



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY SCHOOL
OF HEALTH SCIENCES**

**UNIVERSITY EXAMINATION FOR MASTER'S IN PUBLIC HEALTH AND MASTER OF
BIOMEDICAL SCIENCES (MEDICAL ENTOMOLOGY)**

1st YEAR 2nd SEMESTER 2023/2024 ACADEMIC YEAR

MAIN/KISUMU

COURSE CODE: HME 5123

COURSE TITLE: TECHNIQUES IN MEDICAL ENTOMOLOGY AND VECTOR SCIENCE

EXAM VENUE:

DATE:

TIME: 3.00 HOURS

Instructions:

- 1. Question 1 is compulsory then answer any other 3 the questions.**

Instructions: Answer any 4 questions (80 marks)

1. Outline and Discuss field sampling and molecular techniques involved in
 - i) Malaria vector control (10 marks)
 - ii) Tsetse fly control (10 marks)

2. a) Examine the pros and cons of morphological and molecular methods for identifying medically significant vector species (10 marks)
b) How do these methods complement each other in entomological research? (10 marks)

3. a) Describe the use of two immunological techniques used in the study of vector-borne diseases 10 marks

b) How do these methods contribute to our understanding of disease transmission and vector ecology (10 marks)

4. a) Evaluate the suitability of different trapping techniques for studying ticks, especially those involved in the transmission of diseases like Lyme disease. (10 marks)
b) Discuss the challenges associated with tick trapping and how these methods contribute to understanding tick ecology and disease risk. (10 marks)

5. Illustrate the recent advancements in molecular techniques and their application in the control of malaria vectors (20 marks)

6. Explain how genetic markers and molecular assays can be used to detect and track insecticide resistance in vectors? (20 marks)