

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: WEDNESDAY 12/04/2023**

**11.30 A.M – 1.30 P.M**

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**INSTRUCTIONS:**

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

**QUESTION ONE (30 MARKS)**

- (a) In reference to serrapeptase, explain the use of microbial proteases in the pharmaceutical industry. [5 marks]
- (b) Describe the biochemistry of bread making. [7 marks]
- (c) Explain the biochemical oxygen demand test for determination of organic matter in waste water. [5 marks]
- (d) State the advantages of using barley as a raw material in brewing. [5 marks]
- (e) State causes of wine defects. [5 marks]
- (f) Explain enzyme immobilization by absorption. [3 marks]

**QUESTION TWO (20 MARKS)**

- (a) Discuss the biochemical basis for citric acid production by *A niger* and its importance. [10 marks]
- (b) List the use of amino acids in the chemical industry. [4 marks]
- (c) Explain three types of fermentation processes. [6 marks]

**QUESTION THREE (20 MARKS)**

- (a) Discuss the different methods of amino acid production. [8 marks]
- (b) Describe the artemisinin biosynthetic pathway. [12 marks]

**QUESTION FOUR (20 MARKS)**

- (a) Explain the common ways of phytoremediation. [10 marks]
- (b) Describe the biosynthetic pathway for cephalosporin antibiotics. [10 marks]
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