



(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DIPLOMA
IN
MEDICAL BIOTECHNOLOGY
DIRECT ENTRY

MAIN EXAM

COURSE CODE: BBD 223

COURSE TITLE: MEDICAL ENTOMOLOGY & VECTOR BIOLOGY

DATE: 22/04/2022

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**).

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)

Answer all questions

1. Anopheline larvae differ from culicine larvae in that:
 - A. Have no air tube
 - B. Have air tube
 - C. Rests at an angle to water surface
 - D. Have palmate hairs
2. Lice are involved in the transmission of some of the following diseases:
 - A. Epidemic typhus fever
 - B. Paralysis
 - C. Trench fever
 - D. Plague
3. The female tsetse fly:
 - A. Lay eggs in humid areas
 - B. Are larviparous
 - C. Lay eggs which are gelatinous
 - D. Do not suck blood
4. Wings that are held erect when the arthropod is at rest belong to the germs:
 - A. Glossina
 - B. Culicoides
 - C. Phlebotomus
 - D. Anopheles
5. Fleas harbor the intermediate stage of?
 - A. Diphyllbothrium latum
 - B. Echinococcus granulosus
 - C. Taenia solium
 - D. Hymenolepis diminuta
6. Fleas belong to which of the following order?
 - A. Diptera
 - B. Siphonaptera
 - C. Acarina
 - D. Anoplura
7. The MOST important flea associated with the transmission of plague is?
 - A. Nosopsyllus fasciatus
 - B. Pulex irritans
 - C. Xenopsylla cheopsis
 - D. Leptopsylla segues
8. Hard ticks belong to the order: -
 - A. Ixodidae
 - B. Siphonaptera
 - C. Argasidae
 - D. Acarina
9. 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
10. Which of the following does not belong to the class Insecta?
 - A. Louse
 - B. Beetle
 - C. Tick
 - D. Bed-bug
 11. The breeding site preferred by Simulium species include: -
 - A. Fast flowing streams and rivers: -
 - B. Ant hills
 - C. Stagnant water
 - D. Humid micro-habitat
 12. Which one of the following insects are vectors of the microfilaria *loaloa*
 - A. Simulium damnosum
 - B. Chrysops species
 - C. Phlebotomus species
 - D. Glossina species
 13. The primary disease transmitted by triatomine bugs is known as
 - A. Q fever
 - B. Lyme disease
 - C. Chaga's disease
 - D. Babesia microtia
 14. 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
 15. 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
 16. Which one of the following insects acts as the vector for onchocerca volvulus
 - A. Simulium
 - B. Ixodes
 - C. Pulex
 - D. Tunga
 17. Soft ticks belong to the family?
 - A. Ixodidae
 - B. Dermacentor
 - C. Argasidae
 - D. Acarina.
 18. Pruritic papular urticaria on the unprotected lower leg is associated with
 - A. Tunga penetrans
 - B. Fleas
 - C. Lice

- D. Triatomine bugs
19. Which of the following characteristics is a distinctive feature for Glossina species?
- Absence of coloration
 - Presence of axe-shaped venation of the wings resembling an inverted hatchet
 - Presence of white scales on the abdomen arranged in segments
 - Presence of brown-black scales on the legs and wings
20. Yellow fever and dengue hemorrhagic fever are diseases associated with?
- Culex mosquito
 - Aedes mosquito
 - Horse flies
 - House flies

SECTION B – SHORT ANSWER QUESTIONS – (40 marks)

Answer all questions

- Describe 8 measures applicable towards the control of Glossina flies **(8marks)**
- Outline the control of snails of medical importance **(8 marks)**
- Outline two diseases transmitted by the following arthropods:
 - Female Anopheles mosquito **(2 marks)**
 - Hard tick **(2 marks)**
 - Sand flies **(2 marks)**
 - Flea **(2 marks)**
- Explain the effects of arthropods on human beings **(8 marks)**
- Outline the general features of class Insecta **(4 marks)**
- Name one example of insects classified in the following order
 - Order Diptera **(1 mark)**
 - Order Siphonaptera **(1 mark)**
 - Order Anoplura **(1 mark)**
 - Order Hemiptera **(1 mark)**

SECTION C – LONG ANSWER QUESTIONS (60marks)

Answer all questions

- Describe the general characteristics, life cycle, diseases transmitted and control of anopheline mosquitoes **(20 marks)**
- Discuss the structure of arthropods **(20 marks)**
- Describe the taxonomy, general characteristics, life cycle, diseases transmitted and control of bedbugs **(20 marks)**