

**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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**University Examinations 2016/2017**

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

**AFT 3203: FUNDAMENTALS OF FOOD CHEMISTRY**

**DATE: DECEMBER, 2016 TIME: 2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. List three types of water-soluble interactions. (3 marks)
2. List three definitions of bound water. (3 marks)
3. Describe the structure of the following; (6 marks)
4. Glucose
5. Hydrogen bond possibilities of hydroxyl ion
6. Hydrogen bond for hydronium ion
7. Explain the difference between; monosaccharide, oligosaccharide, and polysaccharide. (3 marks)
8. Define water activity (aw). (3 marks)
9. Draw a typical titration curve of a typical amino acid. (5 marks)
10. Discuss none enzymatic browning and give its implications. (4 marks)
11. List three phospholipids. (3 marks)

**QUESTION TWO (20 MARKS)**

1. Discuss the browning;
2. Oxidation to aldonic acids and aldonolactones. (4 marks)
3. Uronic acids. (3 marks)
4. Reduction of carbonyl groups. (3 marks)
5. Discuss and give five examples of saturated and unsaturated fatty acids. (10 marks)

**QUESTION THREE (20 MARKS)**

1. Discuss the effect of phytochemical compounds on mineral bio availability. (10 marks)
2. Discuss the effect of freezing on food quality. (10 marks)

**QUESTION FOUR (20 MARKS)**

1. List the factors affecting enzymes activity. (5 marks)
2. Discuss three types of enzymes. (15 marks)