



(University of Choice)

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

(MAIN CAMPUS)

**UNIVERSITY EXAMINATIONS (MAIN EXAMINATION)
2018/2019 ACADEMIC YEAR**

THIRD YEAR FIRST TRIMESTER EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF SCIENCE, MEDICAL LABORATORY
SCIENCES**

COURSE CODE: BML 323

COURSE TITLE: MEDICAL ENTOMOLOGY & VECTOR BIOLOGY

DATE: 24TH MAY 2019

TIME: 8.00 -10.00 AM

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.

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. Cyclo-propagative development in arthropods refers to the
 - (a) Change in the developmental stage of the disease pathogen, while the number of the pathogenic organism remains constant.
 - (b) Infected egg completing its developmental stage and becoming infective
 - (c) Increase in number of pathogens but the developmental stage remaining constant.
 - (d) Disease pathogen undertaking a change both in number and developmental form
2. The class Arachnida comprises of insects with _____
 - (a) Two body parts
 - (b) Three body parts
 - (c) Two pairs of antennae.
 - (d) The abdomen consisting of spiracles and sex organs
3. Which one of the following insects does not belong to the order Anoplura
 - (a) Sand flies
 - (b) Tsetse flies
 - (c) Sucking lice
 - (d) House flies
4. Which one of the following mosquito control measures is directed towards juvenile mosquitoes?
 - (a) Use of bed nets
 - (b) Indoor residual spraying
 - (c) Draining of stagnant waters
 - (d) Use of light traps
5. The following are characteristics of the Order Hemiptera **EXCEPT?**
 - (a) Their mouthparts are piercing and sucking with the segmented beak
 - (b) Undergo complete metamorphosis
 - (c) wings are present and positioned flat over the abdomen when at rest
 - (d) composed of true bugs
6. Different arrangements of ----- forms the mouthparts of insects
 - a. Antennae
 - b. Ocelli
 - c. Appendages
 - d. Omattidia
7. Insects with sponging mouthparts
 - a. Are adapted for use in eating liquid or readily soluble foods
 - b. Use their mandibles and the maxillae
 - c. Cut, grind up and swallow their food.
 - d. Have anticoagulants in their saliva
8. Cursorial legs of insects are adapted for
 - a. Jumping
 - b. Running
 - c. Grasp & hold the prey

- d. Excavating
9. _____ are the major organs for respiration in insects
- Malpighian tubes
 - Spiracles
 - Proboscis
 - Crop
10. Which of these blood-feeding insects complete their entire life cycle on the host?
- Fleas
 - Mosquitoes
 - Sucking lice
 - Bed bugs
11. Which of these groups of arthropods transmit Babesia species?
- Ticks
 - Kissing (conenose) bugs
 - Deer flies
 - Mosquitoes
12. Which of these groups of arthropods transmit the causative agents of Plague and murine (endemic) typhus to humans?
- Fleas
 - Kissing (conenose) bugs
 - Sucking lice
 - Chewing lice
13. The abdomen of insects comprises of?
- Antennae and proboscis
 - Legs and wings
 - Reproductive and nervous system
 - Eyes and mouthparts
14. Trans-ovarian and trans-stadial disease transmission is seen in _____
- Mosquitoes
 - Mango flies
 - Tsetse flies
 - Ticks
15. In the respiratory system of insects, the air sacs are used for?
- Distributing air and cooling the body, particularly during flight
 - Taking up air in the insect's body
 - For filtering air
 - For circulating O₂ in to various organs
16. Oviparity reproduction in insects refers to?
- Laying of nymphal stages instead of eggs
 - Laying of immature larvae instead of eggs
 - Laying of fertile eggs which hatch and reach the adulthood
 - Laying of mature larvae instead of eggs
17. Which on of the following pathogen is not transmitted biologically.
- Entamoeba histolytica
 - Yersinia pestis

- (c) *Rickettsia rickettsi*
 - (d) Yellow fever
18. Which one of the following is not a characteristic of learned behaviour in insects
- a. Extrinsic
 - b. Permutable
 - c. Adaptable
 - d. Stereotypic
19. ----- is the active and feeding stage in insects
- a. Larvae
 - b. Egg
 - c. Pupa
 - d. Adult
20. In insects, the simple eyes, with their single facets merely distinguish the lighter from the darker part of the environment.
- a. True
 - b. False

SECTION B: Short Answer Questions (40 Marks)

- 21. Explain why insects are diverse in the world (6 Marks)
- 22. Describe the insects collection techniques (6 Marks)
- 23. Outline the functions of the insects exoskeleton (6 Marks)
- 24. Describe the excretory system of insects (6Marks)
- 25. Explain the defense mechanisms of insect against their predators (6 Marks)
- 26. Describe the external morphology of insects (4 Marks)
- 27. Name three Genera of mosquitoes and the diseases by each genus (6mks)

SECTION C: Long Answer Questions (40 Marks)

- 28. Discuss the general methods employed in the control of insects (20 Marks)
- 29. Give a detailed account of the biology and economic importance of *Glossina Species* (10 Marks)
- 30. Describe the effects of environmental factors on the growth of insects (10 Marks)