

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE IN BIOCHEMISTRY

BIOC 307: ANTIBIOTICS

STREAMS: BSC (BIOCHEM)

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 3/8/2016

11. 30 A.M. – 1.30 P.M.

INSTRUCTIONS:

- (i) Answer Question One and any other Two questions
- (ii) Do not write on the question paper

Question One (30 marks)

- (a) Differentiate between bacteriostatic and bactericidal antibiotics. [5 marks]
- (b) Using relevant drug examples, describe the processes affected by bacteriostatic antibiotics. [8 marks]
- (c) Explain why antibiotics are not effective against viruses. [3 marks]
- (d) Bacterial resistance to antibiotics arises due to mutations in the bacterial DNA. Explain how these mutations can affect antibiotic action. [4 marks]
- (e) Describe the biochemical mechanism of antibiotic resistance transfer employed by bacteria. [10 marks]

QUESTION TWO (20 MARKS)

- (a) Describe the mode of action of β –lactam antibiotics. [10 marks]
- (b) Using relevant structural illustration and examples, describe how penicillin improvements have overcome acid instability. [10 marks]

QUESTION THREE (20 MARKS)

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

QUESTION FOUR (20 MARKS)

- (a) Describe the various drug combinations used in the treatment of Mycobacterium tuberculosis and their mode of action. [10 marks]
- (b) Describe the various generations in the development of potent cephalosporins.[10 marks]
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