



"Investing in Africa's Future"

**COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES
DEPARTMENT OF HEALTH SCIENCES
BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS**

**NSLS 206 PARASITOLOGY, MYCOLOGY & VIROLOGY THEORY
EXAMINATION
END OF FIRST SEMESTER FINAL EXAMINATIONS**

November 2019

LECTURER: Dr S Mutambu

DURATION: 3 HOURS

INSTRUCTIONS

The paper comprises of three sections (A, B and C).

Section A (20 marks)

Answer all questions in this section.

Circle the correct answer

Section B (20 marks)

Answer all questions in this section.

Section C (60 marks)

Choose **three** questions. Credit will be given for logical, systematic and neat presentations.

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

Circle True (T) **OR** False (F) onto this question paper. Some questions have more than one True (T) statement

1. The following are soil transmitted worms:

- | | | |
|---|---|-----------------------------------|
| T | F | a. <i>Trichuris trichiura</i> . |
| T | F | b. <i>Ancylostoma duodenale</i> . |
| T | F | c. <i>Ascaris lumbricoides</i> . |
| T | F | d. <i>Trichinella spiralis</i> . |

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

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

3. Scabies is caused by:

- | | | |
|---|---|----------------|
| T | F | a. Hard ticks. |
| T | F | b. Itch mites. |
| T | F | c. Soft ticks. |
| T | F | d. Mosquitoes. |

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. The sexual reproductive stage of *Plasmodium* takes place in:

- | | | |
|---|---|------------------------|
| T | F | a. The human liver |
| T | F | b. A mosquito |
| T | F | c. The red blood cells |
| T | F | d. Blood plasma |

6. Hydatidosis:

- | | | |
|---|---|--|
| T | F | a. Is a zoonotic disease. |
| T | F | b. Man act as the definitive host. |
| T | F | c. Humans become infected by contamination with egg of dog tape worm passed in faeces. |
| T | F | d. The most common site of hydatid cyst is the liver. |

7. The following parasites cause trypanosomiasis.

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

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

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

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

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

10. The following stages of the leishmania parasite are found in the sandfly:

- T F a. Trypomastigotes
- T F b. Amastigotes
- T F c. Epimastigotes
- T F d. Promastigotes

11. 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

12. 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*

13. All the parasite below are associated with faecally contaminated water (faecal-oral) or food:

- T F a. *Cryptosporidium*
- T F b. *Giardia*
- T F c. *Toxoplasma*
- T F d. all of these

14. Kala-azar:

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

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

- T F a. *Cryptococcus neoformans*
- T F b. *Aspergillus fumigatus*
- T F c. *Malassezia furfur*
- T F d. *Mucor* species

16. *Candida albicans*:

- | | | |
|---|---|---|
| T | F | a. Is a budding yeast that forms pseudohyphae when it invades tissue |
| T | F | b. Causes thrush |
| T | F | c. Is transmitted primarily by respiratory aerosol |
| T | F | d. Impaired cell mediated immunity is an important predisposing factor to the disease |

17. Which of the following fungi is most likely to be found within reticuloendothelial cells.

- | | | |
|---|---|-----------------------------------|
| T | F | a. <i>Histoplasma capsulatum</i> |
| T | F | b. <i>Sporothrix schenckii</i> |
| T | F | c. <i>Cryptococcus neoformans</i> |
| T | F | d. <i>Candida albicans</i> |

18. Which of the following is not an RNA virus?

- | | | |
|---|---|-----------------|
| T | F | a. Retrovirus |
| T | F | b. Rhabdovirus |
| T | F | c. Adenovirus |
| T | F | d. Rubellavirus |

19. Bacteriophage are readily counted by the process of:

- | | | |
|---|---|------------------------|
| T | F | a. Immunoassays |
| T | F | b. Plaque assays |
| T | F | c. Tissue cell culture |
| T | F | d. Electron Microscopy |

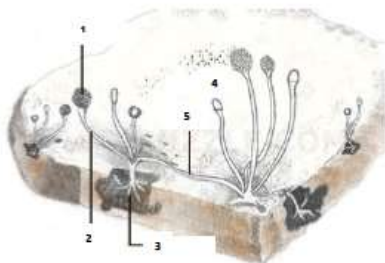
20. Distinguishing characteristics of viruses

- | | | |
|---|---|--|
| T | F | a. Obligate intracellular parasites |
| T | F | b. Extreme genetic simplicity |
| T | F | c. Contain DNA or RNA |
| T | F | d. Replication involves disassembly and reassembly |

SECTION B: SHORT ANSWERS [20 MARKS]

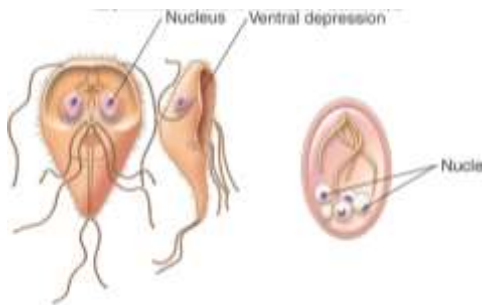
Answer all questions in this section

1a. The diagramme below shows the structure of Fungi. Name any 2 parts of the fungi shown in 1-5 below. (2 marks)



1b. Describe the preparation of a direct wet smear using stool. (6 marks)

1c. Name the parasite and its stage shown below: (2 marks)



2. a. Describe the process of staining a thin and thick blood smears for malaria parasites. (15 marks)

b. Give reasons why a laboratory scientist would prepare a thin smear. (5 marks)

Commented [U1]: How many marks?

3. Briefly discuss these processes of vegetative reproduction in fungi.

- a. Fragmentation (2 marks)
- b. Fission (2 marks)
- c. Budding (2 marks)
- d. Sclerotia (2 marks)

SECTION C: LONG ESSAY QUESTIONS THREE (3) QUESTIONS ONLY (60 marks)

C1. Illustrate and describe how the medically important protozoan parasites are taxonomically classified giving at least one example of each genus (20 marks).

C2. Discuss the epidemiology, life cycle, pathology, signs and symptoms, diagnosis, treatment, prevention and control of *Schistosoma haematobium* (20 marks)

C3a. Name and describe in detail the steps in the life cycle of the phage virus. (15 marks)

b. What are phage viruses used for in the medical field? (5 marks)

C4. Discuss these arthropods as vectors of parasites of public health importance:

- a. Mosquitoes (10 marks)
- b. The “Kissing bug” (10 marks)

C5. Illustrate and describe how fungi of medical importance are classified. (20 marks)