

CHUKA

UNIVERSITY



UNIVERSITY EXAMINATIONS

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

BIOC 334: INDUSTRIAL BIOCHEMISTRY

STREAMS:

TIME: 2 HOURS

DAY/DATE: TUESDAY 09/04/2024

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS: *Answer question one and any other two questions*

QUESTION ONE (Compulsory) (30 marks)

- a) Discuss the different methods for production of amino acids. (8 marks)
- b) Enumerate the benefits of fermented milk in the human body. (6 marks)
- c) Describe the trickling method of vinegar production. (8 marks)
- d) Discuss the advantages of enzyme immobilization by entrapment. (4 marks)
- e) Highlight the characteristics of secondary metabolites. (4 marks)

QUESTION TWO (20 MARKS)

- a) Classify fermentation processes based on their modes of operation. (6 marks)
- b) Illustrate artemisinin biosynthetic pathway. (10 marks)
- c) List any four industrial uses of gluconic acid. (4 marks)

QUESTION THREE (20 MARKS)

- a). Describe any five types of phytoremediation (10 marks)
- b) Explain the role of various raw materials for beer brewing. (10 marks)

QUESTION FOUR (20 MARKS)

- a). Discuss biological removal nutrient removal of nitrogen and phosphorus from waste water during waste water treatment. (10 marks)
- b). Explain different possible defects in beer. (10 marks)

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