



**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**UNIVERSITY EXAMINATIONS**

**2021 / 2022 ACADEMIC YEAR**

**MAIN EXAMINATIONS  
MAIN CAMPUS**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS**

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

**COURSE CODE: SMB 823**

**COURSE TITLE: MICROBIAL BIOCHEMISTRY**

**DATE: THURSDAY, 21<sup>ST</sup> APRIL 2022**

**TIME: 9:00 – 12:00 P.M.**

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**INSTRUCTIONS TO CANDIDATES**

Answer any **FOUR** questions

1. Describe the occurrence, chemistry and biosynthesis of vitamin B and explain its commercial production in as much detail as possible. (15 marks)
2. What is the economic importance of industrial production of amino acids by microorganisms and how does this industrial production occur? (15 marks)
3. There are selected industrial applications that depend on the microorganism and produce corresponding products. Discuss their applications and give examples of products or processes. (15 marks)
4. Describe single cell proteins production under the following headings: need to produce SCP, sources of microorganisms and their selection criteria, substrates for SCP production, nutritional value of SCP and factors affecting SCP production. (15 marks)
5. Looking at the biochemistry of fermentation where does fermentation link with glycolysis and give a comparison of the bioenergetics of fermentation and that of glycolysis. (15 marks)
6. Using a well labelled schematic draw a fermenter and describe the 13 parts of a fermenter stating their purpose. (15 marks)