

W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2016/2017**

**YEAR III SEMESTER II SPECIAL/SUPPLEMENTARY EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN MEDICAL MICROBIOLOGY**

**MMB 2375: INDUSTRIAL MICROBIOLOGY**

**DATE: SEPTEMBER 2017 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

1. Explain the significance of the following;
2. Impellers in a bioreactor. [3 marks]
3. Double wall casing in a bioreactor. [3 marks]
4. Compare the probiotics and Saukareut. [6 marks]
5. (i) Outline the advantages of use of Koji in vinegar production. [2 marks]

(ii) Compare the microbiologically and mechanically produced butter. [4 marks]

1. Briefly discuss the pharmaceutical uses of acetic acid with regard to human health and the adverse effects of its usage. [6 marks]
2. Discuss single cell proteins with regard to both its health benefits and adverse effects. [6 marks]

**QUESTION TWO (20 MARKS)**

Discuss the process of cheese production.

**QUESTION THREE (30 MARKS)**

Discuss the methods applied in harvesting microbial industrial products.

**QUESTION FOUR (30 MARKS)**

Discuss the Industrial production of mycoproteins and significance in human health.