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University Examinations 2013/2014

THIRD YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGYAND BACHELOR OF SCIENCE IN FOOD SCIENCE AND NUTRITION

AFS 2308: PRINCIPLES OF CEREAL SCIENCE

DATE: DECEMBER 2013 **TIME: 2 HOURS**

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

QUESTION ONE (30 MARKS)

a) Define the following terms widely used in flour milling operations (4 Marks)
   i. Feed
   ii. Grind
   iii. Overtails or Tails
   iv. Semolina

b) Differentiate between:
   i. Strong wheats and weak wheats (3 Marks)
   ii. Hard wheats and soft wheats (3 Marks)
   iii. Vitreous wheats and mealy wheats (3 Marks)

c) Briefly discuss the following steps in relation to wet-milling of maize;
   i. Steeping (5 Marks)
   ii. Degermination (3 Marks)

d) What do you understand by wheat conditioning? Describe the various methods used for conditioning wheat. (9 Marks)

QUESTION TWO (20 MARKS)

a) Parboiled-polished rice has a better nutritive value than non-parboiled polished rice. Explain the statement. How is parboiling process achieved? (12 marks)

b) Discuss the enzymatic production for pure crystalline glucose from wet-milled maize starch. (8 Marks)

QUESTION THREE (20 MARKS)

a) Briefly explain the occurrence of carbohydrates in cereal grains (10 Marks)

b) Discuss how the following affect the quality of stored cereal grains;

i. Respiration (10 Marks).

ii. Biochemical reactions. (10 Marks)

QUESTION FOUR (20 MARKS)

a) List atleast three by-products of maize wet-milling industry indicting chemical composition and main industrial or feed user (10 Marks)

b**)** Discuss the production for starch derivative using acid hydrolysis methods. (10 Marks)