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) Food Science and Technology is an applied science field of academic study and research.

i) Identify and describe **two (2)** of the disciplines or areas of specializations that make up or that are under this broad discipline. **(10 Marks)**

ii) Explain the relevance of these disciplines in the study of foods. **(8 Marks)**

iii) Justify or explain the need to study Food Science and Technology. **(6 Marks)**

(b) Water is an essential material/ingredient in the manufacture or preparation of food. Identify **any** formulated food product (e.g. bread) and explain the role(s) and function(s) of water in your chosen product. **(8 Marks)**

(c) Identify the properties or characteristics of the following food materials that make them to be valuable ingredients in commercial food manufacture:

i) Food gums **(2 Marks)**
ii) Starch **(2 Marks)**
iii) Fats/oils **(2 Marks)**
iv) Protein **(2 Marks)**

[TOTAL MARKS = 40]

QUESTION 2

(a) Identify **three (3)** examples of the types of treatments or modifications that are typically given to Fats/Oils. Explain the reasons for these types of modifications.

(12 Marks)

(b) Identify and explain **three (3)** types of modifications that are typically done to starches.

(12 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. **(6 Marks)**

[TOTAL MARKS = 30]

QUESTION 3

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. **(6 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. **(6 Marks)**

(c) 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)**

(d) Identify and differentiate the fats/oils from various sources (mention all the sources). **(8 Marks)**

[TOTAL MARKS = 30]

QUESTION 4

Describe the following terms and explain their significance in food applications or food manufacture:

i)	Rheology	**(5 Marks)**
ii)	Isoelectric point	**(5 Marks)**
iii)	Hydrogenation	**(5 Marks)**
iv)	Gelatinization	**(5 Marks)**
v)	Sugar alcohol	**(5 Marks)**
vi)	Polymorphism	**(5 Marks)**

[TOTAL MARKS=30]