UNIVERSITY OF NAMIBIA

FACULTY	HEALTH SCIENCES AND VETERINARY MEDICINE		
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SECOND OPPORTUNITY EXAMINATION

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This question paper contains **seven (7)** pages including this front page.

SECTION A: MULTIPLE CHOICE QUESTIONS **[25 MARKS, 1 MARK EACH]**

1. Which of the following diseases is called cattle plague?
    a. Lumpy skin disease
    b. Rinderpest
    c. Foot and mouth disease
    d. Malignant catarrhal fever
2. Which animal species is believed to be the "mixing pot" for influenza viruses?
    a. Cattle
    b. Rodents
    c. Swine
    d. Monkeys
3. Birnaviruses may cause disease in:
    a. Birds and amphibians
    b. Birds and fish
    c. Reptiles and insects
    d. Horses and cattle
4. Nipah virus was transmitted to humans from:
    a. Fish
    b. Rodents
    c. Horses
    d. Swine
5. Bornaviruses are associated with the following disorders in veterinary medicine:
    a. Spring viremia of carp
    b. Bovine ephemeral fever
    c. Proventricular dilatation disease of psittacines
    d. Infectious bursal disease of poultry
6. In which organ does viral replication first occur during the course of infection with Western Equine Encephalitis virus in a horse?
    a. Tonsil
    b. Lymph node
    c. Skin
    d. Brain
7. Which of the following genera is responsible for the Porcine Dermatitis and Nephropathy Syndrome (PDNS) in pigs:
    a. *Orthoburnyavirus*
    b. Circovirus
    c. *Hantavirus*
    d. *Phlebovirus*
8. Indicate the first site of replication of orbiviruses in their host.
    a. Central nervous system
    b. Lymph nodes
    c. Spleen

d. Adrenal glands

9. Which of the following mosquito genera is the most important vector able to transmit the Getah virus:
    a. *Aedes*
    b. Culex
    c. *Anopheles*
    d. *Phlebotomus*
10. From the following diseases indicate which should not be put in differential diagnosis with the Nairobi Sheep Disease:
    a. Heartwater
    b. Foot and Mouth Disease
    c. Akabane
    d. Rift Valley Fever
11. The wheelbarrow test is useful in the diagnosis of:
    a. Maedi-visna
    b. Louping-ill
    c. Ovine pulmonary adenomatosis
    d. Scrapie
12. Infectious canine hepatitis in dogs produces:
    a. Pink eye
    b. Blue eye
    c. Red eye
    d. None of the above
13. Which one of the following is the most common method of transmission of foot and mouth disease?
    a. Inhalation
    b. Ingestion
    c. Cutaneous
    d. Venereal
14. A common consequence of Equine herpesvirus 1 infection in horses is:
    a. Vaginitis
    b. Abortion
    c. Infertility
    d. Pneumonia
15. The indicator host for foot and mouth disease is:
    a. Sheep
    b. Pig
    c. Cattle
    d. Goat
16. Which of the following transmissible spongiform encephalopathies occurs naturally in wildlife?
    a. Chronic wasting disease
    b. Bovine spongiform encephalopathy
    c. Scrapie
    d. Transmissible mink encephalopathy
17. Which of the following properties do Parvoviruses and Circoviruses have in common?
    a. Have a ds DNA genome
    b. Have a circular genome

c. Require rapidly dividing cells for replication
d. Encode viral polymerase in the genome

18. Which of the following has as its pathogenesis immune-mediated destruction of cells?
    a. Transmissible gastroenteritis
    b. Feline infectious peritonitis
    c. Avian infectious bronchitis
    d. Porcine hemagglutinating encephalomyelitis
19. Which of the following characteristics is typically exhibited by members of Alphaherpesvirinae?
    a. Replicate slowly in epithelial cells
    b. Achieve latency in secretory glands
    c. Are lymphotropic
    d. Achieve latency in neural ganglia
20. Abortive replication of a virus may lead to which of the following?
    a. Cell lysis
    b. Virus release
    c. Cytopathic effects
    d. Cellular transformation
21. The first step of replication following uncoating of picornaviruses is which of the following?
    a. Transcription
    b. Translation
    c. Genomic replication
    d. Budding
22. The tegument is a structural component of_____and contains a viral protein used for____.
    a. Poxviruses; transcription
    b. Iridoviruses; DNA replication
    c. Herpesviruses; splicing mRNA
    d. Herpesviruses; host mRNA degradation
23. Accumulation of prion protein in the neural tissue is responsible for the non-febrile fatal disease of sheep called:
    a. Spongiform encephalopathy
    b. Bovine spongiform encephalopathy
    c. Scrapie
    d. Hard udder
24. When compared to conventional viruses, prions do not possess:
    a. DNA
    b. RNA
    c. Both A & B
    d. Nucleocapsid
25. The foremost sign seen in canine distemper is:
    a. Nervous signs
    b. Pustules
    c. Respiratory signs
    d. Enteric signs

SECTION B. TRUE/FALSE AND FILL IN THE BLANKS QUESTIONS **[30 MARKS]**

QUESTION 1. Indicate whether the statement is TRUE or FALSE **[20 marks, 1 mark each]**

(a) Both attenuated and inactivated vaccines are available for the control of canine hepatitis.
(b) Swine influenza virus can cause infections in humans.
(c) An animal/human being bitten by a rabid dog will have shorter incubation period in adults than in children because children are more sensitive to the virus.
(d) There is no vertical infection to foetus in equine infectious anaemia.
(e) Adult ruminants with Akabane infection are typically presenting neurological signs.
(f) Bovines are the only animals showing clinical signs when infected by Crimean-Congo haemorrhagic fever.
(g) The Bluetongue virus penetrates into the host organism by direct contact.
(h) Avian reovirus persists in the tissues of chickens for not more than 5 days.
(i) The main route of Bovine Viral Diarrhoea spread is through the nasal secretions.
(j) In particular circumstances the West Nile Disease virus can affect secondary guests represented by sheep and horses.
(k) African Horses Sickness virus is divided in 10 serotypes.
(l) Rift Valley Fever is a disease transmitted by midges.
(m) In swine, the important consequence of parvovirus infection is foetal death.
(n) Transformation is a consequence of a lytic productive virus infection.
(o) Equine arteritis virus can be transmitted through artificial insemination with fresh-cooled or cryopreserved semen.
(p) Circovirus and Polyomavirus are two genera of DNA viruses associated with feather loss in birds.
(q) Newcastle disease virus is an important paramyxovirus of poultry.
(r) Type A strain of Orthomyxovirus causes most infections in animals and humans, while type B strain only infects humans.
(s) Bovine respiratory syncytial virus is one of the three major viruses associated with the bovine respiratory disease complex (BRDC).
(t) Foot-and-mouth disease is a devastating disease and is considered to be the most important livestock disease in the world because of its high mortality rate.

QUESTION 2. Fill in blanks questions **[10 marks]**

(a) Fowl adenovirus is vertically transmitted through ..... [1 mark]
(b) The rabies virus occurring in naturally infected animals is called..... virus. [1 mark]
(c) The reservoirs of Hendra viruses are ..... [1 mark]
(d) Orthomyxoviruses and paramyxoviruses have the same radical because they both produce ..... [1 mark]
(e) Small ruminant lentiviruses (SRLVs) include Maedi-visna virus (MVV), which mainly occurs in ..... and ....., mainly found in goats. [2 marks]
(f) Young animals (especially calves) suffering from foot and mouth disease show focal necrosis of cardiac muscle. This condition is known as ..... [1 mark]
(g) The aetiologic agent of Marek's disease is transmitted ..... and spreads ..... [2 marks]
(h) Implication of Marek's disease infection is that healthy birds can be .....and infect others. [1 mark]

SECTION C: SHORT ANSWER QUESTIONS **[25 marks]**

QUESTION 1. **[3 marks]**
Discuss the transmission of feline immunodeficiency virus.

QUESTION 2. **[2 marks]**
Name the two (2) newly recognized zoonotic viruses of the *Paramyxoviridae* family which are classified as Hazard Group 4 agents.

QUESTION 3. **[3 marks]**
Name the diseases caused by Caliciviruses in Cats, Rabbits and Pigs respectively.

QUESTION 4. **[2 marks]**
Other than foot and mouth disease, name two (2) other important diseases caused by members of the Picornaviridae family.

QUESTION 5. **[3 marks]**
Name three (3) vesicular diseases in farm animals.

QUESTION 6. **[2 marks]**
Name two (2) samples that should be collected for the detection of prion protein in BSE cases.

QUESTION 7. **[3 marks]**
Name the possible Feline Leukemia virus (FeLV) infection outcomes.

QUESTION 8. **[4 marks]**

a. Name two (2) important animal diseases that are caused by caliciviruses. [3]
b. Where does the name "calicivirus" originate from? [1]

QUESTION 9: **[3 marks]**
Most of the post-mortem lesions in a carcass with rinderpest are found in internal organs. Which lesions are specifically found in the small intestine, abomasum, cecum and colon?

SECTION D: STRUCTURED QUESTIONS **[70 MARKS]**

QUESTION 1. **[10 marks]**

a. You are a state veterinarian in the northern communal areas bordering Angola. In the case of the unfortunate outbreak of Peste des petits ruminants in your area, which actions should you take to control and eradicate the disease? [5]

b. Newcastle disease is a very important poultry disease. Which samples would you collect to send to the laboratory for confirmation diagnosis when you suspect the disease? [5]

QUESTION 2. **[10 marks]**
(a) Indicate the most important *Culicoides* species responsible for the global spread and transmission ofAfrican Horse Sickness. [5]

(b) Indicate any three (3) diseases that should be considered for differential diagnosis of African Horsesickness [3]

(c) Which virus was introduced into Australia in order to control the population of rabbits and which disease does it cause? [2]

QUESTION 3. **[10 marks]**

(a) Rinderpest has been eradicated in many countries worldwide including Namibia. However, there is always a possibility of the disease reoccurring and or reemerging. Which clinical signs would trigger suspicion of the classic form of this disease? [5]

(b) Discuss the clinical signs of the paralytic/dumb form of rabies in dogs [5]

QUESTION 4. **[10 marks]**

a. You are tasked to go to the field and sample for bovine spongiform encephalopathy. Which sites would you consider going to collect from? [5]

b. Describe the clinical signs of visna in sheep. [5]

QUESTION 5. **[10 marks]**

(a) Bovine spongiform encephalopathy (BSE) is an important disease for mandatory regular testing in Namibia even though it has never been diagnosed; this is due to export requirements. Outline the ways of transmission of this disease. [5]

(b) Discuss the sanitary prevention of lumpy skin disease in infected countries like Namibia, as well as the medical prevention against the disease. [5]

QUESTION 6. **[10 marks]**

(a) Skin lesions are a prominent feature of poxvirus infections. List the changes/lesions (in order of development) that many Poxvirus infections produce in different animal species [5]

(b) Describe briefly the clinical manifestation of a **respiratory disease** due to a concurrent infection by **EHV-1 and EHV-4** in adult horses. [5]

QUESTION 7. **[10 marks]**

(a) As a veterinary clinician at a small animal hospital in Windhoek, describe the physical examination and clinical laboratory findings you would observe in a puppy **younger than 6 weeks of age** you suspect has a Parvovirus infection. [5]

(b) Briefly explain the treatment plan you would provide for a puppy infected or diagnosed with parvovirus. [5]

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QUESTION 6. **[10 marks]**

(a) Describe the clinical signs of sheep scrapie. [5]

(b) Give Two (2) dermatological and three (3) neurological signs of canine distemper [5]

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