UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME	:	**BACHELOR OF SCIENCE IN FOOD SCIENCE, NUTRITION AND TECHNOLOGY YEAR IV**
COURSE CODE	:	**FSNT 403**
TITLE OF PAPER	:	**FOOD INGREDIENT TECHNOLOGY IN PRODUCT DEVELOPMENT**
TIME ALLOWED	:	**TWO (2) HOURS**
INSTRUCTIONS	:	**ANSWER QUESTION ONE (1) AND ANY OTHER (2) QUESTIONS**

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR

QUESTION 1 [COMPULSORY]

a. Define the following terms:-
   i. Food additive.
   ii. Toxicity
   iii. promutagen
   iv. procarcinogen

[12 marks]

b. Discuss **four** principles that govern the use of food additives and **two** consumer perceptions regarding food additive.

[12 marks]

c. Explain how the following values are determined.
   i. Lethal Dosage Level (LD50)
   ii. No Observable Effects Level (NOEL)
   iii. Acceptable Daily Intake (ADI)
   iv. Maximum Residue Level (MRL)

[16 marks]
[Total = 40 marks]

QUESTION 2

a. Discuss the salts, mode of action and the application of the following food preservatives:-
   i. Potassium nitrate
   ii. Sorbic acid
   iii. Benzoic acid

[15 marks]

b. Discuss the function of the following food additives, giving a food example in each case
   i. Calcium EDTA
   ii. Natamycin
   iii. Tertiary butylated hydroquinone (TBHQ)

[15 marks]
[Total = 30 marks]

QUESTION 3

a. Discuss the properties of surface active agents or emulsifiers, giving an example and application. [10 marks]

b. Discuss calcium induced alginate gellation and its possible application in food. [10 marks]

c. Discuss the function of the following food additives, giving a food example in each case

i. Carob bean gum
ii. Polydextrose
iii. Maltodextrin
iv. Cochineal
v. Pyridoxine hydrochloride

[10 marks]
[Total =30 marks]

QUESTION 4

a. Discuss properties of the different types of carrageenan and their interaction with milk proteins at high and low pH.

[15 marks]

b. Discuss the function of the following food additives, giving a food example in each case

i. Calcium gluconate
ii. Mono sodium glutamate
iii. Glycerol and D-Sorbitol
iv. Silicon dioxide
v. Potassium bromate and ammonium persulfate

[15 marks]
[Total = 30 marks]