# MAASAI MARA UNIVERSITY

## SPECIAL 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 3202

## COURSE TITLE:  PUBLIC HEALTH AND EPIDEMIOLOGY

DATE:                      TIME: 3 hrs.                      EXAM

## INSTRUCTIONS TO CANDIDATES

## Answer ALL questions

**PUBLIC HEALTH AND 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 diseased |

    f. Discuss 'spread of infection in populations 'under the below headings (6 Marks)

    i) Epidemics
    ii) Cyclic trends
    iii) Long term trends

2. 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)

3. 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) 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

4. a. List Six (6) minimum requirements for transporting food animals as stipulated in Cap 360(Prevention of Cruelty to Animals) of Kenyan law. (8 Marks)
b. Describe four (4) effects of transport, on meat animals. (12 Marks)

5. a. Discuss non- typhoidal salmonellosis as a food borne disease highlighting, transmission, and control. (5 Marks)
   b. Describe how to control taeniasis. (5 Mark)
   c. Discuss the reservoir of Staphylococcus aureus in the context of food borne diseases. (5 Marks)
    d. Describe aflatoxicosis highlighting the aetiology and prevention. (5 marks.

6. a. Discuss FIVE (5) challenges facing the Veterinary Public Health arm of the Narok County Veterinary Services in Kenya. (10 marks)
b. Explain FIVE (5) key reasons for conducting Meat Inspection. (10 Marks)