

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**EXAMINATION FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN  
MICROBIOLOGY**

**MICB 802: MICROBIAL PHYSIOLOGY**

**STREAMS:**

**TIME:3 HOURS**

**DAY/DATE: THURSDAY 13/04/2023**

**11.30 A.M. –2.30 P.M.**

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**INSTRUCTIONS**

**Answer any THREE questions**

1. a. Discuss how the physiology of microorganisms influence fermentation process (10 marks)
  - b. Explain the factors that should be considered when determining the downstream processing procedure to be adopted in an industrial production (10 marks)
  
  2. Discuss the growth of microbes in a batch culture (20 marks)
  
  3. a. Explain how a culture system can be maintained at exponential growth phase at constant biomass concentration for extended period (10 marks)
  - b. Discuss the characteristics of microorganisms that are used in industrial fermentation processes (10 marks)
  
  4. Describe the classification of microbial products based on the relationship between product formation and energy generation in cells (20 marks)
  
  5. Discuss mechanisms for transport of solutes in bacteria (20 marks)
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