UNIVERSITY OF NAMIBIA

FACULTY	HEALTH SCIENCES AND VETERINARY MEDICINE		
SCHOOL	VETERINARY MEDICINE		
DEPARTMENT	PARACLINICAL VETERINARY STUDIES		
PROGRAMME	BACHELOR OF VETERINARY MEDICINE		
MODULE	INFECTIOUS DISEASES I		
MODULE CODE	V3711AI		
DATE	JUNE 2026		
DURATION	**3 HOURS**	**MARKS**	150

SECOND OPPORTUNITY EXAMINATION

Examiners: Prof. S Khaiseb, Prof. C Ntahonshikira, Dr. L Mwense
Internal Moderator: Dr. J Yabe
External Moderator: Prof. Ngonda Saasa

This paper consists of eight **(8)** pages including this front page
Additional materials to be supplied: **None**

Instructions
Read the questions carefully
This Memo consists of Section A, B, C, D and E. Students should answer all questions from Section A to D and choose one question from Section E.
Hand in this question paper together with the answer booklet

SECTION A: MULTIPLE CHOICE QUESTIONS. **[15 marks 1 mark each]**

Choose the correct answer.

1. The organisms that can be acid-fast stained are:
   a. Nocardia
   b. Tubercle bacilli
   c. Lepra bacilli
   d. All of these

2. Fowl typhoid (FT) and pullorum disease (PD) are both:
   a. Septicaemic diseases
   b. Primarily diseases of chickens and turkeys
   c. Both are caused by Gram-negative bacteria
   d. All the above

3. The current cause of food poisoning worldwide is:
   a. *E. coli*
   b. *S. enteriditis*
   c. *C. perfringens* type A
   d. *Y. enterocolitica*

4. Which of the following statements is true about the epidemiology of *Prescottella (Rhodococcus) equi* infection in horses?
   a. Foals are usually infected when they inhale dust particles contaminated by this bacterium
   b. Oral ingestion can lead to the colonisation of the large intestine
   c. Foals are usually infected when antibodies obtained from the colostrum are declining
   d. All of the above

5. Inverted fir tree appearance in gelatin stab medium is produced by:
   a. *Bacillus anthracis*
   b. *Clostridium perfringens*
   c. *Erysipelothrix rhuziopathiae*
   d. *Salmonella typhi*

6. Which one of the following produces typical fried egg appearance colonies on solid media?
   a. Mycobacteria
   b. Mycoplasts
   c. Mycoplasmas
   d. Bacteroides

7. The fungus that causes valley fever, fibromatous lesions in respiratory tract and bones
   a. Aspergillus niger
   b. Bordetella bronchiseptica
   c. Coccidioides immitis
   d. Candida albicans

8. Which budding yeast found in ears and/or on the skin has footprint appearance?
   a. *Histoplasma capsulatum*
   b. *Malassezia pachydermatis*
   c. *Trichophyton mentagrophytes*
   d. *Saccharomyces cerevisiae*

9. Which period of the infection process is the best time to apply treatment?
   a. Incubation period
   b. Prodromal period
   c. Invasive period
   d. Decline phase

10. Which of the following is the most common clinical sign of listeriosis in cattle?
   a. Neurological signs
   b. Severe diarrhea
   c. Respiratory distress
   d. Abortion

11. The primary clinical sign of brucellosis in cattle is?
   a. Respiratory distress
   b. Abortions
   c. Neurological signs
   d. Diarrhea

12. The primary mode of transmission of *Rhodococcus equi* in foals is?
   a. Direct contact with infected horses
   b. Inhalation of contaminated dust
   c. Tick transmission
   d. Venereal transmission

13. Dermatophilosis is mainly associated with?
   a. Dry conditions
   b. Wet skin and ectoparasites
   c. High altitude
   d. Viral infection

14. The causative organism of dermatophilosis produces?
   a. Spores
   b. Zoospores
   c. Endotoxins
   d. Capsules

15. Glanders is caused by?
   a. *Burkholderia mallei*
   b. *Pseudomonas aeruginosa*
   c. *Listeria monocytogenes*
   d. *Nocardia farcinica*

SECTION B: TRUE/FALSE QUESTIONS AND COMPLETE SENTENCES. **[20 marks]**

Question 1. Indicate whether the statement is TRUE or FALSE **[10 marks]**

(a) The natural host of*Actinobacillus. equuli* is the horse.

(b) *Actinobacillus suis* causes septicaemia, arthritis, pneumonia and pericarditis in young pigs.

(c) *Clostridium perfringens* type B causes malignant oedema.

(d) *Streptococcus equi* may be encountered orally, nasally, transmammary, by ingestion, by aerosols, or flies.

(e) *Bacillus cereus* causes wool sorters disease in humans.

(f) The possible virulence factors of *Brucella abortus* include endotoxins as well as enzymes such as superoxide dismutase and catalase which help remove toxic oxygen radicals.

(g) Mycobacterial infections are difficult to treat.

(h) Microorganisms with a small LD50 have greater virulence.

(i) Endotoxins are chiefly produced by Gram-negative bacteria.

(j) Antitoxins only come from exotoxins.

Question 2. Fill /complete the following sentences. **[10 marks]**

a. *Brucella* species have a strong affinity for ..... tissues, including .....fetal fluids, testes of bulls, rams, dogs, and boars, and lymph nodes. [2]

b. ..... is a part of the normal flora of the human body where it colonizes areas like the ....., skin, and ..... [3]

c. The spirochete ..... is the main cause of swine dysentery. [1]

d. One can distinguish streptococci from staphylococci based on the catalase reaction because *Streptococcus* species are normally catalase ....., while *Staphylococcus* species are catalase ..... [2]

e. *Erysilopelothrix rhusiopathiae* mainly causes disease in .....and ..... [2]

SECTION C: SHORT ANSWER QUESTIONS. **[30 marks]**

Question 1: List at least four (4) risk factors that determine clinical outcomes following infection with *Salmonella* spp. in animals. [4]

Question 2: Describe the prevention and control of actinobacillosis in rams caused by *Actinobacillus seminist*. [4]

Question 3: List two (2) predisposing factors for *Actinobacillus suis* infection in pigs. [2]

Question 4: What is the result of a reverse CAMP test using *S. aureus* and *Corynebacterium pseudotuberculosis*? [2]

Question 5: Define "miliary tuberculosis". [2]

Question 6: Name three (3) bacteria that are common causes of bovine mastitis. [3]

Question 7: **[6]**

Answer the following questions about dermatophilosis:

a. Name three (3) factors that increase the likelihood of *Dermatophilus* spp. infections in animals. [3]

b. Name three methods used to diagnose dermatophilosis. [3]

Question 8: Name three (3) methods used to classify *Streptococcus* species. [3]

Question 9. A cat was presented to the clinic with these lesions on the face and nose (Figure 1A). The cytology showed the following picture (Figure b). What would be your diagnosis and what is the causative agent? What makes you think of this causative agent in figure 1B. [4]



Figure 1A

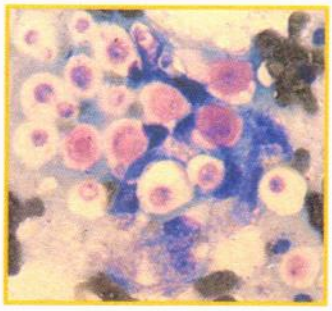


Figure 1B

SECTION D: STRUCTURED QUESTIONS **[65 marks]**

Question 1: **[10]**

a. Draw a graph showing the phases of the course of an infectious disease. [8]

b. Define the word "acme" in relation to the course of an infectious disease. [2]

Question 2. **[15]**

A farmer reports that several of their pigs, aged 4–12 months, have developed raised, rhomboid looking skin lesions over the last 48 hours. The affected pigs appear lethargic, have reduced appetite, and some have high fevers (40.5–42°C). On examination, the skin lesions vary from pink to purple in colour. A few pigs have died suddenly without showing significant prior clinical signs.

i. Based on the clinical presentation and history, what is your primary differential diagnosis (list 3 diseases)? [3]

ii. What is the likely causative agent of this disease? Describe three key characteristics (e.g., gram staining, morphology, and host range). [4]

iii. What two samples would you collect for diagnostic testing, and which two laboratory tests would you request to confirm the diagnosis? [4]

iv. Outline 4 preventive/contol measures the farmer can take to reduce the risk of future outbreaks. [4]

Question 3. **[10]**

List the three (3) forms of glanders and discuss the form that gives the disease its characteristic name by describing its clinical signs and progression.

a) List the three forms of glanders. [3]

b) Discuss the form that gives glanders its name (Chronic form). [7]

Question 4. **[10]**

Discuss the aetiology and pathogenesis of turkey coryza.

Question 5. **[10]**

Oedema disease is a very important disease in pigs. Answer the following questions about this disease:

a) What is the aetiology and its virulence factors? [3]

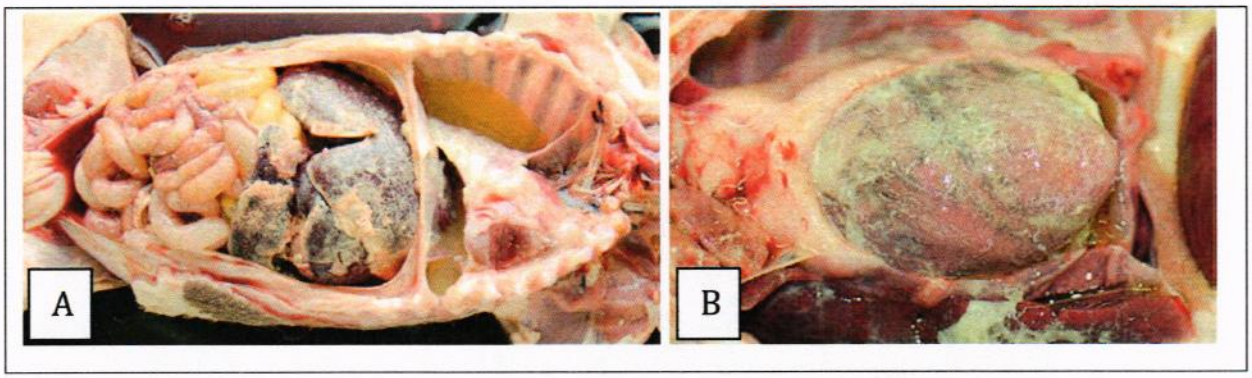
b) What age group is most affected? [1]

c) What key factors influence the pathogen's capacity to establish an infection in pigs? [3]

d) Given the information in "(c)" above, what are the implications of this for the control of oedema disease? [3]

Question 6. **[10]**

A group of pigs in a piggery are chronically losing weight, and some have died acutely. Upon doing a post-mortem on one of the dead pigs you notice the abnormalities depicted in the pictures below.



a. What abnormalities do you see? [7]

b. What disease is this likely to be? [1]

c. How would you control this disease? [2]

SECTION E. ANSWER ONE (1) OF THE FOLLOWING TWO QUESTIONS BELOW. [20 marks]

Question 1. [20]

a. Differentiate between actinomycosis and actinobacillosis using the following headings. [12]

Criteria	Actinomycosis	Actinobacillosis
Common name	1.	2.
Causative agent	*3.*	*4.*
Gram stain	5.	6.
Tissue mostly affected	7.	8.
Appearance of colonies	9.	10.
Radiating clubs	11.	12.

b. A farmer is worried about his small stock showing signs of lameness and some walking on their knees. On close inspection of the hooves, you found the signs as shown in the picture. **[4]**



i. What disease condition would you suspect? [1]
ii. What are the two (2) causative agents? [2]
iii. What are the favouring conditions for the disease to develop? [1]

c. List the two (2) forms of pasteurellosis in small stock and the causative agent of each. [4]

OR

Question 2. **[20]**

A. Mastitis is a significant and common disease in dairy cattle because of its adverse economic and animal welfare implications.

(a) Outline the main hygienic procedures that might be applied to control mastitis [6]

(b) What are the two categories of mastitis? [2]

(c) Measuring somatic cell counts is one way of monitoring udder health. What is the main effect of persistently high somatic cell counts in a dairy herd? [2]

(d) What is the aetiology of coliform mastitis, and what is the chief biochemical characteristic of these pathogens? [4]

(e) Besides using antibiotics, what other therapy has been proven to be more effective in treating coliform mastitis? [2]

B. Give clinical manifestations of Johne's disease in cattle. [4]

END OF EXAMINATION PAPER