CANDIDATE NUMBER ……

"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 AND VIROLOGY THEORY EXAMINATION

END OF SEMESTER FINAL EXAMINATIONS

APRIL 2024

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 section A, PART 1 AND PART 2 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

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SECTION A

PART I: TRUE/ FALSE MULTIPLE CHOICE QUESTIONS [15 MARKS]

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 a quarter mark.

1. The following important parasites in humans complete their lifecycle in a single host.
T F a. *Entamoeba histolytica*
T F b. *Ascaris lumbricoides*
T F c. *Trypanosoma cruzei*
T F d. *Trychomonas vaginalis*

2. Regarding schistosomiasis:
T F a. Schistosomulae penetrate the skin or mucous membrane
T F b. Praziquantel is effective against all Schistosoma species.
T F c. The stage of egg deposition occurs in the pulmonary capillaries.
T F d. Eggs trapped in the tissues stimulate auto-immune reaction

3. 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 fimbriae

4. *Trichomonas vaginalis*:
T F a. Can be diagnosed by visualizing the cysts
T F b. Causes bloody diarrhoea.
T F c. Is transmitted sexually.
T F d. Can be treated by piperazole

5. The infective form of the malaria parasite is:
T F a. Oocyst
T F b. Sporozoite
T F c. Bradyzoite
T F d. Tachyzoite

6. The definitive host of *Toxoplasma gondii* is:
T F a. cat
T F b. human
T F c. guinea pig
T F d. rat

7. The following parasites cause trypanosomiasis:
T F a. *Trypanosoma minor*
T F b. *Trypanosoma falciparum*
T F c. *Trypanosoma donovani*
T F d. *Trypanosome cruzi*

8. Vector for *Trypanosoma cruzi* is:
T F a. Hard tick
T F b. Triatomine bug
T F c. Sandfly
T F d. Tsetse fly

9. For *Giardia lamblia:*
T F a. Trophozoites are seen in stool
T F b. Cyst is the infective stage
T F c. Red blood cells are found in the trophozoites
F F d. Its tachyzoites can invade the large intestine of the human

10. 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.*

11. 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*

12. 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.

13. Regarding *Wuchereria bancrofti:*
T F a. It causes elephantiasis
T F b. It is transmitted to human by the mosquito
T F c. Its infection can be diagnosed by blood examination
T F d. The adult stage is found in the lymph nodes

14. Immunocompromised persons suffer from several fungal diseases associated with:
T F d. *Candida* species
T F a. *Cryptococcus neoformans*
T F c. *Malassezia furfur*
T F b. *Aspergillus fumigatus*

15. 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

PART II: MULTIPLE CHOICE MATCHING QUESTIONS [5 MARKS]

Answer **all questions** by matching List I with List II. Each correct response carries one (1) mark.

LIST I	LIST II	ANSWER
A. *Phlebotomus* species	**i.** Transmit *Onchocerca volvulus* a microfilarial parasite that can cause visual impairment, blindness and severe itching of the skin in those infected.	
B. RNA viruses	**ii.** Retrovirus, Filovirus, Rhabdovirus	
C. *Simulium* flies	**iii.** Serve as vectors for bacterial, viral, and protozoan diseases. Transmit Lyme disease, Babesiosis, Rocky Mountain spotted fever, tularemia, relapsing fever and encephalitis	
D. Ticks	**iv.** Transmit *Leishmania* parasites which can lead to visceral, cutaneous and mucocutaneous leishmaniasis.	
E. DNA virus	**v.** Hepesvirus, Poxvirus, adenovirus	

SECTION B

SHORT ANSWER QUESTIONS (20 MARKS)

Answer all questions in this section on separate answer sheets provided.

1. State the 5 basic types of viral symmetry. *(5 marks)*

2. In fungi like other organisms, sexual reproduction takes place by the union of two compatible nuclei and consists of three phases. Name these 3 phases. *(3 marks)*

3. Name 3 fungal genera that cause hair, skin and nail infections. *(3 marks)*

4. In the field of Parasitology:

a) What is an intermediate host? *(1 mark)*
b) Give 2 examples of intermediate hosts. (*2 marks)*

5. Name 2 stages in the life cycle of *Entamoeba histolytica*. (2 marks)

6. Which 2 haemoflagellates infect macrophages during their life cycle? (2 marks)

7. Name any 2 intestinal nematodes. (2 marks)

SECTION C

LONG ESSAY ANSWERS [40 MARKS]

Answer any 2 questions from this section on separate sheets provided. Each question carries 20 marks

1. Illustrate and describe how the medically important helminth parasites are taxonomically classified giving at least one example of each genus.

2. Compare and contrast the life cycles of *Trypanosome brucei* and *Trypanosoma cruzi.*

3. Giving examples, discuss in detailed the physical features that are used to identify fungi of medical importance in human disease.

4. Illustrate and give a detailed account of the components of a virion and how these components are related to their function in viral replication.

END