



1<sup>ST</sup> SEM. 2017/18

PAGE 1 OF 3

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY 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 TWO (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. Toxicity  
ii. Procarcinogen  
(6 Marks)
- b) Discuss **five (5)** justifications for using food additives in food.  
(12 Marks)
- c) Explain how the following tests are performed. What value is obtained?  
i. Acute test (4 Marks)  
ii. Subacute test (4 Marks)  
iii. Chronic test (4 Marks)
- d) How are the following values obtained?  
i. Acceptable daily intake (ADI) (5 Marks)  
ii. Maximum residue limit (MRL) (5 Marks)
- [TOTAL MARKS = 40]

**QUESTION 2**

- a) What is a flavour enhancer? Give one example and possible application  
(10 Marks)
- b) In developing a product with added vitamins, name **one (1)** food additive that you would use to increase the following nutrients:-  
i. Vitamin A  
ii. Vitamin C  
iii. Vitamin E  
iv. Niacin  
(8 Marks)
- c) Name **two (2)** thickeners or stabilizers from each of the following sources:-  
i. Seed endosperm  
ii. Plant exudate  
iii. Bacterial fermentation  
(12 Marks)

[TOTAL MARKS = 30]



**QUESTION 3**

a) In developing a product with added mineral, name a food additive that you would use to increase the following nutrients

- i. Calcium
- ii. Iron
- iii. Iodine

(9 Marks)

b) Briefly discuss the following sweeteners :-

- i. Invert Sugar
- ii. Dextrose or corn sugar
- iii. High fructose corn syrup

(15 Marks)

c) What are firming agents? Give **two (2)** examples of firming agents.

(6 Marks)

[TOTAL MARKS = 30]

**QUESTION 4**

a) Acidulants may serve functions other than changing the pH of a food product. Explain **five (5)** of these other functions.

(15 Marks)

b) What is the function of the following food additives? Give **one (1)** compound example in each case:-

- i. Anticaking agent
- ii. Flour improvers
- iii. Leavening agents
- iv. Antifoam
- v. Glazing agent

(15 Marks)

[TOTAL MARKS = 30]