FACULTY	**Faculty of Health Sciences and Veterinary Medicine**		
DEPARTMENT	**School of Veterinary Medicine**		
SUBJECT	**Production Animal Clinical Studies III**		
SUBJECT CODE	**V3851PA**		
DATE	**May 2026**		
DURATION	**3 Hours**	**MARKS**	**150**

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This paper consists of seventeen (12) pages, including this front page.

Instructions

Read the questions carefully
Answer ALL questions
Write clearly and concisely
Pay attention to the questions. When asked to explain or discuss, a list of keywords alone is inadequate.

Second Opportunity Examination

SECTION A

Question 1

Which statement is true? (1)

a) *Listeria monocytogenes* are **Gram-positive, non-acid-fast, spore-forming, short, rod-shaped** bacteria. The organism may **withstand low-temperature pasteurization** of milk, and it is **tolerant to freezing**.
b) *Listeria monocytogenes* are **Gram-positive, non-acid-fast, non-spore-forming, short, rod-shaped** bacteria. The organism will **not withstand low-temperature pasteurization** of milk, and it is **tolerant to freezing**.
c) *Listeria monocytogenes* are **Gram-negative, non-acid-fast, non-spore-forming, short, rod-shaped** bacteria. The organism may **withstand low-temperature pasteurization** of milk, and it is **tolerant to freezing**.
d) *Listeria monocytogenes* are **Gram-positive, non-acid-fast, non-spore-forming, short, rod-shaped** bacteria. The organism may **withstand low-temperature pasteurization** of milk, and it is **tolerant to freezing**.
e) *Listeria monocytogenes* are **Gram-positive, acid-fast, non-spore-forming, short, rod-shaped** bacteria. The organism may **withstand low-temperature pasteurization** of milk, and it is **tolerant to freezing**.
f) *Listeria monocytogenes* are **Gram-positive, non-acid-fast, non-spore-forming, short, rod-shaped** bacteria. The organism may **withstand low-temperature pasteurization** of milk, but it is **not tolerant to freezing**.

Question 2

Briefly explain how these factors affect viral teratology, including fetal, maternal, and virological factors.

List these factors. (8)

Question 3

Which clinical syndromes occur with *Histophilus somni* infection in cattle? (7)

Question 4

What samples would you take in case of a suspected outbreak of botulism infection in cattle? (6)

Question 5

What are the functions of the synovial fluid in a joint? (4)

Question 6

Describe the pathogenesis of laminitis in cattle. (10)

Question 7

Your client calls you to examine a bovine showing lameness. You observed the animal limping into the kraal. What are you **looking for** before putting the animal into the crush and touching it to help you with your diagnosis? (6)

Question 8

Under what circumstances do you expect primary selenium deficiency? (5)

Question 9

a) Under what circumstances do you expect rickets to occur in a bovine? (3)
b) What are the clinical signs of this condition? (9)

Question 10

a) Define the term "ptosis"? (1)
b) Define the term "hippus"? (1)

Question 11

A farmer calls you to examine his new two-and-a-half-year-old bull, which had a fight with the seven-year-old bull on the farm. The young bull is dull and seems to be looking up. On closer examination, you see the bull is blind, although the pupil reflex is still present.

Where do you expect the lesion to be located? (2)

Question 12

How do you differentiate between **tibial nerve paralysis** and **peroneus nerve paralysis? (2)**

Question 13

Your client keeps the calves at his house while the dams go out to graze. They are not going into the garden but may go to the scrapyard. Now some of them start with nervous signs: they show blindness, spastic twitching of eyelids, ataxia, and muscle tremors. One is salivating and is grinding its teeth. Another one shows convulsions.

a) What is the most likely diagnosis? (1)
b) How will you treat the affected calves? (4)

Question 14

a) What are the causes for Vitamin B1 deficiency? (3)
b) What pathology is causing the clinical signs you will expect to see? (2)

SECTION B

Part I: MCQs (15 × 1 mark)

Q1. Lumpy skin disease in cattle is primarily transmitted by:
A. Aerosol droplets
B. Venereal contact
C. Biting insects (mechanical vectors)
D. Transplacental transmission

Q2. Which tick is classically associated with sweating sickness in cattle?
A. *Rhipicephalus appendiculatus*
B. *Hyalomma truncatum*
C. *Amblyomma variegatum*
D. *Otobius megnini*

Q3. A zoonotic parapoxvirus causing "milker's nodule" in humans from cattle is:
A. *Cowpox virus*
B. *Pseudocowpox virus*
C. *Bovine herpesvirus-2*
D. *Bovine papillomavirus-1*

Q4. Infectious bovine keratoconjunctivitis (IBK) in cattle is most commonly caused by:
A. *Moraxella bovis*
B. *Mycoplasma bovis*
C. *Chlamydia pecorum*
D. *Listeria monocytogenes*

Q5. Chorioptic mange in cattle typically affects which site first?
A. Head and neck
B. Tail head and perineum
C. Distal limbs and fetlocks
D. Dorsal midline

Q6. Anuria in cattle is best defined as:
A. Painful urination
B. Passage of blood in urine
C. Complete absence or very marked reduction of urine output
D. Increased frequency of urination

Q7. Which urinary finding is most characteristic of intravascular haemolysis in cattle?
A. Glucosuria
B. Haemoglobinuria
C. Myoglobinuria
D. Ketonuria

Q8. "Paradoxic aciduria" in ruminants is typically associated with:
A. Acute tubular necrosis
B. Left displaced abomasum with hypochloremic metabolic alkalosis
C. Renal amyloidosis
D. Fanconi-like syndrome

Q9. The most important predisposing factor for urolithiasis in feedlot steers is:
A. Low dietary calcium
B. High-concentrate, high-phosphorus diet with limited water intake
C. Pasture-only diet with high fiber
D. Excessive vitamin E supplementation

Q10. Which lice group are the "sucking lice" (blouluise) of cattle?
A. Mallophaga
B. Anoplura
C. Ceratopogonidae
D. Stomoxyinae

Q11. Sheeppox and goatpox belong to the genus:
A. Orthopoxvirus
B. Avipoxvirus
C. Capripoxvirus
D. Parapoxvirus

Q12. Bluetongue virus in cattle is primarily transmitted by:
A. Mosquitoes
B. Culicoides midges
C. Ticks
D. Lice

Q13. Parafilaria bovicola mainly causes:
A. Nodular dermatophytosis
B. Bleeding skin nodules on the shoulders/neck
C. Generalized alopecia
D. Mange

Q14.In teat laceration repair, which suture principle is correct?
A. Close all layers with a single continuous skin suture
B. Do not place anything in the teat canal
C. Close mucosa, muscle, then skin separately; maintain canal patency with a teat cannula/tube
D. Leave the wound to heal by second intention

Q15.Optimal pain relief during dehorning of calves is achieved by:
A. Sedation alone
B. Cornual nerve block with local anaesthetic only
C. NSAID only
D. Sedation + local cornual nerve block + NSAID

Part II Short Answers [60]

1. During a wet, humid summer, several young beef cattle develop matted hair with "paintbrush" scabs along the dorsal midline, neck, and rump. When scabs are removed, the skin is moist and exudative, with small bleeding points. The animals are mildly pruritic and have poor body condition.



Fig 1a

Questions

a) What is your tentative diagnosis and causative agent? [2]
b) Outline the predisposing factors to this condition. [4]
c) What are your two main differential diagnoses? [2]
d) Describe your treatment and control plan? [8]

2. A small-scale goat farmer in the Omaheke region presents a 6-month-old kid with thick, crusty, proliferative lesions on the lips, nostrils, and inside the mouth. The doe has similar lesions on her teats. The farmer has developed painful papules on his fingers. See pictures below



Fig 2a

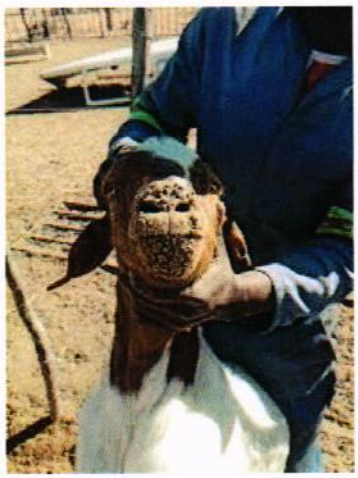


Fig 2b

a) What is the most likely diagnosis and name the causative agent? [2]
b) Why is the farmer's hand lesion significant? [1]
c) How would you manage this case in the herd? [11]

3. A farmer in the Ghanzi district (border of Namibia/Botswana) shows you a 4-year-old cow with thickened, wrinkled, sclerotic skin over the neck, shoulders, and legs. The cow has alopecia, hyperkeratosis, and a "stiff gait." The conjunctiva shows small white cysts (1–2 mm). The animal is thin but eating well. Several other cows on the farm have similar signs, with a history of swelling of the scrotum/vulva months earlier. The pictures posted are shown below in Fig 3a-c.



Fig 3a



Fig 3b



Fig 3c

a) What is your tentative diagnosis based on this clinical picture? [1]

b) Why are the outbreaks common in summer? [2]

c) As a government official based in this region, discuss your treatment approach. [7]

4. A 6-year-old Friesian cow in a dairy herd near Windhoek has a 3-day history of temperature (40°C), anorexia, arched back, and frequent straining to urinate. Urine is dark, cloudy, and foul-smelling. On rectal exam, the left kidney is enlarged and painful. The cow has lost condition.

a) What is your most likely diagnosis, and name the most common causative bacterium in cattle? [2]
b) How does it usually reach the kidney? [1]
c) What would you expect to find on urinalysis? [4]
d) Describe your treatment and prognosis. [3]
e) How would you control this in the herd? [2]

5. A group of dairy cows develops painful teats and white-skin lesions a few days after being moved onto lush Brassica turnips.



Fig 5a



Fig 5b



Fig 5c

a) Outline your differential diagnoses. Most likely first [3]

b) How would you confirm your tentative diagnosis? [5]

END OF EXAM