UNAM
UNIVERSITY OF NAMIBIA

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 2025		
DURATION	**3 HOURS**	**MARKS**	150

FIRST OPPORTUNITY EXAMINATION PAPER

Examiners: Prof S Khaiseb, Prof C Ntahonshikira and Dr Leya Mwense
Internal Moderator: Dr J Yabe
External Moderator: Prof F Giovanni

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

Instructions: *This question paper consists of Section A, B, C, and D. Answer all questions.*

Hand in this examination paper with your answer book

SECTION A: MULTIPLE CHOICE QUESTIONS **[20 marks, 1 mark each]**

Choose the correct answer

1. What is the primary vector for transmitting Lyme disease in animals?
   a) Fleas
   b) Ticks
   c) Mosquitoes
   d) Lice

2. Which fungal pathogen commonly causes ringworm in domestic animals?
   a) Candida albicans
   b) Aspergillus fumigatus
   c) Trichophyton mentagrophytes
   d) Cryptococcus neoformans

3. Occurrences of fungal diseases are usually _____
   a) epidemic
   b) sporadic
   c) endemic
   d) constant

4. Which bacterial species is responsible for causing contagious bovine pleuropneumonia (CBPP)?
   a) Mycoplasma mycoides
   b) Escherichia coli
   c) Brucella melitensis
   d) Pasteurella multocida

5. What is the characteristic morphology of *Erysipelothrix rhusiopathiae*?
   a) Gram-positive, club-shaped rod
   b) Gram-negative, fusiform rod
   c) Gram-positive, slender rod with a tendency to form long filaments
   d) Gram-negative coccobacillus

6. Which bacterial genus is described as Gram-negative, filamentous or spindle-shaped, and often associated with necrotic infections in animals?
   a) Listeria
   b) Erysipelothrix
   c) Fusobacterium
   d) Corynebacterium

7. What is the primary causative agent of enteric colibacillosis?
   a) *Mycoplasma hyopneumonia*
   b) *Bordetella bronchiseptica*
   c) *Escherichia coli*
   d) *Actinobacillus pleuropneumonia*

8. What is the main role of *Pasteurella multocida* in the pathogenesis of atrophic rhinitis?
   a) It acts as a secondary pathogen, exacerbating the condition caused by *Bordetella bronchiseptica*.
   b) It is the primary pathogen that causes the disease on its own.
   c) It provides immunity against *Bordetella bronchiseptica* infection.
   d) It causes diarrhea in pigs infected with atrophic rhinitis.

9. What is the typical diagnostic test for detecting *Mycobacterium bovis* in animals?
   a) Tuberculin skin test
   b) PCR (Polymerase Chain Reaction)
   c) Blood culture
   d) X-ray

10. Which species is most commonly affected by *Bordetella bronchiseptica*?
   a) Cattle
   b) Dogs
   c) Horses
   d) Poultry

11. Which bacterium causes the disease known as "glanders"?
   a) Bibersteinia trehalosi
   b) Burkholderia mallei
   c) Bartonella hensele
   d) *Brucella abortus*

12. Ascoli test is used to diagnose:
   a) Anthrax
   b) Brucellosis
   c) Mastitis
   d) foot rot

13. Fletcher's media is used for cultivation of .....
   a) Borrelia burgdorferi
   b) Leptospira interrogans
   c) Salmonella spp.
   d) Listeria monocytogenes

13. Which other bacterium is often associated with the progression of atrophic rhinitis in swine?
    a) *Pasteurella multocida*
    b) *Streptococcus pneumoniae*
    c) *Clostridium botulinum*
    d) *Salmonella enterica*

14. What is the primary causative agent of Postweaning Diarrhea (PWD) in pigs?
    a) *Escherichia coli* (ETEC)
    b) *Mycoplasma hyopneumonia*
    c) *Salmonella enterica*
    d) *Ascaris suum*

15. What is the primary consequence of Contagious Equine Metritis (CEM) in affected mares?
    a) Permanent infertility
    b) Temporary infertility and vaginal discharge
    c) Severe colic and fever
    d) Lameness and swelling of the legs

16. Lumpy jaw in cattle is caused by:
    a) Actinobacillus lignieresi
    b) Actinomyces bovis
    c) *Salmonella spp.*
    d) E. coli

17. Which among the following can be used to demonstrate fungal elements in tissue sections?
    a) Periodic acid-Schiff (PAS)
    b) Gram staining
    c) Modified Ziehl-Neelsen
    d) India ink

18. The only live spore vaccine for animal bacterial disease used is for
    a) Anthrax
    b) Braxy
    c) Enterotoxaemia
    d) Black quarter

19. Which of the following is a risk factor for the development of bovine keratoconjunctivitis?
    a) Increased temperature and humidity
    b) Poor nutrition
    c) Close confinement with high animal density
    d) All of the above

20. How is *Actinobacillus suis* primarily transmitted among pigs?
    a) Airborne transmission
    b) Fecal-oral transmission
    c) Direct contact with infected pigs and nasal discharge
    d) Ingestion of contaminated feed

SECTION B: TRUE/FALSE AND FILL IN QUESTIONS **[20 marks]**

QUESTION 1. Indicate whether the statement is true or false. **[5]**

(a) The disease caused by *Mycobacterium avium* subspecies *paratuberculosis* is commonly referred to as Johne's disease.

(b) Cattle are the only known reservoir of *Mycobacterium bovis*.

(c) Paratuberculosis is often fatal in cattle and cannot be treated with antibiotics.

(d) Bovine keratoconjunctivitis is primarily transmitted through direct contact with infected animals, contaminated equipment, or flies.

(e) Bordetella bronchiseptica is primarily transmitted between animals through the fecal-oral route.

QUESTION 2. Fill in the blanks **[15]**

(a) Leptospira are slender and cannot be stained with Gram staining. But they can be stained with ..... After staining, they can be observed best by .....or ..... [4]

(b) The fungus which is abundantly seen in pigeon droppings is ..... [1]

(c) Fluorescence seen in Woods lamp technique is due to the metabolite of ..... [1]

(d) Type of spore arrangement in hair shaft by dermatophyte can be ..... or ..... [2]

(e) *Treponema pallidum* is mainly a human pathogen which causes syphilis. In animals, this pathogen can also cause disease in ..... [1]

(f) *Vibrio cholerae* is an important human pathogen, while ..... causes enteric disease in chickens [1]

(g) Most dermatophytosis infections in cats and dogs are caused by....., while ringworm in cattle is most frequently caused by ..... [2]

(h) The golden standard method used in the diagnosis of leptospirosis is ..... [1]

(i) Swine dysentery is caused by ..... [1]

(j) Farcy is the ..... form of glanders. [1]

SECTION C: SHORT ANSWER QUESTIONS **[45 marks]**

QUESTION 1. In McFaydean reaction, what is the colour of the organism and the capsule? [2]

QUESTION 2. Distinguish between pathogenesis and pathogenicity [2]

QUESTION 3. Flaccid paralysis is caused by *Clostridium botulinum* also called Limber neck, List the 4 morphological and characteristics of the bacteria [4]

QUESTION 4. Discuss the three (3) ways that bacteria/fungi cause a disease. [3]

QUESTION 5. *Pseudomonas aeruginosa* may be considered the ultimate opportunistic pathogen but three key attributes can make it a formidable pathogen. Name these attributes. [3]

QUESTION 6. *Aspergillus* species are very much known to cause avian aspergillosis. However, they can also cause a number of conditions in cattle; name these conditions: [4]

QUESTION 7. List four general etiological and morphological characteristics of bacteria in the genus *Brucella*. [4]

QUESTION 8. List five (5) clinical signs (features) of brucellosis in cattle. [5]

QUESTION 9. Corynebacteria are widely distributed and inhabit various environments. List 2 such environments. [2]

QUESTION 10. **[6]**

1. What is bovine keratoconjunctivitis commonly referred to as? [1]
2. How is bovine keratoconjunctivitis primarily transmitted? [2]
3. What environmental factors increase the risk of bovine keratoconjunctivitis? [3]

QUESTION 11. **[10]**

1. What are the main factors that predispose cattle to Pasteurellosis? [4]
2. List two predisposing factors for *Actinobacillus* suis infection in pigs? [2]
3. Name four (4) bacteria that are common causes of bovine mastitis. [4]

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

QUESTION 1.

1. Compare and contrast Pleuropneumonia with Actinobacillus suis infection in pigs. [10]

QUESTION 2. **[10]**

1. What is causative agent of Turkey coryza [1]
2. Discuss the clinical signs of turkey coryza [9]

QUESTION 3. **[10]**

a) Name five (5) methods commonly used to diagnose an infectious disease. [5]

b) In which animal species does strangles occur in acute disease and what are its predominant signs? [5]

QUESTION 4 **[10]**

a) Sporotrichosis is an important zoonosis, with animal-to-human transmission well documented. Discuss its prevention and control in both animals and humans. [5]

b) Cryptococcosis often affects the upper respiratory system of the cat. Which clinical signs are commonly seen in this form of the disease? [5]

QUESTIONS 5

Case study: A farmer reports that several of their pigs, aged 4–12 months, have developed raised, rhomboid-shaped 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.

a) What is the causative agent of this disease and mention the disease? Describe four key characteristics (e.g., Gram staining, morphology). [5]

b) Explain how this pathogen (pathogenesis) causes skin lesions seen in affected pigs and the clinical signs (both acute and chronic) upon entry through the oral, nasal, or skin wounds. [5]

QUESTION 6. **[10]**

Case Study: As you inspect a herd of cattle trotting past you the student vet (BVM23) in the Zambezi region, and you notice one cow presenting with respiratory distress as shown below

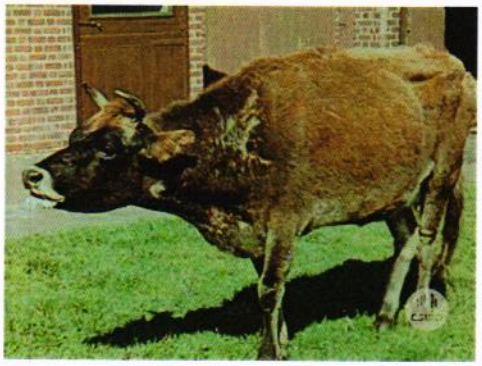


Figure 1. Breathing Difficulty in Cattle (Zambezi Region)

Questions:

a) What is your suspected diagnosis (disease)? Mention the causative agent to subspecies level. [2]

b) Describe the pathogenesis of the disease mentioned in **(a)**. [5]

c) How is condition in **(a)** primarily transmitted? [1]

d) List two other clinical signs of **(a)** (besides anorexia and depression)? [2]

END OF PAPER