B2 ✓ (3)

2.5.2 Vitamin supplements.

- Injections ✓
 - Licks ✓
 - Supplements in feed ✓
- (Any 2) (2)

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QUESTION 3: ANIMAL PRODUCTION, PROTECTION AND CONTROL

3.1 Farming systems.

- 3.1.1 A – subsistence farming / cash crop farming ✓
B – commercial farming / large scale farming ✓ (2)

- 3.1.2 Subsistence farmers are small scale farmers who are able to grow only enough food ✓ to meet the requirements of their families. ✓ (2)

- 3.1.3 • Equipment is not expensive. ✓
• All family members can assist with the farm work. ✓
• Farmer can give attention to individual plants/livestock – close contact. ✓
• Small area is needed to feed a family. ✓ (4)

- 3.1.4 • Tasks can take long ✓
• Labour intensive ✓ (2)

3.2 Dairy production.

3.2.1

A – FREE RANGE	B – DAIRY HOUSED COWS
Graze on pasture ✓	Fed in housing ✓
Calves are left with cows ✓	Calves are removed from cows ✓
Less labour ✓	Labour intensive ✓

(Any 2 differences x 2) (4)

- 3.2.2 • Type of breed – varies according to breed: Jersey less than Friesland ✓
• Temperament – placid, alert cow makes the best milker ✓
• Health – healthy cows produce more/better milk ✓
• Age – improves until 7/8 years and remains high yield until 10/12 years ✓
• Lactation – yield is the highest between 6-8 weeks after calving ✓
(Any 4) (4)

- 3.2.3 • Low producer prices ✓
• Drought ✓
• Competition ✓
• High feed costs ✓
• Lack of subsidies ✓
(Any 3) (3)



3.3 Cattle handling.

- 3.3.1 • Cattle are nervous by nature and must therefore be kept as calm as possible. ✓
 • Must use the animal's nature and instinct to serve their purpose. ✓
 • Handlers should not be allowed to carry sticks or throw stones at cattle. ✓
 • No shouting, whistling or wild gestures. ✓
 • Handlers must move slowly. ✓
 • With cows and calves let the calves stay as close to the cows as possible. ✓
 (Any 4) (4)

- 3.3.2 a) Location - reduce the distance cattle need to travel to the facility. ✓
 - facilities must be sited at equidistant to areas it serves. ✓
 b) Materials - materials should be strong and durable. ✓
 - wooden posts should be solid and treated. ✓
 - correct dimensional specifications. ✓
 (Any 2) (2)

3.4 External parasites – mites.

- 3.4.1 Sheep scab / Mange ✓ (1)
 3.4.2 Mite / *Psoroptes ovis* ✓ (1)
 3.4.3 Notifiable diseases must be reported ✓ at the state veterinarian / authorities. ✓ (2)
 3.4.4 Organism only found on sheep ✓ and the whole life cycle is completed on sheep. ✓ (2)

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QUESTION 4: ANIMAL REPRODUCTION

4.1 Reproductive organs.

- 4.1.1 Prostate gland ✓ (1)
- 4.1.2 Testes ✓ (1)
- 4.1.3 Epididymis ✓ (1)
- 4.1.4 Cowper's glands ✓ (1)

4.2 Male gamete – sperm cell.

- 4.2.1 C – mid-piece / mitochondria ✓
D – tail ✓ (2)
- 4.2.2 The acrosome contains enzymes ✓ that break down the outer membrane of the ovum allowing fertilization. ✓
(Any 2) (2)
- 4.2.3 Spermatogenesis ✓ (1)

4.3 Oestrus cycle graph.

- 4.3.1 Oestrus is the period of time when the female is receptive ✓ to the male and will stand for mating. ✓ (2)
- 4.3.2 Between the 6 and 12 hour period ✓ prior to ovulation when the rate of conception is higher. ✓ (2)
- 4.3.3 16 – 18 hours ✓ ✓ (2)
- 4.3.4 • A cow shows signs of restlessness which may be indicative of a cow about to exhibit heat. ✓
• Sudden decrease in milk production and food intake especially dairy cows. ✓
• Willingness to mount other cows. ✓
• Ruffled tail head or dirty rump – a sign other animals tried to mount her. ✓
• Vulva swollen. ✓
• Mucous discharges from vulva. ✓
• Cow will approach bull and allow mating. ✓
(Any 4) (4)

4.4 Foetus in uterus.

- 4.4.1 Chorion ✓, Amnion ✓, Allantois ✓ (3)
- 4.4.2 • Protect the embryo ✓
• Play a role in gas exchange and nutrition ✓ (2)



- 4.4.3 1st Preparatory ✓ - during this stage the foetus positions itself for the birth process. ✓
 2nd Ejection / Delivery ✓ - Peristaltic uterine contractions forces the calf through the vagina and vulva. ✓
 3rd Expulsion of after birth ✓ - the placenta separates from the uterus and contractions force it through the vulva 8 – 12 hours after calving. ✓ (6)

- 4.4.4 a) predisposition to condition ✓
 pelvis is not large enough ✓
 (Any 1)
 b) large calf ✓
 postural defects ✓
 (Any 1) (1 x 2) = (2)

4.5 Lactation period.

- 4.5.1 High concentrations of:
- Protein ✓
 - Minerals ✓
 - Vitamin A ✓
 - Fats ✓
- (Any 3) (3)

[35]

TOTAL SECTION B: [105]

GRAND TOTAL: [150]