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 2024		
DURATION	**3 HOURS**	**MARKS**	150

FIRST OPPORTUNITY EXAMINATION

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Internal Moderator: Dr. J Yabe
External Moderator: Prof. F Giovani

This question paper consists of **seven (7)** pages including this front page

Instructions

Read the questions carefully

This question paper consists of Section A, B, C, D, and E. Answer all questions in Sections 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. **[10 MARKS]**

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 establishment of infection with *Dermatophilus congolensis* appears to depend on:
   a. Virulence of the strain
   b. General health of the animal
   c. Skin trauma and moisture
   d. All of the above
4. The most common cause of food poisoning worldwide is
   a. *E. coli*
   b. *S. enteriditis*
   c. *C. perfringens* type A
   d. *Y. enterocolitica*
5. 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 colonisation of the large intestine
   c. Foals are usually infected when antibodies obtained from the colostrum are declining
   d. All of the above
6. Inverted fir tree appearance in gelatine stab medium is produced by:
   a. *Bacillus anthracis*
   b. *Clostridium perfringens*
   c. *Erysipelothrix Rhuziopathiae*
   d. *Salmonella typhi*
7. Which one of the following produces typical fried egg appearance colonies on solid media?
   a. Mycobacteria
   b. Mycoplasts
   c. Mycoplasms
   d. Bacteroides
8. Fungi that cause valley fever, fibromatous lesions in respiratory tract, bones

a. *Aspergillus niger*
b. *Bordetella bronchiseptica*
c. *Coccidioides immitis*
d. *Candida albicans*

9. Which budding yeast found in ears and on skin has footprint appearance?
   a. *Histoplasma capsulatum*
   b. *Malassezia pachydermatis*
   c. *Trichophyton mentagrophytes*
   d. *Saccharomyces cerevisiae*
10. 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

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

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

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

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

(c) Superficial skin, lymphocutaneous, and thoracic infections, as well as disseminated forms, are the major clinical pictures of nocardiosis in dogs and cats.

(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) Corynebacteria are acid-fast.

(g) Mycobacterial infections are difficult to treat

(h) Microorganisms with a small ID50 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. *Nocardia spp.* are associated with ..... and ..... infections in dogs and cats
b. ..... and ..... causes bovine farcy in cattle
c. *Canine pyoderma is usually caused by* .....
d. The spirochete ..... is the main cause of swine dysentery?

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

f. *Erysilopelothrix rhusiopathiae* mainly causes the disease in .....and .....

SECTION C: SHORT ANSWER QUESTIONS. **[24 marks]**

Question 1: List the risk factors that determine clinical outcomes following infection with Salmonella in animals? [4]

Question 2: Describe the prevention and control of Actinobacillosis in rams caused by *Actinobacillus seminis*? [4]

Question 3: List two 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: Name the three methods used to classify *Streptococcus* species. [3]

Question 8. A cat was presented to the clinic with these lesions on the face and nose (Figure 1A). The histopathology showed the following picture (Figure b).



Figure 1A

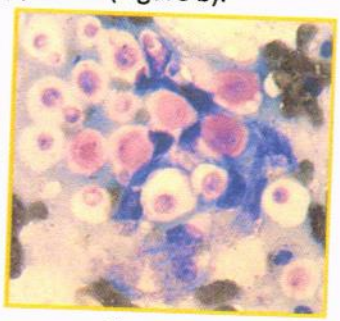


Figure 1B

What would be your diagnosis and what is the causative agent? [4]

SECTION D: STRUCTURED QUESTIONS **[76 marks]**

Question 1: **[10]**

On a graph, show the phases of the course of an infectious disease (1-8) [8]

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

Question 2: **[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 3. **[10]**

Answer the following questions (a and b) about *Francisella:*

a. Name the two most important reservoirs of *Francisella tularensis*? [2]
b. List four (4) modes of transmission of *Francisella tularensis.* [4]
c. Discuss the pathogenesis of tetanus [4]

Question 4. **[10]**

(a) Discuss any 5 prevention and control measures of swine erysipelas in a piggery farm. [5]
(b) List 5 differential diagnoses of snuffle disease in rabbits [5]

QUESTION 5. **[10]**

(a) Describe the main clinical manifestations of *Campylobacter fetus venerealis* infection in cows.
(b) Identify the clinical signs that result in economic losses on a farm where *Campylobacter fetus* is present. [5]

QUESTION 6. **[10]**

Discuss the etiology and pathogenesis of turkey coryza.

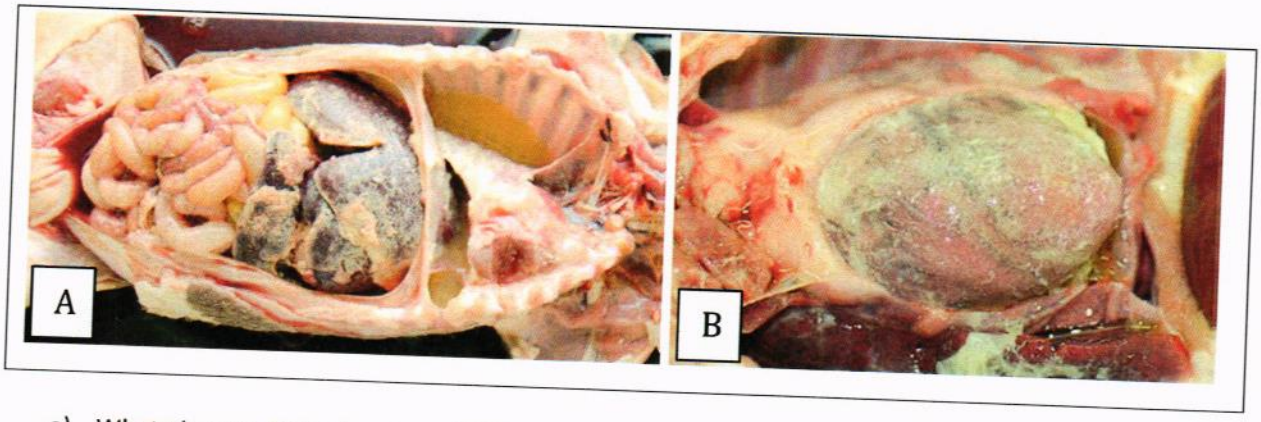
QUESTION 7. **[10]**

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

a) What is the etiology 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 8. **[10]**

2. 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 TWO QUESTIONS BELOW. **[20 MARKS]**

QUESTION 1. **[20 MARKS]**

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

Criteria	Actinomycosis	Actinobacillosis
a. Common name	i.	(a)
b. Causative agent	*ii.*	*(b)*
c. Gram stain	iii.	(c)
d. Tissue mostly affected	iv.	(d)
e. Appearance of colonies	v.	(e)
f. Radiating clubs	vi.	(f)

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.





(a) Discuss the pathogenesis of foot rot in small stock. [4]

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

QUESTION 2.

[20 MARKS]

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

(a) What are the typical sources of infection for pathogens that cause mastitis on a dairy farm? [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 etiology 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 the clinical manifestations of Johne's disease in cattle. [4]

END OF EXAM PAPER