



(University of Choice)

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

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS
FOR THE DEGREE
OF
MASTER OF PUBLIC HEALTH NUTRITION**

**COURSE CODE: PHN 889
COURSE TITLE: ADVANCED FOOD SCIENCE**

DATE: 17/4/2023

TIME: 8.00-11.00AM

INSTRUCTIONS TO CANDIDATES

Answer all questions in SECTION A and B
Answer only TWO questions in SECTION C
Read additional instructions under various sections

TIME: 3Hours

MMUST observes ZERO tolerance to examination cheating

INSTRUCTIONS

Answer question one (COMPULSORY) and any other three questions. TOTAL; 70mks

- 1) Controlling water activity has been fronted as a useful intervention in preventing food spoilage microorganisms and aiding food preservation.
 - a) Explain water activity and how it relates to bacterial growth (5mks)
 - b) Identify 5 ways in which water can be present in food (5mks)
 - c) Raw rice has a higher water activity as compared to raw meat; True/False? Explain your answer (5mks)
 - d) Intermediate moisture foods are very useful for people who travel as they are ready to eat and do not require refrigeration. Using examples, explain how IMF technology works (10mks)
- 2) Using examples, discuss the role of the following additives in the food industry (15mks)
 - a) Leavening agents
 - b) Texturizers
 - c) Binders
- 3) Corn is one type of cereal that is commonly used in human diets.
 - a) Draw a labelled structure of corn and explain the different parts (5mks)
 - b) Explain the process of malting and its relevance to the beer industry (10mks)
- 4) Controversies have arisen concerning the safety of milk in Kenya. One of the emerging issues is the presence of aflatoxins in milk.
 - a) Describe how milk can be contaminated with aflatoxins (5mks)
 - b) Using traceability, discuss how the milk industry can eliminate the presence of aflatoxins (10mks)
- 5) Fruits and vegetables can be eaten in different forms, raw or processed.
 - a) Explain why it is recommended to eat whole fruits and vegetables as opposed to cooking or blending them (5mks)
 - b) A patient has been advised by their doctor to lower their cholesterol levels. Giving reasons, explain to this patient what kind of fats/oils to include in their diets (10mks).