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1ST SEM. 2015/2016



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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**

INSTRUCTION : **ANSWER QUESTION ONE (1) AND
ANY OTHER TWO (2) QUESTIONS**

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GRANTED BY THE CHIEF INVIGILATOR**

QUESTION 1 (COMPULSORY)

- (a) Define the following terms:-
i. Genotoxin (4 Marks)
ii. Procarcinogen (4 Marks)
- (b) Discuss **five (5)** principles that govern the use of food additives in food. (10 Marks)
- (c) Explain how the following tests are performed and 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 a food additive that you would use to increase the following nutrients:-
i. Vitamin A (2 Marks)
ii. Vitamin C (2 Marks)
iii. Vitamin D (2 Marks)
iv. Folic acid (2 Marks)
- (c) Name **two (2)** thickeners or stabilizers from each of the following sources:-
i. Seed endosperm (4 Marks)
ii. Plant exudate (4 Marks)
iii. Bacterial fermentation (4 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 (3 Marks)
 - ii. Iron (3 Marks)
 - iii. Iodine (3 Marks)
- (b) Briefly discuss the following sweeteners :-
- i. Invert Sugar (5 Marks)
 - ii. Dextrose or corn sugar (5 Marks)
 - iii. High fructose corn syrup (5 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 compound example in each case:-
- i. Anticaking agent (3 Marks)
 - ii. Flour improvers (3 Marks)
 - iii. Leavening agents (3 Marks)
 - iv. Antifoam (3 Marks)
 - v. Glazing agent (3 Marks)

[TOTAL MARKS = 30]