



**1<sup>ST</sup> SEM. 2009/2010**

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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 (2) QUESTIONS**

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GRANTED BY THE CHIEF INVIGILATOR**

**QUESTION 1 [COMPULSORY]**

- a. Define the following terms:-  
i. Toxicity  
ii. promutagen  
iii. procarcinogen  
[9 marks]
- b. Discuss **four** principles that govern the use of food additives and **two** consumer perceptions regarding food additive.  
[10 marks]
- c. Discuss the three stages in the development of cancer [9 marks]
- d. Explain how the following values are determined.  
i. Lethal Dosage Level (LD50)  
ii. No Observable Effects Level (NOEL)  
iii. Acceptable Daily Intake (ADI)  
[12 marks]

**[Total = 40 marks]****QUESTION 2**

- a. Discuss the salts, mode of action and the application of the following food preservatives:-  
i. Potassium nitrate  
ii. Benzoic acid  
iii. Salt and sugar  
iv. Acetic acid  
[20 marks]
- b. Discuss the function of the following food additives, giving a food example in each case  
i. Natamycin  
ii. Tertiary butylated hydroquinone (TBHQ)  
[10 marks]

**[Total = 30 marks]**

**QUESTION 3**

- a. Discuss calcium induced alginate gellation and its possible application in food.  
[9 marks]
- b. Discuss the properties of surface active agents or emulsifiers, giving an example and application.  
[10 marks]
- c. It is common to find the following statements on food labels "No preservative, No artificial colouring" or "Nature identical flavouring, Natural colourant". What consumer perception are these statements addressing and what would be your arguments against these perceptions .  
[5 marks]
- d. Discuss the function of the following food additives, giving a food example in each case
- i. Carob bean gum
  - ii. Polydextrose
  - iii. Maltodextrin

[6 marks]

**[Total =30 marks]****QUESTION 4**

- a. Explain the composition of the following sweeteners
- i. Dextrose
  - ii. Corn syrup
  - iii. Invert Syrup
  - iv. High fructose corn syrup

[9 marks]

- b. Give three reasons for adding colour additives to food. [6 marks]

- c. Discuss naturally occurring flavours

[15 marks]

**[Total = 30 marks]**