THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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MAIN EXAMINATION

SEPTEMBER –DECEMBER 2021

FACULTY OF SCIENCE

DEPARTMENT OF BIOLOGY

REGULAR PROGRAMME

BIO 213: TECHNIQUES IN INDUSTRIAL MICROBIOLOGY

Date: DECEMBER 2021	**Duration: 2 Hours**
INSTRUCTIONS: Answer Question ONE and any TWO Questions	

Q1.

a) Explain the following types of fermentation processes
   i. Batch fermentation.
   ii. Continuous fermentation. **(8 marks)**

a) State the properties of a useful industrial micro-organism. **(6 Marks)**

b) State any Four requirements for a bioreactor **(4 Marks)**

c) Highlight the advantages of immobilized cell bioreactors over enzyme immobilization **(6 Marks)**

d) State Three disadvantages of solid state fermentation process **(4 Marks)**

e) State the contributions of the following in the field of microbiology **(2 Marks)**

   i. Alexander Fleming
   ii. Louis Pasteur

Q2. Describe the processes involved in downstream processing **(20 Marks)**

Q3. You are the production supervisor in a newly established winery and as part of the company's cooperate social responsibility, students of food science and technology from CUEA have visited your production plant for the purposes of learning. Explain to the students the process of wine production **(20 Marks)**

Q4. Discuss the various sterilization methods used to control micro-organisms **(20 Marks)**

Q5. State and explain the methods of microbe preservation used by microbiologist. **(20 marks)**

END