

CHUKA UNIVERSITY

THIRD YEAR EXAMINATION BIOC 335: ANTIBIOTICS

STREAM: Y3S2 BSc. BIOCHEMISTRY

TIME: 2 HOURS

INSTRUCTIONS

- i. Answer Question One and any other Two Questions
- ii. Do not write on the question paper

Question One (30 marks)

- a. Explain the difference between bacteriostatic and bactericidal antibiotics. (5 marks)
- b. The correct use of antibiotics can prevent the increase in antibiotic resistance. How should antibiotics be used correctly? (5marks)
- c. Explain why antibiotics are not effective against viruses. (4 marks)
- d. Bacteriostatic antibiotics slow the growth of bacteria by interfering with processes the bacteria need to multiply. Describe these processes. (6 marks)
- e. Describe the mechanism of action of β -lactam antibiotics. (10marks)

Question Two (20 marks)

- a. Using specific examples describe how antibiotics inhibit protein synthesis in bacteria. (10 marks)
- b. Describe how antibiotic inactivation by group transfer occurs. (10 marks)

Question Three (20 marks)

- a. Describe how dissemination of multiple drug resistance occurs during horizontal gene transfer. (10 marks)
- b. Describe the various families of bacterial drug efflux transporters. (10 marks)

Question Four (20 marks)

- a. Describe the mode of action of bacitracin and explain why it is exclusively used in topical formulations (8 marks)
- b. Describe how broader spectrum of activity is achieved by carbapenem thienamycin. (12marks)