



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF HEALTH AND APPLIED SCIENCES

DEPARTMENT OF HEALTH SCIENCES

QUALIFICATION: BACHELOR OF MEDICAL LABORATORY SCIENCES	
QUALIFICATION CODE: 08BMLS	LEVEL: 7
COURSE CODE: MMB711S	COURSE NAME: MEDICAL MICROBIOLOGY 3
SESSION: JUNE 2019	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 130

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Ms. V Tjijenda
MODERATOR:	Prof C. Simango

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer ALL the questions.2. Write clearly and neatly.3. Number the answers clearly.

PERMISSIBLE MATERIALS

None

THIS QUESTION PAPER CONSISTS OF 5 PAGES (Including this front page)

SECTION A (20)

QUESTION 1

[15]

Write short notes on the following:

- 1.1 Pott Disease (3)
- 1.2 Influenza antigenic shift (3)
- 1.3 *Enterobius vermicularis* (3)
- 1.4 *B cereus* (3)
- 1.5 Line probe assay (3)

QUESTION 2

[5]

State the mode of action for each of the following antimicrobials.

- 2.1 Zidovudine (1)
- 2.2 Rifampicin (1)
- 2.3 Amphotericin B (1)
- 2.4 Caspofungin (1)
- 2.5 Saquinavir (1)

SECTION B (51)

QUESTION 3

[11]

- 3.1 Differentiate between active TB and latent TB. (2)
- 3.2 Identify four factors that leads to transmission of TB. (4)
- 3.3 The Gene Xpert assay was rolled out in 2014 in Namibia and has since replaced smear microscopy as the primary TB diagnostic test in Namibia. Justify this assay as the primary diagnostic test for TB. (2)
- 3.4 Explain "extensively drug resistant TB". (3)

QUESTION 4

[12]

Campylobacter is the leading cause of bacterial food-borne diarrhoeal Disease throughout the world.

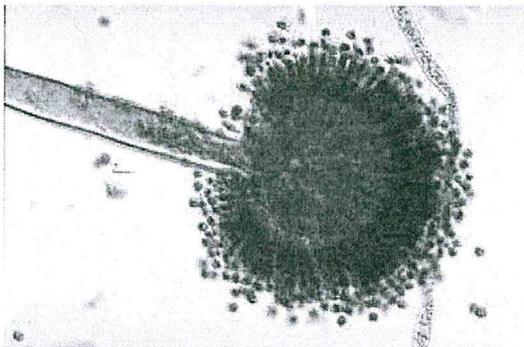
- 4.1 Identify the main reservoir for *Campylobacter*. (1)

- 4.2 What toxin is made by *Campylobacter* as a major pathogenicity factor? (1)
- 4.3 Discuss the autoimmune disease caused by *Campylobacter* infection. (6)
- 4.4 Define “indicator pathogens” in drinking water analysis and mention three such pathogens. (4)

QUESTION 5

[11]

The image of the organism below was cultured from sabouraud dextrose agar.



- 5.1 Identify the organism (genus only) and the type of infection it causes. (2)
- 5.2 Explain why sabouraud dextrose agar is ideal for the isolation of fungi. (3)
- 5.3 You suspect a yeast isolated from the oral cavity of a patient with HIV to be *Candida albicans*. Describe the expected laboratory results. (6)

QUESTION 6

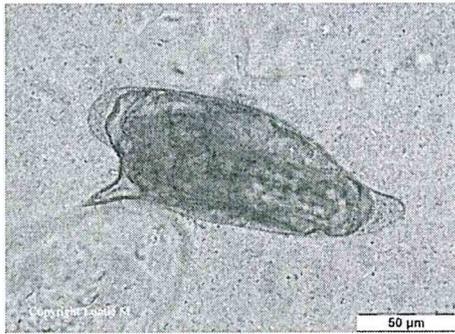
[10]

Identify the parasite (Genus and species) from information given below.

- 6.1 A 59-year-old female from rural village with a positive neurocysticercosis ELISA test. (1)
- 6.2 A parasite with freshwater snails as intermediate host and which may be detected in a properly collected stool specimen of infected patients. (1)
- 6.3 A stool specimen containing adult worms resembling whips and ova with prominent bipolar plugs. (1)
- 6.4 Acid fast parasite routinely stained for in stool specimen of children with diarrhoea. (1)

6.5

(1)



6.6 Describe the microscopic appearance of *Plasmodium malariae*.

(5)

QUESTION 7

[7]

7.1 Differentiate between classic dengue fever and dengue haemorrhagic fever.

(4)

7.2 Briefly discuss three clinical manifestation of Herpes Simplex virus.

(3)

SECTION C (59)

QUESTION 8

[59]

8.1

6-month-old female baby presented with recurrent fever, chronic cough, ear discharge, and failure to gain weight. The delayed milestones seen in the patient can be explained by the intracerebral lesions, which can cause a static nonprogressive injury to a developing brain. This can result in several central nervous system (CNS) symptoms such as delayed milestones and delayed speech. Upon investigation it was found that her parents kept cats as pets. Laboratory blood analysis revealed tachyzoites form of the parasite:



- 8.1.1 Identify the parasitic infection that might have caused infection in this patient. (1)
- 8.1.1 Discuss the pathogenesis of this disease. (9)
- 8.2 Describe the following fungi based on (a) clinical infection (b) Pathogenesis (c) laboratory diagnosis:
- 8.2.1 *Histoplasma capsulatum* (13)
- 8.2.2 *Cryptococcus neoformans* (13)
- 8.2.3 *Malassezia furfur* (13)
- 8.3 Discuss Measles disease. (10)

END OF EXAMINATION
