

2ND SEM. 2010/11



UNIVERSITY

OF SWAZILAND

FINAL EXAMINATION PAPER

**PROGRAMME : BACHELOR OF SCIENCE IN FOOD
SCIENCE, NUTRITION & TECHNOLOGY
YEAR II**

COURSE CODE : FSNT 206

TITLE OF PAPER : FOOD CHEMISTRY

TIME ALLOWED : TWO (2) HOURS

**INSTRUCTIONS : ANSWER QUESTION ONE (1) AND ANY
OTHER TWO (2) QUESTIONS**

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GRANTED BY THE CHIEF INVIGILATOR**

QUESTION 1 [COMPULSORY]

- a. Discuss the disadvantages of Maillard reactions in foods?
(8 marks)
- b. Briefly discuss the difference between free water and bound water in foods.
(8 marks)
- c. Maltose is a **reducing** sugar while sucrose is a **non-reducing** sugar. What is the meaning of the terms and what is the cause of this difference?
(8 marks)
- d. Give four main constituents of dietary fibre.
(8 marks)
- e. Why would it not be advisable to press ripe fruits?
(8 marks)

[TOTAL MARKS = 40]

QUESTION 2

- a) Draw the chemical structure of '*cis*' or '*trans*' isomers in fatty acid. Which one has a lower melting point and which one is more common in natural fats and oils?
(10 Marks)
- b) Discuss the factors that affect the melting point of fats.
(12 Marks)
- c) Draw the structural formulae of the fatty acids C18:0 and C18:1. (8 Marks)

[TOTAL MARKS = 30]

QUESTION 3

- a. What do you understand by primary, secondary and tertiary structure of proteins and which of these is most likely to be affected by heat?
(15 Marks)
- b. Discuss the importance of, and the factors that affect nutritional quality of protein.
(15 Marks)

[TOTAL MARKS 30]

QUESTION 4

Discuss the differences between **true solution**, **gels**, **colloids** and **emulsions**. Which of the four dispersion systems would be stabilized by surface active molecules?

[TOTAL MARKS = 30]