



MACHAKOS UNIVERSITY

University Examinations for 2022/2023 Academic Year

SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES

DEPARTMENT OF HEALTH SCIENCES

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (FOODS NUTRITION AND DIETETICS)

HFN 242: FOOD MICROBIOLOGY

DATE:

TIME:

INSTRUCTIONS:

This paper consists of two sections A and B

SECTION A

Specific Instructions

- This section has one question
- The question is compulsory
- The question is 30 marks

QUESTION ONE (30 MARKS)

- a) State the differences between food infection and food intoxication. (3 marks)
- b) Explain the origin of micro-organisms as described by Antony Van Leeuwenhoek. (3 marks)
- c) State yeasts and molds associated with the spoilage of fruits. (3 marks)
- d) Explain the pathogenic mechanisms of the following involved in foodborne illness
 - i) Enterotoxigenic Escherichia coli (2 marks)
 - ii) Enteroinvasive Escherichia coli (2 marks)
 - iii) Enterohemorrhagic Escherichia coli (2 marks)

- e) Explain the growth curve of lactic acid bacteria during production of yoghurt in the laboratory. (4 marks)
- f) Give possible reasons for higher incidence of foodborne diseases from food served at food service establishments. (4 marks)
- g) Explain the spoilage of meat under aerobic conditions. (4 marks)
- h) Outline how an understanding of the sources of microorganisms in foods can be of help to a food microbiologist. (3 marks)

SECTION B:

Specific Instructions

- **This section has four (4) questions**
- **Answer any two (2) questions**
- **Each question is 20 marks**

QUESTION TWO (20 MARKS)

- a) Describe rots encountered in eggs due to spoilage (10 marks)
- b) You are preparing a presentation on factors that affect microbial growth in food. Describe the content of your presentation. (10 marks)

QUESTION THREE (20 MARKS)

- a) Describe the factors that influence the prevalence of zoonoses. (10 marks)
- b) The main business of Company X is to examine food microbes. Discuss the techniques you are likely to encounter. (10 marks)

QUESTION FOUR (20 MARKS)

- a) Explain measures that can be put in place to control food-borne diseases. (10 marks)
- b) Discuss *Staphylococcus aureus* food poisoning under the following headings; -

- i. Causes
- ii. Symptoms
- iii. Prevention

(10 marks)

QUESTION FIVE (20 MARKS)

- a. Describe the criteria for diagnosis of food-borne diseases. (10 marks)
- b) Many vegetables are eaten raw. Discuss what microbiological concerns the consumer should have for these vegetables. (10 marks)