



1ST SEM. 2015/16

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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) Give **two (2)** justifications for using food additives in food. (8 Marks)
- (b) In which foods is carry-over of a food additive not acceptable? (4 Marks)
- (c) Explain how the following toxicity tests are conducted on food additives :-
 i. Acute test (2 Marks)
 ii. Subacute test (4 Marks)
 iii. Chronic test (4 Marks)
- (d) Explain how the following values are obtained:-
 i. Acceptable daily intake (ADI) (8 Marks)
 ii. Maximum residue level (MRL) (4 Marks)
- (e) How is the mutagenicity and carcinogenicity of food compounds tested? (6 Marks)
- [TOTAL MARKS = 40]**

QUESTION 2

- (a) Discuss the perceptions of consumers on the use of food additives and explain why they are unfounded.
- (b) Explain how sugars and salts can act as food preservatives. (8 Marks)
- (c) What are the active species and mode of action of the following food preservatives? (4 Marks)
 i. Benzoic acid (6 Marks)
 ii. Potassium nitrite (4 Marks)
- (d) Define the following classes of food additives and give an example of a compound for each and its application :-
 i. Preservative (4 Marks)
 ii. Sequestrants (4 Marks)

[TOTAL MARKS = 30]

QUESTION 3

- (a) Explain how the following food stabilizers/thickeners are obtained, and give **one** (1) application example in each case:-
- i. Alginates (3 Marks)
 - ii. Cross-linked starch (3 Marks)
 - iii. Locust bean gum (3 Marks)
- (b) Describe the function of the following food additives, giving a product example and a food application in each case:-
- i. Emulsifier (4 Marks)
 - ii. Anticaking agents (4 Marks)
 - iii. Firming agent (4 Marks)
 - iv. (4 Marks)
- (c) Explain the function of phosphate in meat products. (5 Marks)
- (d) Name **one** (1) product you would use as an iodine fortificant in salt. (4 Marks)

[TOTAL MARKS = 30]

QUESTION 4

- (a) Briefly discuss the following sweeteners :-
- i. Corn syrup (5 Marks)
 - ii. High fructose corn syrup (5 Marks)
 - iii. Sorbitol (5 Marks)
- (b) Describe the function of the following food additives, giving a food example in each case:-
- i. Simplese (5 Marks)
 - ii. Olestra (5 Marks)
 - iii. Polydextrose (5 Marks)

[TOTAL MARKS = 30]