



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

First Opportunity Examination

Examiner: Dr. S.C. Barrion

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

External Moderator:

This question paper consists of **one (1) page** excluding this front page.

Instructions

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

QUESTION 1

- a) A company processing tomato sauce has a problem with air bubbles in their products. Describe the principle and the application of an image-based method that can be used to analyse the pockets of air in sauces. [10]
- b) Everyday is a Namibia Dairies brand of yogurt. Describe a technique and instrument that is used to measure the texture of yogurt. [5]
- c) Explain the scope of Food Analysis. [5]

QUESTION 2

- a) Discuss an analytical method that can be used to analyse the flavour compounds in rooibos tea and give five (5) of its equipment components. [10]
- b) Whey powder is typically used by athletes as a protein supplement. Describe two (2) methods that can be used to determine its crude protein content. [10]

QUESTION 3

- a) Describe the phenol sulfuric method of total carbohydrate determination. [10]
- b) Near-infrared spectroscopy (NIRS) is a rapid method used to measure multiple parameters. Describe the applications of Near-infrared spectroscopy (NIRS) in the food industry. [10]

QUESTION 4

- a) Different grape cultivars are available in the market. Describe a technique that can be used to identify similarities and differences in the genetic makeup of each grape cultivar. [10]
- b) Coriander is a spice typically used in biltong. Differentiate between the method used in the moisture determination content of coriander and of toffee sweets. [10]

QUESTION 5

- a) The colour of sorghum grain affects the colour of flour after milling. Recommend an instrument that can be used to demonstrate these effects on the flour and describe its principle of operation. [10]
- b) The selection of Food Analysis techniques is based on criteria of interest. Discuss. [10]

END OF THE EXAMINATION

- c) Couscous is a staple in North Africa made from semolina wheat flour. Discuss three (3) methods that can be used to quantify the total carbohydrate content in couscous.

[10]

END OF THE EXAMINATION