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**University Examinations 2015/2016**

SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY AND BACHELOR OF SCIENCE IN FOOD SCIENCE AND MANAGEMENT

**AFT 3201: FOOD CHEMISTRY I**

**DATE: NOVEMBER 2015 TIME: 2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. A student bought a sachet of instant coffee, used a portion to make up a cup of coffee and left it open on the shelf. On coming back to consume the remainder after four days the instant coffee granules had formed clumps and could not flow freely. Explain why. (4 Marks)
2. Explain why at a constant temperature, saturated solutions of various salts yield different partial pressures of water in an enclosed container. (5 Marks)
3. Giving reasons, indicate whether the following sugars are reducing or non-reducing? (6 Marks)
4. Name and describe functional applications of two sugar alcohols. (4 Marks)
5. Briefly describe how pre-gelatinized starch is manufactured and outline its properties. (4 Marks)
6. Briefly explain the impact of cooking kidney beans on protein availability. (4 Marks)
7. Which of the following triacylglycerols would you expect to be liquid at room temperature? Explain your answer.
8. PStP.
9. PLL.
10. PMSt. (3 Marks)

**QUESTION TWO (20 MARKS)**

1. Discuss the starch retrogradation phenomena. (10 Marks)
2. Discuss hydrolytic rancidity in lipids. (10 Marks)

**QUESTION THREE (20 MARKS)**

1. Discuss five functional roles of proteins in food systems. (10 Marks)
2. The following components: high fructose corn syrup, caramel and gum Arabica were found among other ingredients on the bottle top of a brand of soda. Explain their nature and purpose. (6 Marks)
3. Describe how tocopherols are able to minimize the rate of fat autoxidation. (4 Marks)

**QUESTION FOUR (20 MARKS)**

1. Discuss chemical modification of starches. (10 Marks)
2. Briefly discuss the stability of vitamin C during food processing and preservation. (6 Marks)
3. Distinguish thermo-reversible from nonthermo-reversible protein gels and give relevant examples of each. (4 Marks)