



**1<sup>ST</sup> SEM. 2012/13**

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**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 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. Food additive  
ii. Mutagen  
iii. Carcinogen  
(12 Marks)
- b) Explain how the following toxicity tests are conducted on food additives :-  
i. Acute test  
ii. Subacute test  
iii. Chronic test  
(6 Marks)
- c) Explain how the following values are obtained:-  
i. Acceptable daily intake (ADI)  
ii. Maximum residue level (MRL)  
(12 Marks)
- d) Explain the hydrophobic-lipophilic balance (HLB) value and its significance.  
(10 Marks)

**[TOTAL MARKS = 40]**

**QUESTION 2**

- a) Discuss the perceptions of consumers on the use of food additives and explain why they are unfounded.  
(8 Marks)
- b) Define the following classes of food additives and give an example of a compound for each and its application :-  
i. Preservative  
ii. Emulsifier  
iii. Antioxidant  
iv. Chelating agent  
(16 Marks)
- c) State **three (3)** reasons for using food colours in food.  
(6 Marks)

**[TOTAL MARKS = 30]**

**QUESTION 3**

- a) Discuss the properties of the following stabilizers and give an application example in each case:-

- i. Pregelatinized starch
- ii. Cross-linked starch
- iii. Locust bean gum

**(15 Marks)**

- b) Describe the function of the following food additives, giving a food example in each case:-

- i. Sorbitol
- ii. Sodium cyclamate
- iii. Potassium iodide

**(15 Marks)**

**[TOTAL MARKS = 30]**

**QUESTION 4**

- a) Explain the properties of the different types of carrageenan and their gelling properties.

**(15 Marks)**

- b) Describe the function of the following food additives, giving a food example in each case:-

- i. Simplex
- ii. Olestra
- iii. High fructose corn syrup

**(15 Marks)**

**[TOTAL MARKS = 30]**