



"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

NSLS 206 PARASITOLOGY, MYCOLOGY & VIROLOGY THEORY

END OF SECOND SEMESTER FINAL EXAMINATIONS

NOVEMBER 2023

LECTURER: Dr S. MUTAMBU

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on the space provided on top of each page
2. Answer **all** questions in sections A on the question paper.
3. Answer **all** questions in section B on separate answer sheets provided.
4. Answer any **2** questions in section C on separate answer sheets provided
5. The mark allocation for each question is indicated at the end of the question
6. Credit will be given for logical, systematic and neat presentations in sections B and C

SECTION A: TRUE (T) OR FALSE (F) QUESTIONS [20 MARKS]

Circle True (T) **OR** False (F) onto this question paper. Each question carries *one (1) mark*.

1. The following important parasites in humans complete their lifecycle in a single host.

- | | | |
|---|---|---------------------------------|
| T | F | a. <i>Entamoeba histolytica</i> |
| T | F | b. <i>Ascaris lumbricoides</i> |
| T | F | c. <i>Wuchereria bancrofti</i> |
| T | F | d. <i>Giardia lamblia</i> |

2. Pathogenic protozoa can be classified on the basis of organ of locomotion.

- | | | |
|---|---|--|
| T | F | a. Rhizopoda: move with the help of pseudopodia |
| T | F | b. Mastigophora: exhibit no movement |
| T | F | c. Sporozoa: have elongated, thread-like filaments called flagella |
| T | F | d. Ciliata: move with the help of cilia. |

3. Host-parasite relationships are of the following types:

- | | | |
|---|---|-----------------|
| T | F | a. Symbiosis |
| T | F | b. Saprophytic |
| T | F | c. Commensalism |
| T | F | d. Parasitism |

4. *Trichomonas vaginalis*:

- | | | |
|---|---|---|
| T | F | a. Is transmitted sexually. |
| T | F | b. Causes bloody diarrhoea. |
| T | F | c. Can be diagnosed by visualizing the trophozoite. |
| T | F | d. Can be treated by metronidazole. |

5. Crescent-shaped or banana-shaped gametocytes are seen in infection with:

- | | | |
|---|---|---------------------------------|
| T | F | a. <i>Plasmodium vivax</i> |
| T | F | b. <i>Plasmodium falciparum</i> |
| T | F | c. <i>Plasmodium malariae</i> |
| T | F | d. <i>Plasmodium knowlesi</i> |

6. The infective form of the malaria parasite is:

- | | | |
|---|---|---------------|
| T | F | a. Oocyst |
| T | F | b. Sporozoite |
| T | F | c. Bradyzoite |
| T | F | d. Tachyzoite |

7. The definitive host of *Toxoplasma gondii* is:

- | | | |
|---|---|----------|
| T | F | a. cat |
| T | F | b. human |
| T | F | c. cow |
| T | F | d. rat |

8. The following parasites cause trypanosomiasis:

- | | | |
|---|---|----------------------------------|
| T | F | a. <i>Trypanosoma major</i> |
| T | F | b. <i>Trypanosoma falciparum</i> |
| T | F | c. <i>Trypanosoma donovani</i> |

CANDIDATE NUMBER

T F d. *Trypanosome cruzi*

9. Vector for *Trypanosoma cruzi* is:

- T F a. Hard tick
T F b. Reduviid bug
T F c. Sandfly
T F d. Tsetse fly

10. The following Protozoan parasites cause diarrhoea:

- T F a. *Giardia lamblia*
T F b. *Entamoeba histolytica*
T F c. *Onchocerca volvulus*
T F d. *Cryptosporidium parvum*

11. Kala-azar:

- T F a. Occurs primarily in towns in the North of USA
T F b. Is caused by *Leishmania donovani*
T F c. Is transmitted by the bite of sandflies
T F d. Is diagnosed by finding amastigotes in bone marrow

12. The following are soil transmitted worms:

- T F a. *Trichuris trichiura*.
T F d. *Trichinella spiralis*.
T F b. *Ancylostoma duodenale*.
T F c. *Ascaris lumbricoides*.

13. The pathological changes in Schistosomiasis are caused mainly by:

- T F c. Adult worm.
T F a. Metacercariae
T F b. Mature eggs.
T F d. Cercariae.

14. The dormant stages of *Plasmodium ovale* found in the liver are:

- T F a. Hypnozoites
T F b. Ookinates
T F c. Trypomastigotes
T F d. Sporozoites

15. The following parasites are transmitted by mosquitoes:

- T F a. *Wuchereria bancrofti*
T F b. *Nector americanus*
T F c. *Onchocerca volvulus*
T F d. *Leishmania donovani*

16. Pigs or dogs are the source of human infection caused by each of the following parasites:

- T F a. *Echinococcus granulosus*
T F b. *Taenia solium*
T F c. *Ascaris lumbricoides*
T F d. *Trichinella spiralis*

CANDIDATE NUMBER

17. Immunocompromised persons suffer from several fungal diseases associated with:

- | | | |
|---|---|-----------------------------------|
| T | F | d. <i>Candida</i> species |
| T | F | a. <i>Cryptococcus neoformans</i> |
| T | F | c. <i>Malassezia furfur</i> |
| T | F | b. <i>Aspergillus fumigatus</i> |

18. Ring worms are caused by these dermatophytes:

- | | | |
|---|---|------------------------------------|
| T | F | a. <i>Microsporum species</i> |
| T | F | b. <i>Pneumocystis carinii</i> |
| T | F | c. <i>Trichophyton species</i> |
| T | F | d. <i>Epidermophyton floccosum</i> |

19. Bacteriophages are readily counted by the process of:

- | | | |
|---|---|---|
| T | F | a. Dilution methods using bacterial lyses as an indicator of phage presence |
| T | F | b. Plaque assays |
| T | F | c. Candling |
| T | F | d. Microscopy using 100X lens |

20. Viruses:

- | | | |
|---|---|--|
| T | F | a. Are inert (nucleoprotein) filterable Agents |
| T | F | b. Are facultative intracellular parasites |
| T | F | c. Cannot make energy or proteins independent of a host cell |
| T | F | d. Contain a viral genome which is RNA or DNA but not both |

SECTION B: SHORT ANSWERS [40 MARKS]

Answer all questions in this section

1. Giving examples, write short notes on:

- | | |
|---|-----------|
| a. Baltimore Classification | (5 marks) |
| b. Inoculation of viruses into animals. | (5 marks) |

2. Giving examples, define the following different types of hosts in relation to human diseases.

- | | |
|----------------------|-----------|
| a. Definitive host | (2 marks) |
| b. Intermediate host | (2 marks) |
| c. Reservoir host | (2 marks) |
| d. Paratenic host | (2 marks) |
| e. Accidental host | (2 marks) |

3. Write short notes on each of the following:

- | | |
|--|-----------|
| a. <i>Entamoeba histolytica</i> | (5 marks) |
| b. <i>Giardia intestinalis</i> (lamblia) | (5 marks) |

CANDIDATE NUMBER

4. Briefly discuss:

- a.** The 3 stages of the signs and symptoms of lymphatic filariasis (5 marks)
- b.** The role of *Wuchereria bancrofti* in the pathology of lymphatic filariasis (5 marks)

SECTION C: LONG ESSAY QUESTIONS (40 marks). Answer any TWO questions

- 1.** Compare and contrast the life cycles of *Schistosoma haematobium* and *Schistosoma mansoni*. (20 marks)
- 2.** Illustrate and discuss in detail the components of a virus and how these relate to their function in the replication of the virus in the human host. (20 marks)
- 3.** Illustrate and discuss:
 - a.** Vegetative reproduction in fungi (10 marks)
 - b.** Asexual reproduction in fungi (10 marks)
- 4.** Arthropods play an important role as vectors of parasites of public health importance. Giving examples, discuss this statement in detail. (20 marks)

END