

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE  
OF BACHELOR OF SCIENCE IN BIOCHEMISTRY**

**BIOC 331: BIOCHEMISTRY OF PATHOGENIC BACTERIA & FUNGI**

**STREAM: BIOC**

**TIME: 2 HOURS**

**DAY/DATE: THURSDAY 25/03/2021**

**11.30 A.M. – 1.30 P.M.**

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**INSTRUCTIONS:**

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

**QUESTION ONE (30 Marks)**

- (a) Describe microscopic and cultural techniques used to diagnose *Mycobacteria tuberculosis*. (8 marks)
- (b) Discuss the structure and mode of action of diphtheria toxin. (6 marks)
- (c) Define ergotism. (2 marks)
- (d) Give structure of Ergotamine and explain its clinical relevance. (5 marks)
- (e) Using molecular formulae, describe biosynthesis of peptidoglycan and its variation among Gram positive bacteria. (9 marks)

**QUESTION TWO (20 Marks)**

- (a) Describe the pathological effect of bacterial endotoxins on human health (8 marks)
- (b) Explain toxigenic activity of the following bacteria exotoxins:
  - (i) Shiga toxin (4 marks)
  - (ii) Anthrax toxin (EF) (4 marks)
  - (iii) *E. coli* ST toxins (4 marks)

**QUESTION THREE (20 Marks)**

- (a) Describe the etiology and pathogenicity of Maduromycosis. (6 marks)
- (b) List the diseases and clinical features associated with candidiasis. (6 marks)
- (c) Explain the microbial strategies to survive starvation during stationary phase. (8 marks)

**QUESTION FOUR (20 Marks)**

Discuss *Helicobacter pylori* under the following headings;

- (a) Occurrence and transmission (2 marks)
  - (b) Virulence (8 marks)
  - (c) Clinical significance (4 marks)
  - (d) Diagnosis and treatment (6 marks)
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