



MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2022/2023 ACADEMIC YEAR

THIRD-YEAR SECOND SEMESTER

**SCHOOL OF NATURAL RESOURCE TOURISM
AND HOSPITALITY**

**BACHELOR OF SCIENCE IN ANIMAL HEALTH
AND PRODUCTION**

COURSE CODE AHP 3207-1

COURSE TITLE: EPIDEMIOLOGY

DATE:

TIME: 3 hrs.

EXAM

INSTRUCTIONS TO CANDIDATES

Answer **ALL** questions

EPIDEMIOLOGY [120 Marks]

1. a. Define the term 'epidemiology' (2 marks)
b. Mention five components of quantitative epidemiology (5 marks)
c. List two terms used in veterinary medicine to describe counts of disease or death (2 marks)
d. Define the term 'disease prevalence' (2 Marks)
e. Calculate, disease prevalence in the below. Give answer as a percent (%) (3 Marks)
 - i) if 10 animals in a population of 30 are diseased
 - ii) if 30 animals in a population of 40 are diseased
 - iii) if 40 animals in a population of 70 are diseasedf. Discuss 'spread of infection in populations' under the below headings (6 Marks)
 - i) Epidemics
 - ii) Cyclic trends
 - iii) Long term trends
2. a. Discuss the goals of disease surveillance (10 Marks)
b. Discuss the three main factors which are important in the spread of infection. (10 marks)
3. Discuss the six main routes which bring an infectious agent into contact with the sites for infection. For each route mention an example of an infectious agent (of veterinary significance). (20 Marks)
4. a. Discuss active surveillance. (10 Marks)
b. Discuss passive surveillance. (10 Marks)
5. Briefly discuss the 3 main types of observational studies. (20 Marks)
6. a. Discuss any 4 applications of veterinary epidemiology (7 Marks)
b. You are the overall technical manager of your farm in Laikipia County known as 'Bufu' farm, where you keep ostriches for meat. The farm has 200 ostriches. In the month of January 2023 when you introduced the first flock, 20 birds were diagnosed with anthrax. In the month of February an additional, 30 were diagnosed with anthrax. Forty (40) of the birds died of the disease. (*Show all calculations*)
 - i) Calculate the one-month cumulative incidence. (2 Marks)
 - ii) Calculate the two-month cumulative incidence for the disease. (2 Marks)
 - iii) Calculate the incidence rate. (2 Marks)
 - iii) Calculate the case fatality rate. (2 Marks)

iv) Briefly explain how you would manage the outbreak. (2 Marks)

v) Assuming the below overheads, estimate the economic burden of the disease outbreak at 'Bufu' (3 Marks)

- Antibiotic therapy Ksh 2,000 per bird

- Anthrax vaccination Ksh 1,000 per bird

- Disposal & biosafety related costs Ksh 20,000

- Losses attributable to antibiotic withdrawal Ksh 100,000

- Losses attributable to delayed weight gain Ksh 500,000

- Production losses Ksh 1,500,000 per bird