



1ST SEM. 2007/2008

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UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER

**PROGRAMME : BACHELOR OF SCIENCE IN FOOD
SCIENCE, NUTRITION &
TECHNOLOGY YEAR IV**

COURSE CODE : FSNT 401

TITLE OF PAPER : FOOD NUTRIENT ANALYSIS

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) One compound had maximum absorbance at 540 nm and another one at 450 nm wavelength. With proper justification, show which of the two compounds had a higher energy transition? [10 marks]
 - b) Fatty acid 'A' has a high percentage of polyunsaturated fatty acids, while fatty acid 'B' has a high percentage of saturated fatty acids. Which one of the two has a higher iodine value and which one has a higher oxidative stability? (Justify your answers). [10 marks]
 - c) Draw a typical graph of alkali volume against pH during the titration of two fruit juices one with one and the other with two pKa values. [10 marks]
 - d) What is the difference between distillation method of moisture determination and the Karl Fischer method? [10 marks]
- [Total Marks = 40]

QUESTION 2

- a) What are the major differences between the particulate theory and the wave theory of electromagnetic radiation and how does each find application in food analysis? [20 marks]
 - b) Briefly describe the principles of fluorescence spectroscopy, citing appropriate examples. [10 marks]
- [Total Marks = 30]

QUESTION 3

Discuss possible sources of errors during the determination of ash content of meat and measures you would take to minimize them. [Total Marks = 30]

QUESTION 4

- a) What is the difference between the principles of separation in a paper chromatography and column chromatography? [20 marks]
 - b) Discuss ways of using paper chromatography to quantitatively determine a food constituent. [10 marks]
- [Total Marks = 30]