



1ST SEM. 2013/14

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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. Genotoxin
ii. Procarcinogen (6 Marks)
- (b) Explain how the following values are obtained:-
i. Lethal dosage (LD50)
ii. No observable effects level (NOEL)
iii. Acceptable daily intake (ADI)
iv. Maximum residue level (MRL) (12 Marks)
- (c) How is the mutagenicity and carcinogenicity of food compounds tested? (5 Marks)
- (d) Give **four (4)** justifications for using food additives in food. (12 Marks)
- (e) In which foods stuffs is carry-over of a food additive from a raw material or ingredient unacceptable? (5 Marks)
- [TOTAL MARKS = 40]

QUESTION 2

- (a) Explain how sugars and salts can act as food preservatives. (4 Marks)
- (b) What are the active species and mode of action in the following food preservatives?
i. Benzoic acid
ii. Potassium nitrite (8 Marks)
- (c) Explain the following food additives and give an example of a compound for each and its application :-
i. Preservative
ii. Emulsifier (12 Marks)
- (d) Differentiate between fat mimetic and fat substitutes. Give an example in each case. (6 Marks)

[TOTAL MARKS = 30]

QUESTION 3

- (a) Discuss the properties of the following starch based thickeners/stabilizers and give an application example in each case.
- i. Pregelatinized starch
 - ii. Cross-linked starch
 - iii. Waxy maize starch

(15 Marks)

- (b) Explain the source and function of the following food additives:-

- i. Pectin
- ii. Polydextrose
- iii. Simplex
- iv. Carmine
- v. Steviol glycosides

(15 Marks)

[TOTAL MARKS = 30]

QUESTION 4

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

(15 Marks)

- (b) Briefly discuss the following sweeteners :-

- i. Corn syrup
- ii. High fructose corn syrup
- iii. Sorbitol

(15 Marks)

[TOTAL MARKS = 30]