



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2022/2023

SECOND YEAR, SECOND SEMESTER SPECIAL/SUPPLEMENTARY EXAMINATION FOR  
THE DEGREE OF BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY

### AFT 3253: FOOD CHEMISTRY II

**DATE: AUGUST 2023**

**TIME: 2 HOURS**

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**INSTRUCTIONS:** *Answer question one and any other two questions*

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#### QUESTION ONE (30 MARKS)

- Colour is the general name of the all sensations arising from the activity of the retina of eye.  
Outline four reasons for the use of food colorants (4 marks)
- Enzymatic browning is one of the most important reactions that usually occurs in fruits and vegetables. Discuss the resulting impact of enzymatic browning in apples and the endogenous enzymes involved. (3 Marks)
- Do the dangers derived from the use of food additives in processing outweigh the advantages?  
Give reasons for your answer and include any three relevant examples. (4 Marks)
- While giving examples, describe the general mechanism of action of phytochemicals (5 marks)
- Define a food additive and briefly explain four main functions of food additives (6 marks)
- Most foods are dispersed systems. Briefly explain six consequences of the existence of a dispersed state (6 marks)
- With examples, describe the use of flavour enhancers in food processing (2 marks)



**QUESTION TWO (20 MARKS)**

- a) Explain the nature, properties and formation of food dispersions (10 marks)
- b) Food additives have various technological functions in foods. On the other hand, evidence suggesting that chemicals in food additives pose a threat to our bodies has been shown. While giving examples, discuss the controversies surrounding the use of food additives (10 marks)

**QUESTION THREE (20 MARKS)**

"Eating involves all the senses". Discuss this statement while highlighting on texture – taste-aroma interactions and their mechanisms (20 marks)

**QUESTION FOUR (20 MARKS)**

- a) Explain the changes that occur in the chlorophyll and heme compounds during processing (10 marks)
- b) Describe the characteristic colours and stability exhibited by betalains during food processing (10 marks)

