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"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 EXAMINATION**

END OF SECOND SEMESTER FINAL EXAMINATION

April 2022

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.

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SECTION A: MULTIPLE CHOICE [20 MARKS]

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

1. 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.

2. Scabies is caused by:

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

3. *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.

4. 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

5. The following are soil transmitted worms:

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

6. The following parasites cause trypanosomiasis.

- T F a. *Trypanosoma major*
- T F b. *Trypanosome cruzi*
- T F c. *Trypanosoma donovani*
- T F d. *Trypanosoma vinckei*

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 pathological changes in Schistosomiasis are caused mainly by:

- T F a. Metacercariae
- T F b. Mature eggs.

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- T F c. Female worms.
T F d. Cercariae.

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

- T F a. Hyponozoites
T F b. Ookinaes
T F c. Amastigotes
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. Giardia lamblia
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 Madagascar
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 hyphae when it invades tissue
T F b. Causes thrush
T F c. Is transmitted primarily by respiratory aerosol

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T F d. Impaired cell mediated immunity is an important predisposing factor to the disease

17. The following fungus is most likely to be found within reticuloendothelial cells:

- T F a. *Histoplasma capsulatum*
T F b. *Sporothrix schenckii*
T F c. *Cryptococcus neoformans*
T F d. *Candida albicans*

18. Distinguishing characteristics of viruses are:

- 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

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

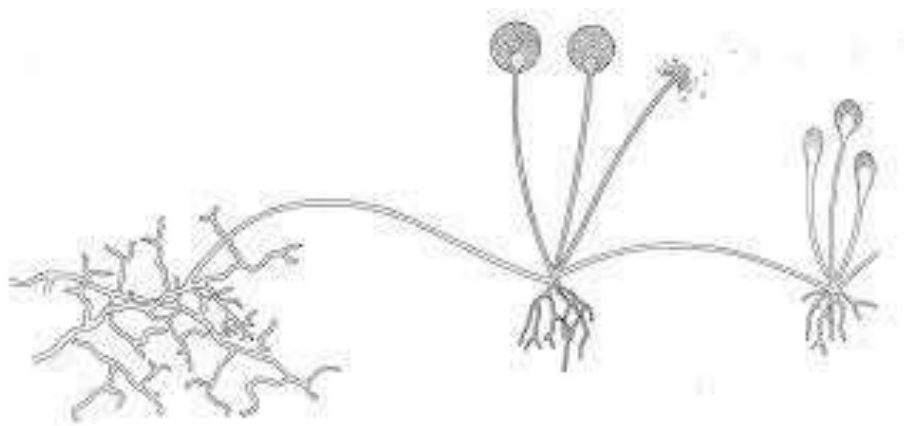
20. The viral nucleocapsid is a combination of the:

- T F a. Nucleus and envelope
T F b. Gag and capsid
T F c. Spikes and nucleus
T F d. Capsid and genome

SECTION B: SHORT ANSWERS [20 MARKS]

Answer all questions in this section

1a. The diagram below shows the structure of a fungus. Name any 5 parts of the fungus shown in in the diagram below. (5 marks)



1b. Briefly describe the principle of the formol ether sedimentation technique in stool parasite diagnosis. (5 marks)

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



2. Briefly discuss these the following:

- a. Virus Capsid (4 marks)
- b. The process of budding and fission in fungi (4 marks)

SECTION C: LONG ESSAY QUESTIONS (60 marks)

Answer any THREE questions

1. Giving examples discuss arthropods as vectors of parasites of public health importance (20 marks)
2. Illustrate and describe how the medically important helminth parasites are taxonomically classified giving at least one example of each genus (20 marks).
3. Discuss the epidemiology, life cycle, pathology, signs and symptoms, diagnosis, treatment, prevention and control of *Plasmodium falciparum* (20 marks)
4.
 - a). 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)
5. Illustrate and describe the physical features that are used to identify fungi of medical importance. (20 marks)

END