UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME : BACHELOR OF SCIENCE IN FOOD SCIENCE, NUTRITION & TECHNOLOGY;
BACHELOR OF SCIENCE IN CONSUMER SCIENCE;
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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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.** **(7 Marks)**

(b) For each class/group in 'a' above mention **two (2)** uses or functions in food systems where they may be used as ingredients. **(14 Marks)**

(c) 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 the role or function(s) of proteins in the following food systems.

i) Soufflé or Angel food cake
ii) Meat balls
iii) Egg custard **(3x2 = 6 Marks)**

(d) Identify the different classes or groups of compounds called Fats/lipids/triglycerides. Point out and explain what makes them to be different from each other. For each class give examples **(8 Marks)**

(e) Describe the discipline and field of study **'Food Science and Technology'**. Explain **two (2)** of the subject areas or areas of specializations under this broad discipline. **(5 Marks)**

[TOTAL MARKS = 40]

QUESTION 2

There are several colour pigments and flavour compounds that naturally occur in plant foods like crops, vegetables and fruits.

(a) Identify and describe **three (3)** broad classes of these colour pigments, and give examples of foods that are good to excellent sources of each of these broad classes of colour pigments. **(9 Marks)**

(b) 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. **(9 Marks)**

(c) What is an **emulsifier?** What properties must it have to be able to function as an emulsifier? Give an example of a prepared commercial food system where an emulsifier was used. **(5 Marks)**

(d) Water, moisture and water activity (A_w) are important considerations in the production of wholesome and safe food. Discuss why and how these concepts are so important in foods. **(7 Marks)**

[TOTAL MARKS = 30]

QUESTION 3

(a) What key characteristics/properties of Fats are desirable in the manufacture of:

i) Chocolates and confectionary **(2 Marks)**

ii) Commercial snacks or large scale frying **(2 Marks)**

iii) Salad dressings **(2 marks)**

iv) High quality cakes **(2 Marks)**

(b) Identify and describe the different stages that frying oil passes through from the time it is from a wholesale/retail outlet to when it must be thrown away. **(10 Marks)**

(c) What would you do to delay frying oil from breaking down in quality or to extend its frying life. Explain why you would do as indicated? **(6 Marks)**

(d) Give three (3) examples of the types of treatments or modifications that are typically given to Fats to improve their functionality/performance. **(6 Marks)**

[TOTAL MARKS = 30]

QUESTION 4

(a) Tenderness and moistness are two highly valued quality attributes in meats. How can a resteuranter (restaurant operator) ensure that these quality attributes are delivered to customers. **(8 Marks)**

(b) For starch-based foods or foods where starches have been used as ingredients it is important that they are cooked adequately and properly to make them digestible and palatable. What must one do to make sure that such food products are properly cooked and enjoyable to eat? Explain in detail all the processes involved. **(10 Marks)**

(c) What ingredients are required for a good quality loaf of bread? How does each of these ingredients function to produce a desirable loaf of bread? **(12 Marks)**

[TOTAL MARKS = 30]