**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATION 2016/2017**

**SECOND YEAR FIRST SEMESTEREXAMINATION FOR THE DEGREE OF BACHELOR**

**OF SCIENCE IN HUMAN NUTRITION AND DIETETICS, FOOD SCIENCE AND NUTRITION, SAFETY ANDHOSPITALITY MANAGEMENT AND ANIMAL SCIENCE**

**AFS 2211: FUNDAMENTALS OF FOOD CHEMISTRY**

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

**INSTRUCTION: ANSWER ALL QUESTIONS IN SECTION A AND ANY OTHER TWO QUESTIONS IN SECTION B**

**Section A- 30 marks**

1. Giving examples distinguish between mono-unsaturated and poly-unsaturated (4 marks)
2. Define enantiomers and draw D/L structures of glucose molecules (4 marks)
3. Sketch a diagram to illustrate the difference between flocculation and coalescence of emulsification droplets (4 marks)
4. Define water activity of food and explain how it affects chemical reactions ( 6 marks)
5. a) state the conditions required for the hydrogenation of unsaturated oils (2 marks)

b) Hydrogenation can result in the formation of Trans fatty acids. Outline the meaning of the term trans fatty acids and explain why there formation is undesirable (4 marks)

1. Explain the importance of the following substances in foods
2. Lecithin (2 marks)
3. b-carotene (4 marks)

**Section B- 40 marks**

1. a) Describe the structure of pectin (6 marks)

b) Explain the changes that pectic substances undergo during fruit ripening period and how this affects fruit quality (14 marks)

8. Define dietary fibre and explain its importance (20 marks)

9. Describe the process of enzymatic browning and outline its influence on food quality and methods of its prevention (20 marks)