CHUKA  UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BMET 334: MEDICAL BACTERIOLOGY & MYCOLOGY

STREAMS: BMET **TIME:2 HOURS**

DAY/DATE: TUESDAY 17/12/2024 **11.30 A.M. –1.30 P.M.**

INSTRUCTIONS
(i) Answer Question ONE and any TWO questions
(ii) Do not write on the question paper

QUESTION ONE (30 MARKS)

(a) Discuss the use of the following methods in detection and identification of bacteria:
(i) Nagler's test (2 Marks)
(ii) Optochin test (2 Marks)
(iii) Elek's test (2 Marks)

(b) *Clostridium difficile* causes what diseases? Why is it difficult to manage infections caused by this organism? (7 Marks)

(c) Using specific examples, distinguish between enrichment media and selective media used to culture bacteria. (6 Marks)

(d) (i) Which of the following mycotoxins is the most potent natural carcinogen?
A. Ochratoxin A; B. Fumonisin; C. Cyclopiazonic acid; D. Aflatoxin B1 (1 Mark)

(ii). Describe the different mycotoxicoses produced by aflatoxin. (5 Marks)

(iii). Describe the different presentations of ergotism. (5Marks).

QUESTION TWO (20 Marks)

a) Describe different types of superficial mycoses. (7 Marks)
b) What are the advantages of direct microscopic examination of clinical material for the diagnosis of fungal infection? (6 Marks)
c) A woman developed suppurating nodular skin lesions on the thenar aspect of her hand, extending up her forearm, after pruning rose bushes in her garden.
   i. How would you go about diagnosing the infection? (5 Marks)
   ii. Give two antifungal agents that may be used to treat this infection (2 Marks)

QUESTION THREE (20 Marks)

(a) Describe the mechanisms of action of the toxins produced by *B. anthracis*. (8 Marks)
(b) Why is chocolate agar needed for the isolation of *Haemophilus influenza*? (6 Marks)
(c) What distinguishes a primary pathogen from an opportunistic pathogen? (6 Marks)

QUESTION FOUR (20 Marks)

(a) List and describe all the disease conditions caused by pathogenic *E.coli.* (10 Marks)

(b) Describe the structure and functions of bacterial teichoic acid. (10 Marks)
