



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF HEALTH SCIENCES

DEPARTMENT OF PUBLIC AND COMMUNITY HEALTH

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (PUBLIC HEALTH)

HPH 207: FOOD SCIENCE AND TECHNOLOGY

DATE: 8/12/2021

TIME: 2.00-4.00 PM

INSTRUCTIONS:

This paper consists of two sections A and B

SECTION A

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

QUESTION ONE (30 MARKS)

- a) State the functions of food packaging material. (3 marks)
- b) Highlight the role of a public health officer in ensuring food safety. (3 marks)
- c) Highlight the role of international organizations in ensuring food biosafety. (3 marks)
- d) Explain the challenges in regulation of use of food additives in Kenya. (3 marks)
- e) Outline the various types of protein based on shape and size. (3 marks)
- f) Explain the concept of starch gelatinization. (3 marks)
- g) Outline the nutrients provided by cereals and grains and their respective functions in the body. (3 marks)
- h) State the effect of heating on fats and oils. (3 marks)
- i) Highlight the benefits of food biotechnology in modern developments. (3 marks)
- j) Explain the importance of various food classification systems. (3 marks)

SECTION B:

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

QUESTION TWO (20 MARKS)

- a) Company X based in Kenya has developed a new food additive that they intend to commercialize. Explain the requirements they will have to meet before the launch of their product. (10 marks)
- b) Describe the various classification systems of food storage structures. (10 marks)

QUESTION THREE (20 MARKS)

- a) Company X that is involved in production of various baked food products has hired you as their production manager. Your day to day activities involve preparation of food products using sugar. Based on these discuss the functional role of sugar in your products. (10 marks)
- b) Discuss the application of enzymes in biotechnology. (10 marks)

QUESTION FOUR (20 MARKS)

A Wedding party is held in your neighborhood, after which there are leftover foods. The organizers seek your help in storing the food to avoid spoilage.

- a) Describe risk factors for development of food borne diseases from the leftover food. (10 marks)
- b) Identify and explain food preservation techniques that you would utilize to store the food. (10 marks)

QUESTION FIVE (20 MARKS)

- a) Explain factors that affect the Maillard reactions and the importance of the reaction to the food industry. (10 marks)
- b) You are the product development manager for a dairy company that manufactures a wide range of milk products and would wish to constitute a sensory analysis panel for use in various tests as need arise. Give a detailed sequential description of the screening process that you would subject potential applicants to, so that you can obtain an appropriate panel. (10 marks)