"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

NSLS206: PARASITOLOGY, MYCOLOGY AND VIROLOGY

END OF SEMESTER FINAL EXAMINATIONS

APRIL 2025

LECTURER: DR S L 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 **3** questions in section C on separate answer sheets provided
5. 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 : MULTIPLE CHOICE [40MARKS]

- **Answer all questions by encircling the correct response T for TRUE or F for FALSE for each statement in all the questions**
- **Each correct response is allocated half mark**

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

T F a) Symbiotic
T F b) Saprophytic
T F c) Commensalism
T F d) Parasitism

2. Regarding the life cycle of malaria parasite, the:

T F a) human is the intermediate host
T F b) complete life cycle requires two hosts
T F c) trophozoite is the natural infective stage to human
T F d) gametocyte is the infective stage to the vector mosquito

3. *Plasmodium falciparum*:

T F a) has crescent-shaped schizonts
T F b) causes malignant tertian malaria
T F c) has a band-shaped trophozoite
T F d) causes knobs to be formed on the infected red blood cells

4. Regarding *Schistosoma* species:

T F a) diagnostic stage is the egg
T F b) the infective stage to human is the miracidium
T F c) albendazole is the drug of choice for the treatment of its infection
T F d) its infection can be prevented by eating cooked meat

5. In intestinal amoebiasis, there is:

T F a) invasion of the mucosa by the trophozoite
T F b) formation of flask-shaped ulcers in the colon
T F c) mechanical blockage affecting the absorption of fats
T F d) inflammation which leads to toxic megacolon

6. *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

7. Vector for *Trypanosoma cruzi* is:

T F a) a hard tick
T F b) Reduviid bug

T F c) the sandfly
T F d) the tsetse fly

8. 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

9. Infection with this parasite can cause extensive damage to human urogenital structures:

T F a) *Schistosoma haematobium*
T F b) *Wuchereria bancrofti*
T F c) *Ascaris lumbricoides*
T F d) *Toxoplasma gondii*

10. Regarding *Giardia lamblia*:

T F a) trophozoites are seen in loose stools
T F b) the cyst is the infective stage
T F c) red blood cells are found in the trophozoites
T F d) in severe infection, it can cause dysentery

11. This parasite is acquired by humans via ingestion of infected fish:

T F a) *Clonorchis sinensis*
T F b) *Taenia saginata*
T F c) *Diphyllobothrium latum*
T F d) *Paragonimus westermani*

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. The mosquito is the definitive host of this parasite:

T F a) *Plasmodium vivax*
T F b) *Plasmodium ovale*
T F c) *Brugia malayi*
T F d) *Wuchereria bancrofti*

14. This is a specific characteristic for human trematodes:

T F a) *Schistosoma japonicum* has ova with a lateral spine
T F b) the oocyst is an infective stage to human
T F c) all trematodes are hermaphrodites
T F d) the snail is the first intermediate host

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

T F a) *Candida* species
T F b) *Cryptococcus neoformans*
T F c) *Malassezia furfur*
T F d) *Aspergillus manofi*

16. Ring worms are caused by these dermatophytes:

T F a) *Microsporum* species
T F b) *Pneumocystis carinii*
T. F c) *Trichophyton* species
T F d) *Epidermophyton floccosum*

17. 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

18. The following is a DNA virus:

T F a) Retrovirus
T F b) Rhabdovirus
T F c) Adenovirus
T F d) Rubellavirus

19. The control measures for the following parasites include periodical deworming, health education and improved sanitation to reduce soil contamination with infective eggs:

T F a) *Ascaris lumbricoides*
T F b) *Enterobius vermicularis*
T F c) *Trichinella spiralis*
T F d) *Trichuris trichiura*

20. The following parasite is a flagellate:

T F a) Iodamoeba
T F b) *Leishmania*
T F c) *Giardia*
T F d) *Trichomonas*

SECTION B (20 MARKS)

Answer all questions on separate answer sheets provided

1 Briefly explain the vicious cycle of *Candida***.** [5]

2. Match the Atypical Virus-like agents in **Column A** with the contents listed in **Column B.** [5]

Column A (Atypical Virus-like agents)	**Column B** (Contents)
a. **Defective Viruses**	- Consist solely of a single molecule of circular RNA without a protein coat or envelope - RNA is small and does not code for any protein. - Cause several plant diseases but are not implicated in human diseases
b. **Pseudovirions**	-Are composed of viral nucleic acid and proteins but cannot replicate without a 'helper' virus - During growth many defective viruses are produced in addition to infectious viruses
c. Viroids	- Are infectious particles that are composed solely of protein and no detectable nucleic acid - Are the cause of certain slow diseases like Creutzfeldt-Jacob Disease (CJD) in human and scrapie in sheep
d. Prions	- Contain host cell DNA instead of viral DNA within the capsid - Can infect cells but do not replicate

3. Give one example of the hosts listed below and the parasite that each carries: [5]

a. Vector host
b. Reservoir host
c. Zoonotic host
d. Definitive host
e. Intermediate host

4. State five different nematodes that infect the intestines. [5]

SECTION C [60 marks]

Answer any 3 questions from this section on separate answer sheets provided

1. Discuss in detail the different methods that are used for virus cultivation. [20]

2. Illustrate and describe the process of sexual and non-sexual reproduction in fungi of medical importance. [20]

3. Describe in detail the epidemiology, life cycle, pathology, signs and symptoms, diagnosis, treatment, prevention and control of Lymphatic filariasis. [20]

4. Giving examples, discuss arthropods as vectors of parasites that cause diseases of public health importance. [20]

5. Compare and contrast the life cycles of *Trypanosoma brucei* and *Trypanosoma cruzei*. [20]

THE END