

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE OF
SCIENCE IN BIOMEDICAL SCIENCE AND TECHNOLOGY**

**BMET 451 DIAGNOSTIC MICROBIOLOGY AND PARASITOLOGY
STREAM BSC (BMET) TIME 2HOURS**

INSTRUCTIONS:

- Answer question ONE (COMPULSORY) and any other TWO questions
- Do not write on the Question paper.

QUESTION ONE (30 MARKS)

- (a) What do you understand by the following terms?
- Definitive diagnosis
 - Cytopathic effect
 - Xenodiagnosis [1×3marks]
- (b) A 31-year old female presents with a 2 day history of sweats, backpain, loin pain and fever. A dipstick test on her urine shows the presence of blood, pus and nitrites.
- What is the likely diagnosis? [2marks]
 - What might predispose her to this infection? [2 marks]
 - Name the organism that commonly causes the infection and the culture media of choice for the urine sample.[2marks]
 - Describe the preparation and examination of wet preparation of the urine sample[4marks]
- (c) Discuss the critical factors to consider in specimen collection, handling, and transport for diagnostic purposes to ensure the accuracy and reliability of the diagnostic results.
(7marks)
- (d) Briefly discuss four methods used in laboratory diagnosis of viral infections [4marks]
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(e) Briefly discuss the common faecal concentration techniques giving an example in each [4marks]

(f) State two reasons for concentration of parasite examination specimen[2marks]

QUESTION TWO (20 MARKS)

(a) Ziehl-Neelsen technique(ZN) is used for microscopic diagnosis of *Mycobacterium tuberculosis*.

- i. Describe the ZN technique principle (5marks)
- ii. Describe the ZN staining procedure and the expected results (10marks)

(b.)Discuss the cultural identification of *Candida albicans* in clinical microbiology laboratory. [5Marks]

QUESTION THREE (20 MARKS)

- (a) Discuss the Saline and iodine preparations to detect *Entamoeba histolytica* and other parasites .[6marks]
- (b) Discuss the identification of suspected *Vibrio cholerae* isolate(4marks)
- (c) Giving suitable examples in each case, describe the principle behind use of selective and transport media in diagnostic laboratory.[10marks]

QUESTION FOUR (20 MARKS)

- (a) Discuss conventional methods for the diagnosis of infectious diseases.[10marks]
 - (b) Discuss the limitations of molecular techniques in diagnostic microbiology and parasitology laboratory [10marks]
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