



FACULTY	AGRICULTURE, ENGINEERING AND NATURAL SCIENCES		
SCHOOL	AGRICULTURE AND FISHERIES SCIENCES		
DEPARTMENT	FOOD SCIENCE AND SYSTEMS		
SUBJECT	FOOD ANALYSIS AND INSTRUMENTATION		
SUBJECT CODE	AFST 3722		
DATE	NOVEMBER 2024		
DURATION	2 HOURS	MARKS	100

Second Opportunity Examination

Examiner: Dr. S.C. Barrion

Internal Moderator: Prof.K.K.M.Nantanga

External Moderator:

This examination consists of **two (2)** pages excluding this front page.

Instructions

- **Answer all five (5) questions**

QUESTION 1

- a) Potatoes are prone to absorbing cadmium in contaminated soil. Describe an analytical method used to quantify this element, the components of this equipment and give four (4) advantages of this technique over others used for elemental analyses. [10]
- b) Dairy is a good source of amino acids. Describe a method that can be used to quantify the essential amino acids in milk. Outline the various types of this technique, its principle of operation and four (4) components of this equipment. [10]

QUESTION 2

- a) Describe a method that can be used to determine the total mineral content of banana. [5]
- b) Discuss an analytical method that can be used to differentiate the fatty acid composition of peanut oil and sunflower oil. Give five (5) of its equipment components. [10]

QUESTION 3

- a) Describe the principle involved in the determination of fat content and give three (3) methods used for crude fat determination in food. [10]
- b) Differentiate between nebulisation and atomisation in Atomic Absorption Spectroscopy. [5]

QUESTION 4

- a) Pineapple must be structurally mature and ripe to be processed. Discuss a instrumental method that can be used to measure and evaluate the maturity and ripeness of pineapple. [10]
- b) Mycotoxins are formed when cereals are stored with a high moisture content. Discuss the factors that influence the choice of method for determining moisture content in food. [5]
- c) Describe an analytical technique that measures the level of atoms excitation from a resulting flame produced. [10]

QUESTION 5

- a) Discuss a technique that can be used to measure lactic acid at a wavelength of 390 nm. [10]
- b) Explain the factors that should be considered in the selection of samples that food analysis will be carried out on. [5]