



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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MAIN EXAMINATION

JANUARY – APRIL 2017 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF BIOLOGY

REGULAR PROGRAMME

BIO 213: TECHNIQUES IN INDUSTRIAL MICROBIOLOGY

Date: April 2017

Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

- Q1. a) State and explain the properties of an ideal industrial microbe **(4 marks)**
- b) Briefly discuss 2 types of culture media **(4 marks)**
- c) Briefly discuss scaling up process **(10 mark)**
- d) Briefly explain the steps followed in protoplast fusion as a method of strain development **(5 marks)**
- e) Explain characteristics of an ideal fermentation media **(2 marks)**
- f) Differentiate the following terms as used in microbiology **(2 marks)**
- i) Bio-typing
- ii) Sero-typing
- g) Explain and give examples of GRAS (generally regarded as safe) microbes **(3 Marks)**
- Q2. With the aid of a diagram discuss fermentation process **(20 marks)**
- Q3. Discuss bio-remediation **(20 marks)**
- Q4. Discuss culture preservation techniques **(20 marks)**
- Q5. Discuss cell immobilization **(20 marks)**