



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES
SCHOOL OF AGRICULTURE AND NATURAL RESOURCES SCIENCES
DEPARTMENT OF AGRICULTURAL SCIENCE AND AGRIBUSINESS**

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| QUALIFICATIONS: BACHELOR OF SCIENCE IN AGRICULTURE | |
| QUALIFICATIONS CODE: 07BAGA | LEVEL: 7 |
| COURSE CODE: ANH620S | COURSE: ANIMAL HEALTH |
| DATE: JANUARY 2025 | PAPER: 1 |
| DURATION: 3 HOURS | MARKS: 100 |

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| SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER | |
| EXAMINER: | PROF. T. WASSENAAR |
| MODERATOR: | MRS. LUCIA TUYENI-KELAO KAFIDI |

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| INSTRUCTIONS |
| <ol style="list-style-type: none">1. Answer all the questions.2. Write neatly and clearly.3. Mark all answers clearly with their respective question numbers.4. All written work MUST be done in blue or black ink.5. No books, notes and other additional aids are allowed. |

PERMISSIBLE MATERIALS

1. Pen & Pencil
2. Examination paper
3. Examination script

**THIS QUESTION PAPER CONSISTS OF 5 PAGES
(Excluding This Front Page)**

SECTION 1: INFECTIOUS DISEASE**[47]****QUESTION 1.1****(10)**

- (i) Explain the modes of transmission of diseases in farm animals (1 mark each for main division into two kinds, 0.5 marks for each subsequent division)
(8)
- (ii) In your opinion, why is it important to understand the modes of transmission of diseases?
(2)

QUESTION 1.2**(12)**

Name six different types of infectious agents that can cause diseases. Give an example of a disease caused by each agent.

QUESTION 1.3**(6)**

Below is a table containing some basic information about four infectious diseases, with some missing information numbered a - f. Provide the missing information.

| Disease | Type of pathogen | Affected species (= "susceptible host") | Most important symptom |
|---------------------------|-------------------------|---|---|
| Avian Influenza | (a) | (b) | Respiratory symptoms with facial swelling and blue comb |
| (c) | Bacterium | Cattle | Fast, difficult or noisy breathing, discharges from the nose, shallow coughing especially after exercise, >5% die of respiratory symptoms |
| (d) | Bacterium | In Namibia, sheep are most susceptible, but can affect cattle too | In sheep: abortions, few in year 1 with abortion storm in subsequent lambing seasons. Cattle: can cause late-term abortions |
| Bovine brucellosis | (e) | (f) | Cows: abortion, stillbirths, weak calves, retained placenta, drop in milk Bulls: epididymitis, orchitis Infertility, arthritis |

QUESTION 1.4

(2)

List two common infectious causes of abortion in sheep

QUESTION 1.5

(5)

Explain briefly the etiology of pneumonic pasteurellosis in sheep.

QUESTION 1.6

(8)

Read the **example** below that deals with Bluetongue, then write sentences that describe the following aspects of the disease rabies:

- a) Is it peracute/acute/chronic (1)
- b) What is the cause (1)
- c) Which organ system is mostly affected (1)
- d) How is it transmitted (1)
- e) Which species are affected (1)
- f) Most important symptoms (1)
- g) Most important pathological signs (1)
- h) How is it controlled (1)

For your convenience, here is an example for a different disease: *Bluetongue is a peracute to chronic viral disease transmitted by biting midges. The virus damages the walls of blood vessels resulting in swelling and blue discolouration of the tongue, salivation and nasal discharges, fever, redness of face, groin and coronary bands and abortions. It affects many ruminant species, with sheep being the most severely affected. The main post-mortem findings are haemorrhages, oedema, necrotic lesions in many muscles, redness and swellings. There are no effective treatments, hence control relies on movement control, vector control, limiting exposure to areas close to water, and vaccinations.*

Question 1.7

(4)

When considering reservoirs of disease (reservoirs are places or animals where disease pathogens can survive and be ready to infect a new host), it is important to understand that there are two types of animal carriers that can be reservoirs of infectious diseases. These two types are called (a) **asymptomatic carriers**, which are further divided into three sub-types, and (b) **passive carriers**. Define the types of animal carriers and their sub-types and give an example where you can.

SECTION 2: NON-INFECTIOUS DISEASE

[20]

QUESTION 2.1

(4)

Name 4 possible ways in which you can control or manage the round worm problem.

QUESTION 2.2**(4)**

Name 4 possible detrimental health implications that a high tick (ectoparasites) load can have for your stock.

QUESTION 2.3**(8)**

You suspect some animals have died of gifblaar (poison leaf/otjikuyoma) poisoning.

- a) Name at least two indicator plant species that can help to confirm the possible presence of gifblaar in the area (2)
- b) What advice will you give the farmer regarding treatment, prevention, and control of gifblaar? (6)

QUESTION 2.4**(4)**

You have some sheep that start showing neurological symptoms, depression and are starting to turn in circles. Your diagnosis is “draaisiekte” (turning disease).

- a) What parasite causes this disease? (1)
- b) What will you find in the postmortem to confirm your diagnosis? (2)
- c) Looking at the table below – what chemical group would you use to treat your flock? (1)

| | | Chemical group | Remedies | Spectrum |
|----|--|---------------------------------|---|---|
| *1 | | Macrocyclic lactones | Ivermectin; Abamectin; Moxidectin | Roundworms; Fly larvae |
| 2 | | Benzimidazoles | Thibendazole; Mebendazole; Albendazole; Triclabendazole; Fenbendazole | Roundworms and eggs |
| 3 | | Imidothiazoles | Levamisole | Roundworms |
| 4 | | Salicylanilides | Rafoxanide**; Closantel**; Resorantel; Niclosamide; Oxyclosanide | Flukes and some tapeworms **Roundworms |
| 5 | | Phenols | Nitroxylin; Disophenol | Roundworms |
| 6 | | Sulphonamides | Clorsulon | Flukes |
| 7 | | Organophosphates | Haloxon; Trichlorfon; Naphthalophos | Roundworms |
| 8 | | Isoquinoline | Praziquantel | Tapeworms |
| 9 | | Other (Tetrahydropyrimidine) | Morantel; Pyrantel | Roundworms |

SECTION 3: IMMUNITY AND ANIMAL HEALTH

[33]

QUESTION 3.1

(3)

Lymphocytes are a specific type of white blood cell associated with the lymphatic system. Name the three major types of lymphocytes.

QUESTION 3.2

(4)

How do vaccines work? Complete the following sentences

By inoculating (injecting or by mouth) a **(a)** _____ version of the **(b)** _____, or of a part of its antigen, the **(c)** _____ system is trained to recognise more **(d)** _____ versions of

the pathogen. Because it is trained, it can recognise and mount a response much quicker next time it is exposed to the natural, virulent version of the pathogen.

QUESTION 3.3

(5)

With reference to antibiotics:

- a) What do the terms broad spectrum and narrow spectrum refer to? (2)
- b) Give an example of a broad spectrum and narrow spectrum antibiotic. (2)
- c) How will you apply your knowledge of broad spectrum and narrow spectrum to treat an animal with a bacterial infection? (1)

QUESTION 3.4

(6)

Explain how you could increase host resistance against disease.

QUESTION 3.5

(10)

A farmer is complaining that his young cattle are dying. Describe the entire investigative approach you will take to arrive at a tentative diagnosis of the cause(s) of mortalities in his herd. For each procedure in the investigation, explain why you are asking a specific question or doing a specific examination.

QUESTION 3.6

(5)

Explain what you understand under the term “sentience” in animals

----- End of Question Paper -----