



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

P.O. Box 62157

00200 Nairobi - KENYA

MAIN EXAMINATION

Telephone: 891601-6

Ext 1022/23/25

SEPTEMBER –DECEMBER 2021

FACULTY OF SCIENCE

DEPARTMENT OF COMMUNITY HEALTH AND DEVELOPMENT

REGULAR PROGRAMME

CHD 214 & DCHD 214: MEDICAL ENTOMOLOGY AND VECTOR CONTROL

Date: DECEMBER 2021	Duration: 3 Hours
INSTRUCTIONS: PROVIDED FOR IN THE SECTIONS	

SECTION A SHORT ANSWER QUESTIONS **(30 MARKS)**

- Q1. What is meant by the term Arthropoda? Name two classes of arthropods **(2 Marks)**
- Q2. List four common identification characteristics for arthropods **(2 Marks)**
- Q3. Name at least one parasite that is transmitted by the following vectors: **(3 Marks)**
- a) Sand flies
 - b) Tsetse flies
 - c) Ixodidae ticks
- Q4. Define the term metamorphosis. Name any two insects that undergo complete metamorphosis **(3 Marks)**
- Q5. Outline three modes of transmission of vector-borne diseases **(3 Marks)**
- Q6. What is the vector for Onchocerciasis **(1 Mark)**
- Q7. What is the cause of Louse-Borne typhus fever **(1 Mark)**
- Q8. _____ transmits lyme disease **(1 Mark)**

Q9. The definitive host for *Wuchereria bancrofti* is _____ while the intermediate host is _____ (2 Marks)

Q10. List the medical importance, and control methods for *Glossina* species (2 Marks)

Q11. Fill in the blanks with the correct word in the passage below (10 marks)

The malaria parasite life cycle involves two hosts. During a blood meal, a malaria-infected mosquito inoculates _____ into the human host. They infect liver cells and mature into schizonts, which rupture and release _____. After this initial replication in the liver (exo-erythrocytic schizogony), the parasites undergo asexual multiplication in the erythrocytes (erythrocytic schizogony). They infect red blood cells. The ring stage _____ mature into schizonts, which rupture releasing _____. Some parasites differentiate into sexual erythrocytic stages _____. Blood stage parasites are responsible for the clinical manifestations of the disease. These are then ingested by a mosquito during a blood meal. The parasites' multiplication in the mosquito is known as the sporogonic cycle. While in the mosquito's stomach, these fertilize generating _____. These in turn become motile and elongated _____ which invade the midgut wall of the mosquito where they develop into _____. These grow, rupture, and release _____, which make their way to the mosquito's salivary glands. Inoculation of the _____ into a new human host perpetuates the malaria life cycle.

SECTION B: LONG ANSWER QUESTIONS (ANSWER ANY TWO QUESTIONS).

(40

MARKS)

Q1. Arthropods comprise of the most diverse Phylum in the living things classification.

a) Describe in detail the effects of insects on man. (10 Marks)

b) Outline the three major diseases caused by fleas (10 Marks)

Q2. You have been posted to lead a field team to Central Africa, in an area with high populations of sand-fly. One of your tasks is to control the disease transmitted by sandflies.

a) Classify this arthropod by: (4 Marks)

i) Class

ii) Order

iii) Family

iv) Genera

b) Give any four characteristics of the Sand fly (4 Marks)

- c) Outline the medical importance of Sand flies **(4 Marks)**
- d) Describe any eight management strategies for the Sand fly **(8 Marks)**
- Q3. Arthropods in the class insecta have their bodies segmented into three distinct regions.
- a) With the aid of a well-labeled insect diagram, list the segments that comprise the insect's body. **(10 Marks)**
- b) Describe the life cycle of the malaria parasite in the Anopheles mosquito. **(10 Marks)**
- Marks)**
- Q4. Lambwe Valey in Homa Bay County is a geographical habitat of the tsetse fly, which causes disease in human beings characterized by day- time insomnia. Discuss the transmission cycle of trypanosomiasis and the control interventions for the vector for this disease. **(20 Marks)**
- Q5. Rodents not only destroy stored grains but also cause diseases. As a health worker, you have realized that rodents are an indirect cause of poverty and want to establish a Zuia Panya Foundation to tackle this problem. To raise funds for your initiative, you convene a forum to inform stakeholders about rodents
- a) Mention the three major species of rodents **(3 Marks)**
- b) Explain the Public Health Importance and Rodent-borne Diseases **(10 Marks)**
- c) Discuss the rodent control strategies that can be employed in your Initiative. **(7 Marks)**

END