

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF BIOCHEMISTRY

BIOC 334: INDUSTRIAL BIOCHEMISTRY

STREAMS: BIOC

TIME: 2 HOURS

DAY/DATE: MONDAY 08/4/2019

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS

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

QUESTION ONE (30 Marks)

- (a) Describe the biodegradation of pesticides, alkyl and aryl halides by named microorganisms. (4 Marks)
- (b) Discuss the anaerobic sludge digestion. (5 Marks)
- (b) Outline microbial production of cheese. (5 marks)
- (c) Describe microbial production of lactic acid from lignocellulosic biomass. (7 marks)
- (d) Explain the microbial production of amino acids and their use in pharmaceutical industry. (5 marks)
- (e) Explain why cotton gloves takes 5 months to degrade while plastic bags takes 10-20 years to degrade in marine environment. (4 Marks)

QUESTION TWO (20 Marks)

- (a) Describe five (5) basic steps of brewing beer. (10 marks)
- (b) List and describe five classes/types of bioreactor used in bioprocess technology. (10 Marks)

QUESTION THREE (20 MARKS)

BIOC 334

- (a) Using chemical and structural formulae, discuss biosynthesis of β -lactam Antibiotics by *P. chrysogenum*. (12 Marks)
- (b) Explain how monoclonal antibodies are produced and their uses. (8 Marks)

QUESTION FOUR (20 MARKS)

- (a) Giving specific examples, describe broad classification of grape wines. (12 Marks)
 - (b) Describe production process and chemical composition of biogas. (8 Marks)
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