



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

**UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE  
ENVIRONMENTAL HEALTH/ COMMUNITY HEALTH AND DEVELOPMENT  
2<sup>ND</sup> YEAR 1<sup>ST</sup> SEMESTER 2023/2024 ACADEMIC YEAR**

**MAIN**

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**COURSE CODE: HCB 2203**

**COURSE TITLE: ENTOMOLOGY AND PEST MANAGEMENT**

**EXAM VENUE:**

**STREAM: (BSc. Env. Hlth / Comm Hlth & Dev)**

**DATE:**

**EXAM SESSION:**

**TIME: 2.00 HOURS**

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**Instructions:**

- 1. Answer all the questions in Section A and ANY other TWO questions in Section B.**
- 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.**

**SECTION A: Answer ALL questions (30 marks)**

1. The phylum Arthropoda consists of four Classes. With ONE example EACH, describe at least THREE of the classes in the phylum Arthropoda. (3 marks)
2. With respect to arthropods as biological carriers define the following term: Propagative, Cyclopropagative and Cyclodevelopmental. (3marks)
3. What is the main function of ovipositor in insects? Describe two functions that are performed by this organ in insects as a result of modification. (3 marks)
4. Ticks are obligate ectoparasites of mainly mammals; briefly describe their general life cycle. (3 marks)
5. Name at least one species of spider that is highly venomous. Describe major symptoms that are caused by spider venom and their management. (3 marks)
6. Describe any TWO species of mites that are of public health importance to man. Name the disease conditions they cause in man and their management. (3 marks)
7. List any THREE species of insects that are found in the order Diptera that transmit viral infections and the specific viruses they transmit in humans. (3 marks)
8. Malaria parasites are transmitted by members of *Anopheles gambiae* complex. Name SIX species that constitute the *An. gambiae* complex that commonly transmit the malaria parasites in sub-Saharan Africa. (3 marks)
9. Define the term Myiasis. Name any two species of arthropods or insects that are normally associated with myiasis. (3marks)
10. Define the term Pediculosis. Provide scientific names of THREE insects involved in Pediculosis. (3 marks)

**SECTION B: Answer TWO questions (40 Marks)**

1. a. Describe host seeking behavior in mosquito species that commonly transmit parasites to humans. Explain why some mosquito species are more efficient in transmitting parasites between humans than others. (10 marks)  
b. Describe the advantages and disadvantages of mosquito vector control using Insecticide treated nets. (10 marks)
2. What are the medical importance of the following insects: The rat flea (*Xenopsylla cheopis*) and human flea (*Pulex irritans*). Describe the specific parasites transmitted by these fleas, the disease they cause and the general control of fleas in the environment. (20 marks)
3. Discuss the public health importance of one named soft tick and one named hard tick. Describe the parasites they transmit in domestic livestock and the diseases they cause. (20 marks)
4. Write short notes on three groups of the eight known filarial nematodes according to the niche within the body they occupy. Describe the worms that are transmitted and the condition they cause. (20 marks)