



1ST SEM. 2015/16

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

**PROGRAMME : BACHELOR OF SCIENCE IN FOOD SCIENCE,
NUTRITION & TECHNOLOGY; YEAR II
BACHELOR OF SCIENCE IN CONSUMER SCIENCE;
YEAR II
BACHELOR OF SCIENCE IN CONSUMER SCIENCE
EDUCATION. YEAR II**

COURSE CODE : FSNT 201

TITLE OF PAPER : FOOD SCIENCE

TIME ALLOWED : TWO (2) HOURS

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

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THE CHIEF INVIGILATOR**

QUESTION 1 [COMPULSORY]

- (a) Identify, giving appropriate examples, the different classes and subclasses (sub-groups) of the group of constituents in foods referred to as **Carbohydrates**. For each class/group explain **two (2)** uses or functions in commercial food applications where they may be used in the formulation of consumer products. **(20 Marks)**
- (b) Food constituents function in a variety of ways in food systems to give us products with desirable gastronomic (organoleptic) quality attributes and nutrition. Identify and explain how proteins behave and function to be able to produce the following food products:
- i) Soufflé or Angel food cake **(4 Marks)**
 - ii) Meat balls or sausage **(4 marks)**
 - iii) Egg custard **(4 Marks)**
- (c) Identify and name the different classes or groups of compounds that are classified as fats and oils and what biochemists refer to as lipids. For each class of compounds explain its importance in food applications or in the diet. **(8 Marks)**

[TOTAL POINTS = 40]**QUESTION 2**

- (a) Water, moisture and water activity (A_w) are important considerations in the production of wholesome yet safe food. Discuss why and how these concepts are so important in foods? **(6 Marks)**
- (b) Identify and explain the value of the types or classes of sweeteners that are available in the market. Which of these classes of sweeteners are preferable or more suitable in making cakes? Explain. **(8 Marks)**
- (c) Identify and explain the reasons behind **four (4)** of the treatments/modifications that are typically done to fats by the food industry. Give examples of food products where these treatments are necessary. **(16 Marks)**

[TOTAL POINTS = 30]

QUESTION 3

- (a) Explain the concepts and application of rheology, gelatinization and retrogradation in food systems . (12 Marks)
- (b) Identify and explain **two (2)** food processing techniques or food products where enzymes are used in their production. (9 Marks)
- (c) Name **three (3)** types or classes of vegetables or crops that contain distinct flavour compounds. For each class name the compound (s) contained in these vegetables or crops and their value. (9 Marks)

[TOTAL POINTS = 30]

QUESTION 4

- (a) Of what value is the study of 'Food Science, Nutrition and Technology'? Explain **two (2)** of the subject areas or areas of specializations under this broad discipline. (10 Marks)
- (b) Tenderness and moistness are two highly valued quality attributes in meats. How can a restaurateur (restaurant operator) ensure that these quality attributes are optimized throughout the meat value chain? (10 Marks)
- (c) Explain the role of the ingredients and processes that are required for a good quality loaf of bread? (10 Marks)

[TOTAL POINTS = 30]