



(University of Choice)

**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 MEDICAL DIETETICS

COURSE CODE: HMD 819

**COURSE TITLE: ADVANCED FOOD MICROBIOLOGY
AND PARASITOLOGY**

DATE: 26/04/2022

TIME: 2.00-5.00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS (60 MARKS)

TIME: 3 HOURS

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over. 

ESSAY QUESTIONS [60 MARKS]

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1. As a student of food microbiology, you mainly deal with microorganisms that have positive and negative effects in food systems. To effectively manage them the microbiologist must understand their behaviour and characteristics in the food system. Write an essay detailing:
 - a) the characteristics of microorganisms that make a major cause of food spoilage [6 Marks]
 - b) Suitable method for counting the viable *Escherichia coli* bacteria in a food sample. Give your answer in the form of a flow chart of instructions suitable for a competent microbiological technician to follow [6 Marks]
 - c) Microbes you would expect to find in the following foods? Give reasons for your predictions.
 - i) Fresh meat
 - ii) freshly cooked rice
 - iii) milk [2x3 Marks]
 - d) With reference to the ecology and characteristics of *Clostridium perfringens*, explain a typical sequence of events that may lead to cases of food poisoning by *S. aureus* [6 Marks]
 - e) With relevant examples give the applications of fermentations in the food industry [6 Marks]
2. Discuss the role of microbial biofilms in food systems [15 Marks]
3. With specific examples, explain in detail the microbial interactions in food systems [15 Marks]
4. Discuss Hurdle Technology as used in Food Safety [15 Marks]