



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2015/2016

SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN FOOD SCIENCE AND NUTRITION AND BACHELOR OF SCIENCE IN HUMAN NUTRITION AND DIETETICS

### AFT 3203: FUNDAMENTALS OF FOOD CHEMISTRY

DATE: NOVEMBER 2015

TIME: 2 HOURS

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

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#### QUESTION ONE (30 MARKS)

- a) Giving two examples in each case explain the functions of macro and trace minerals in humans. (6 Marks)
- b) Explain the four types of water in foods. (6 Marks)
- c) Explain the terms “Zwitterion” and “Isoelectric point” with respect to amino acids. (6 Marks)
- d) Explain the four levels of a protein structure. (6 Marks)
- e) Distinguish the following giving examples in each case:
  - (i) Saturated fatty acids.
  - (ii) Monounsaturated fatty acids.
  - (iii) Polyunsaturated fatty acids. (6 Marks)

#### QUESTION TWO (20 MARKS)

- a) Discuss denaturation methods and their effects on protein structure. (10 Marks)
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b) Discuss water soluble vitamins with respect to their functions and sources. (10 Marks)

**QUESTION THREE (20 MARKS)**

Discuss lipid oxidation and its prevention in foods. (20 Marks)

**QUESTION FOUR (20 MARKS)**

(a) Discuss browning reactions of foods. (10 Marks)

(b) Citing specific examples of enzymes applied in food industry discuss the factors affecting enzyme reactions. (10 Marks)