



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

BMLS

AML4302 : VECTOR BIOLOGY OF HUMAN PATHOGENS

END OF SEMESTER EXAMINATION

**SERIES: DECEMBER 2016**

**TIME: 2 HOURS**

**DATE: 10 Dec 2016**

## Instructions to Candidates

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of **TWO** Section(s). Attempt ALL questions.

**Circle the correct answer in section A.**

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Q1.A Vector is described as:-

- a) An insect
- b) An arthropod
- c) A gastropoda
- d) An organism harboring a Pathogen
- e) An organism that harboring a Pathogen and transmits the same to another organism.

Q2. The Pathogens that are transmitted by mosquitoes include:

- a) Chagas
- b) Leishmania
- c) Plaque
- d) Relapsing fever
- e) Westnile virus.

Q3. The subfamily of mosquito responsible for the transmission of Filarial worms is

- a) Toxorynchitinae
- b) Anophelinae
- c) Hemagogus
- d) Culicinae
- e) Sabethes.

Q4. Babesia microti a protozoan parasite is transmitted by:

- a) Culex mosquito
- b) Anophelis mosquito
- c) Hemagogua mosquito
- d) Fleas
- e) Ticks

Q5. The biology of egg, larvae, Pupa and Imago is important for:

- a) Research issues
- b) Prevention mechanisms
- c) Control mechanisms
- d) Pathogen control strategies
- e) Control strategy

Q6. The following mosquitoes do not transmit diseases

- a) Asian Tiger
- b) Aedes albopictus
- c) Culex fatigans
- d) Anopheles gambiae
- e) Toxorynchite

Q7. Lymnaea stagnalis is associated with

- a) Bilharzia
- b) Fasciolopsis
- c) Fasciola hepatica
- d) Schistosomiasis mansoni
- e) Schistosomiasis haematobium

Q8. Water surface modulation cannot be used to control the larvae of the following mosquito.

- a) Anopheles
- b) Aedes
- c) Asian tiger
- d) Mansonia
- e) Culex.

Q9. The eggs which are laid with floats on both side to form a boat appearance is that of:

- a) Culex
- b) Aides
- c) Toxorynchite
- d) Sabethes
- e) Anopheles

Q.10 The presence of a siphon on the larvae of mosquito is characteristic feature of:

- a) Culicinae
- b) Hemagogus
- c) Sabethes
- d) Toxorynchite
- e) Anopheles

Q. 11. The developmental stage of plasmodium found in the salivary glands of the mosquito is:

- a) Sporozorte
- b) Zygote
- c) Oocyst
- d) Ookinitte
- e) Bradizoite

Q12. The egg fecundity of a female mosquito depends on:

- a) Availability of rainfall
- b) Presence of fresh human blood
- c) Presence of nectar
- d) Presence of surface water
- e) Availability of wild animals

- Q. 13 The vectors which transmits mucocutaneous leishmaniasis is:
- a) Phlebotomus
  - b) Triatomine bugs
  - c) *Riduvii* bugs
  - d) Tsetse fly
  - e) Ticks
- Q. 14 Arthropods are attracted to their victims by:
- a) Vapours
  - b) Oxygen
  - c) Hydrogen
  - d) Hydrogen
  - e) Carbondioxide
- Q. 15. The ecology of *Glossina morsitans* is
- a) Tropical rainforest
  - b) Woodland savanna
  - c) Marine forest
  - d) Savanna
  - e) Desert
- Q. 16. The geographic grid for Trypanosomes in Africa is:
- a) Latitude 10° north to 15° south
  - b) Latitude 20° north to 40° south
  - c) Latitude 15° north to 30° south
  - d) Latitude 15° north to 20° south
  - e) Latitude 30° north to 15° south
- Q. 17. The larva of Tsetse fly can be diagnosed using the following features.
- a) Polyneutic lobes and 4 segments of the body
  - b) Polyneutic lobes and 8 segments of the body
  - c) Two polyneutic lobes and 12 segments of the body
  - d) Four polyneutic lobes and 12 segments of the body
  - e) Polyneutic lobes and 6 segments of the body .

Q. 18. Chrysops are vectors of:-

- a) Wuchereria Bancroft
- b) Brugia malayi
- c) Loa loa
- d) Dipeterlonema perstance
- e) Dipetarlonema streptocerca

Q. 19. The vectors which transmit intestinal flukes is:-

- a) Crabs
- b) Frogs
- c) Fish
- d) Snails
- e) Ants (Formica fusca)

Q. 20. Cyclops is a vector of:

- a) Strongyloides stercoralis
- b) Tape worm
- c) Broad fish tape warm.
- d) *Taemia solium*
- e) *Taemia saginata*.

Q. 21. Biomphalania feifferi is a vector of:-

- a) Fasciola hepatica
- b) Fasciolopsi, buski
- c) Schistosoma mansoni
- d) Schistosoma haematobium
- e) Schistosoma japonicum.

Q. 22. Schistosoma japonicum, its primary vector is

- a) *Bulinus globosus*
- b) *Bulinus truncatous*
- c) *Bulinus africanus*
- d) *Lymnea stagnalis*
- e) *Onchomelama*.

Q. 23. Frogs are vectors of:-

- a) *Diphilobothrium latium*
- b) *Taenia solium*
- c) *Spirometra sperganum*
- d) *Taenia taeniafomis*
- e) *Trichinella spiralis*

Q. 24. The predacious larvae that can constitute a method of Biological control is that of:-

- a) *Haemagogus mosquito*
- b) *Simulium niavei*
- c) *Toxorynchite*
- d) *Sabethes*
- e) *Aedes aegypti*

Q. 25. The culicine mosquitoes which don't transmit pathogens include:-

- a) *Aedes aegypti*
- b) *Asian tiger*
- c) *Culex fatigans*
- d) *Bironella*
- e) *Hemagogus*

Q. 26. The mosquito which has sclerotised siphon is

- a) *Toxorynchute rutilus splendens*
- b) *Aedes egypti*
- c) *Mansonia titilans*
- d) *Auopheles gambiae*
- e) *Sabethes sabethes*.

Q. 27. The ecology of sand fly in Kenya requires:-

- a) Savanna ant-hills
- b) Forest mountain
- c) Thickets and savanna dry land
- d) Savanna ant-hills and rodent burrows
- e) First flowing rivers.

Q. 28. The following features are diagnostic for female Anopheles mosquito:-

- a) Non-plumose antennae and pulps are clubbed.
- b) Non-plumose antennae and short-pulps
- c) Non-plumose antennae and long pulps
- d) Non-plumose antennae and pulps
- e) Non-plumose antennae and pulps as long as the proboscis and are not clubbed.

Q. 29. The mosquito eggs which are laid singly and do not have floats are those of:-

- a) Culex fatigans
- b) Anopheles gambiae
- c) Aedes aegypti
- d) Hemagogus
- e) Sorex

Q. 30. The safe control of immature stage of mosquitoes:-

- a) Use of Insecticide
- b) Use of Pyrethroids
- c) Use of surface water modulation and clearing of submerged vegetation.
- d) Use of mosquito net.
- e) Introduction of genetically modified larvae.

**BMLS VECTOR BIOLOGY**  
**END OF SEMESTER EXAM**  
**AML 4302 A**  
**SECTION B**

Q. 31. a) Describe the biology of Anopheles mosquito and state its impact on disease transmission. -----  
-----15 marks

b) Discuss its control -----5 marks

Q. 32. a) List the pathogens which are transmitted by the following vectors.

- i. Aedes albopictus
- ii. Mansonia
- iii. Haemogogus
- iv. Reduviid bugs
- v. Phlebotomus -----10 marks ( all the ten)
- vi. Lymnea stagnalis
- vii. Biomphakaria pfeifferii
- viii. Chrysops
- ix. Tsetse fly
- x. Flea

b) Explain the transmission and control of Trypanosomes.-----10marks