



**MERU UNIVERSITY OF SCIENCE & TECHNOLOGY**

*Foundation of innovations*

**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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**University Examination 2016/2017**

**THIRD YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY AND BACHELOR OF SCIENCE IN FOOD SCIENCE AND MANAGEMENT.**

**AFT 3253: FOOD CHEMISTRY 11**

**DATE: JUNE 2017**

**TIME: 2 HOURS**

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

**QUESTION ONE (30 MARKS)**

- a)** Define or differentiate the following terms or phrases. (6 marks)
- i) Food chemistry
  - ii) Anthocyanins
  - iii) Dispersed systems
  - iv) Immobilized enzymes
  - v) Dye and a pigment
- b)**
- i) Describe the beneficial effects of polyphenols (3 marks)
  - ii) Discuss the application of highly stable enzymes. (4 marks)
- c)**
- i) Name the groups of compounds that are responsible for the colours of food stuffs and for each, state two examples of specific foods in which they produce colour. (4 marks)
  - ii) According to the nature of chemicals reaction catalyzed, describe the major categories of enzymes used in food industry. (3 marks)
- d)**
- i) State four naturally occurring antioxidants in foods (4 marks)

- ii) Highlight their sources, action in food and their application in food technology, discuss three endogenous enzymes. (3 marks)
- iii) Discuss the safety issues associated with the use of synthetic colourants in food (3 marks)

**QUESTION TWO (20 MARKS)**

- a) Compare the two processes of non-enzymatic browning of foods. (10 marks)
- b) Explain the stability of heme (10 marks)

**QUESTION THREE (20 MARKS)**

- a) Mentioning their application in food science and technology, discuss the various types of emulsions. (10 marks)
- b) Most of the enzymes properties are clearly and reliably revealed only with purified enzymes. Expound on the isolation of a pure enzyme. (10 marks)

**QUESTION FOUR (20 MARKS)**

- a) Soybean seeds are sources of several bioactive compounds such as the isoflavones. State the main soybean isoflavones and discuss any five health benefits associated with the consumption of soybean products. (10 marks)
- b) Argue for or against the use of natural antioxidants in food. (10 marks)