



(University of Choice)

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

(MAIN CAMPUS)

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

THIRD YEAR SECOND SEMESTER MAIN EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF MEDICAL LABORATORY SCIENCES
MAIN EXAMINATIONS**

COURSE CODE: BML 323

**COURSE TITLE: MEDICAL ENTOMOLOGY AND VECTOR
BIOLOGY**

DATE: 17TH APRIL 2023

TIME: 8.00 – 10.00AM

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 (20 Marks)

1. Which of the following is not an insect?
 - a. Termites
 - b. Lice
 - c. Spider
 - d. Bedbugs
2. To suck our blood, the mosquito pierces our body with its ___.
 - a. Thorax
 - b. Antenna
 - c. Abdomen
 - d. Proboscis
3. Which body parts help the insect to sense its surroundings?
 - a. Antennae
 - b. Proboscis
 - c. Compound eyes
 - d. Spiracles
4. _____ is the middle part of the insect body.
 - a. Proboscis
 - b. Thorax
 - c. Abdomen
 - d. head
5. Which mosquito is responsible for Dengue?
 - a. Anopheles
 - b. Aedes
 - c. culex
 - d. Triatomine bugs
6. Which insect is responsible for Cholera?
 - a. Bees
 - b. Houseflies
 - c. Tse tse flies
 - d. Ticks
7. Which of the following is called the resting and inactive stage in the insect life cycle?
 - a. Egg stage
 - b. Larva stage
 - c. pupa stage
 - d. Adult stage
8. Insects are classified into the phylum _____.
 - a. Nematoda
 - b. Mollusca
 - c. Arthropoda
 - d. Platyhelminthes
9. Which of the following statements is true about the holometabolous insects?
 - a. These insects undergo complete metamorphosis
 - b. These insects undergo incomplete metamorphosis
 - c. Insects with that leave underground

d. Aquatic insecta

10. Insects breathe through _____.
 - a. Gills
 - b. Nostrils
 - c. Spiracles
 - d. Malpighian tubules
11. Which one of the following functions of the skeleton applies only to insects?
 - a. Providing camouflage.
 - b. Protection
 - c. Leavers of locomotion.
 - d. Determining body shape exactly.
12. Insects in the dry areas conserve water by passing waste in form of?
 - a. Urea
 - b. Uric acid crystals.
 - c. Ammonia gas
 - d. Urine
13. Which of the following groups of insects all have similar feeding habits?
 - a. Bee, mosquito, caterpillar.
 - b. Housefly, cockroach, praying mantis.
 - c. Tsetse fly, housefly, caterpillar.
 - d. Bee, butterfly, bedbug.
14. Which one of these insects does not lay eggs in its lifecycle?
 - a. Bee
 - b. Grasshopper
 - c. Tsetse fly
 - d. Housefly
15. Which of these are characteristic of all insects?
 - a. Complete metamorphosis and possession of three pairs of jointed legs.
 - b. Possession of three pairs of jointed legs and body divided into three main parts.
 - c. Possession of one or two pairs of wings and having three pairs of jointed legs.
 - d. Complete metamorphosis and body divided into three main parts.
16. The following are characteristics of insects: (i) They undergo complete metamorphosis. (ii) They have 1 or 2 pairs of wings. (iii) They have 3 pairs of jointed legs. (iv) Their bodies are divided into 3 main parts. (v) They possess exoskeletons. Which of them are common to all insects?
 - a. (iii), (iv) and (v)
 - b. (i), (ii) and (iii)
 - c. (i), (iii) and (v)
 - d. (iii), (ii) and (v)
17. Which one of the following may not be used for classifying insects?
 - a. Mouth parts.
 - b. Feeding habits.
 - c. size of legs.
 - d. type of eyes.
18. In cyclopropagative development disease transmission in arthropods:

- a. Number of pathogens increases
 - b. Number of pathogens remains constant
 - c. Pathogen developmental stage remains constant
 - d. Pathogen undergoes change both in number and developmental stage
19. Phlebotomine species are the vectors of the following parasites:
- a. *Plasmodium falciparum*
 - b. *Leishmania aethiopica*
 - c. *Onchocerca volvulus*
 - d. *Trypanosoma gambiense*
20. Insects that feed outdoors and rest indoors are referred to as?
- a. Exophagic exophilic
 - b. Endophilic exophagic
 - c. Exophilic endophagic
 - d. Endophilic endophagic

SECTION B: Short Answer Questions (40 Marks)

1. Match the following insects to the disease they transmit (5 marks)
- | | |
|------------------------------|-------------------------------------|
| a. <i>Musca domestica</i> | <i>Wuchereria Bancrofti</i> |
| b. <i>Anopheles funestus</i> | <i>Yellow fever</i> |
| c. <i>Aedes species</i> | <i>Onchocerca volvulus</i> |
| d. <i>Simulium species</i> | <i>Trypanosoma brucei gambiense</i> |
| e. <i>Glossina Species</i> | <i>Entamoeba histolytica</i> |
2. Explain why insects are successful in their diversity (5 marks)
3. Explain the methods used in collecting insects (5 marks)
4. Outline the effects of insects on man (5 marks)
5. Describe the external morphology of insects (5 marks)
6. Describe the factors that affect insects growth (5 marks)
7. Outline the functions of the air sac in insects (5 marks)
8. Describe the lifecycles tsetse flies (5 marks)

SECTION C: Long Answer Questions (60 Marks)

1. Discuss Mosquitoes under the following subheadings:
- e. Classification (4 marks)
 - f. The general biology and behavior (8 marks)
 - g. Diseases they transmit and control (8 marks)
2. Describe the general methods of vector control (20 mks)
3. Describe the insects reproductive system and its significance in the control of insects (20 mks)