



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY  
SCHOOL OF BIOLOGICAL, PHYSICAL MATHEMATICS AND ACTUARIAL  
SCIENCES  
DEPARTMENT OF BIOLOGICAL SCIENCES  
UNIVERSITY EXAMINATIONS FOR THE DEGREE OF MASTER OF SCIENCE IN  
APPLIED INSECT SCIENCE  
1<sup>ST</sup> YEAR 2<sup>ND</sup> SEMESTER 2023/2024 ACADEMIC YEAR**

**MAIN CAMPUS - REGULAR**

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**COURSE CODE: SBI 5125**

**COURSE TITLE: Vector-borne Diseases**

**EXAM VENUE:**

**STREAM: MSc. Applied Insect Science**

**DATE:**

**EXAM SESSION:**

**TIME: 3 HOURS**

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**Instructions:**

- 1. Answer question ONE and ANY other TWO Questions**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

1. (a) Explain how co-evolution between insect vectors and pathogens influences the intensity of vector-borne diseases (4 marks).  
(b) How does the human host influence the transmission of vector-borne diseases (4 marks).  
(c) Describe myiasis and list two insects that cause such condition (4 marks).  
(d) Explain how vector competency and vectorial capacity influence transmission of vector-borne diseases in the tropics (4 marks).  
(e) List four arboviral infections and their insect vectors (4 marks).
2. Discuss the consequences of various vector-borne diseases on the human host and socio-economic development (20 marks).
3. Using specific examples, highlight human defensive mechanism to vector-borne diseases (20 marks).
4. Discuss the life cycle of *Trypanosoma* parasites in the insect and human host, pathology, diagnosis and treatment (20 marks).
5. Over the past three decades, previously controlled vector-borne diseases have resurged or reemerged in new geographic locations, and several newly identified pathogens and vectors have triggered disease outbreaks world-wide. Account for this observation (20 marks).