



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

SECOND YEAR SECOND SEMESTER MAIN EXAMINATIONS

**FOR THE DIPLOMA
IN
MEDICAL BIOTECHNOLOGY**

COURSE CODE: BBD 223.

COURSE TITLE: MEDICAL ENTOMOLOGY & VECTOR BIOLOGY

DATE: 21ST APRIL 2023

TIME: 11:00AM-1:00PM

INSTRUCTIONS TO CANDIDATES

This paper is divided into three sections, **A B** and **C**, carrying respectively: Multiple Choice Questions (**MCQs**), Short Answer Questions (**SAQs**) and Long Answer Questions (**LAQs**). Answer all Questions. **DO NOT WRITE ON THE QUESTION PAPER.**

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over.

SECTION A: Multiple Choice Questions (20Marks)

1. Specialized organs involved in filtration of hemolymph in arthropods as known as:
 - A. Air tubes
 - B. Spiracles
 - C. Malpighian tubes
 - D. Tracheolea
2. An arthropod which carries a disease causative agent without altering its development is known as?
 - A. Propagative carrier
 - B. Mechanical carrier
 - C. Cyclopropagative carrier
 - D. Cyclodevelopmental carrier
3. Which of the following arthropods belong to class crustacea
 - A. Scorpion
 - B. Cyclops
 - C. Hard tick
 - D. Centipede
4. Which of the following characteristics identifies with order Anoplura
 - A. Presence of one pair of wings
 - B. Presence of rudimentary wings
 - C. Wingless with short legs
 - D. Wingless with strong jumping legs
5. Wingless, aquatic arthropods with 4 pairs of legs and bodies divided into cephalothorax and abdomen belong to class?
 - A. Insecta
 - B. Arachnida
 - C. Crustacea
 - D. Pisces
6. The anopheline, aedes and culex genus belong to which order?
 - A. Siphonaptera
 - B. Anoplura
 - C. Hemiptera
 - D. Diptera
7. The palps and proboscis are of equal length in which genus of mosquitoes
 - A. Anopheline
 - B. Culicine
 - C. Aedes
 - D. Vivax
8. Which of the following genus of flies acts as vector for leishmania species
 - A. Simulium
 - B. Glossina
 - C. Phlebotomus
 - D. Chrysops
9. Lice are involved in the transmission of some of the following diseases:
 - A. Epidemic typhus fever
 - B. Paralysis

- C. Trench fever
 - D. Plague
10. Wings that are held erect when the arthropod is at rest belong to the germs:
- A. Glossina
 - B. Culicoides
 - C. Phlebotomus
 - D. Anopheles
11. Fleas harbor the intermediate stage of?
- A. Diphyllbothrium latum
 - B. Echinococcus granulosus
 - C. Taenia solium
 - D. Hymenolepis diminuta
12. Hard ticks belong to the order: -
- A. Ixodidae
 - B. Siphonaptera
 - C. Argasidae
 - D. Acarina
13. An insect with clear broad wings, short horn-like antenna and humped thorax belongs to the genus?
- A. Anopheles
 - B. Culicoides
 - C. Simulium
 - D. Chrysops
14. Which of the following does not belong to the class Insecta?
- A. Louse
 - B. Beetle
 - C. Tick
 - D. Bed-bug
15. The breeding site preferred by Simulium species is _____
- A. Fast flowing streams and rivers
 - B. Ant hills
 - C. Stagnant water
 - D. Humid micro-habitat
16. Which one of the following insects are vectors of the microfilariae *loa loa*
- A. Simulium damnosum
 - B. Chrysops species
 - C. Phlebotomus species
 - D. Glossina species
17. The primary disease transmitted by triatomine bugs is known as
- A. Q fever
 - B. Lyme disease
 - C. Chaga's disease
 - D. Babesia microtia
18. All the following are characteristics of class Arachnida **EXCEPT?**
- A. Possess 4 pairs of legs.
 - B. They are wingless

- C. They a pair of antennae
 - D. undergo incomplete metamorphosis
19. The species of mosquitoes whose adult lie with their abdomen at an angle to the surface are known as?
- A. Culex
 - B. Aedes
 - C. Anopheline
 - D. Falciparum
20. Which one of the following insects acts as the vector for onchocerca volvulus
- A. Simulium
 - B. Ixodes
 - C. Pulex
 - D. Tunga

SECTION B – Short Answer Questions (40 Marks)

1. Describe measures applicable towards the control of mosquitoes **(8marks)**
2. Outline the general characteristics of Lice **(8 marks)**
3. Outline two pathogens transmitted by the following arthropods:
 - a) Aedes mosquito **(2 marks)**
 - b) Tsetse fly **(2 marks)**
 - c) Sand flies **(2 marks)**
 - d) Lice **(2 marks)**
4. Explain the effects of arthropods on human beings **(8 marks)**
5. Outline the general features of class Insecta **(4 marks)**
6. List down four types of Triatomine bugs **(4 marks)**

SECTION C – Long Answer Questions (60Marks)

1. A patient was diagnosed with severe malaria caused by *Plasmodium falciparum* species, describe the general characteristics, life cycle and control of the vector for this disease **(20 marks)**
2. Discuss the general characteristics and structure of arthropods **(20 marks)**
3. As a head of public health, vector borne disease division, describe how you would handle an outbreak of sleeping sickness in Baringo county **(20 marks)**