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UNIVERSITY OF SWAZILAND

1ST SEM. 2009/2010

FINAL 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 (3) QUESTIONS**

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QUESTION ONE (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. (8 Marks)

b) Discuss the limitations of protein determination using the Kjeldahl method. (8 Marks)

c) What is the importance of proper sampling techniques in food analysis (8 Marks)

d) Draw a typical graph of alkali against pH during the titration of two fruit juices one with one and the other with two pKa values. (8 Marks)

e) Give the differences between distillation and the Karl Fischer methods of moisture determination (8 Marks)

[TOTAL 40 MARKS]

QUESTION TWO

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? (10 Marks)

b) Briefly describe the principles of fluorescence spectroscopy, citing appropriate examples. (10 Marks)

[TOTAL 20 MARKS]

QUESTION THREE

Discuss the principles of separation in a paper chromatography and column chromatography

[TOTAL 20 MARKS]

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QUESTION FOUR

a. Errors are difficult to eliminate during food analysis. Discuss the major causes of errors and how they can be minimized during food analysis citing appropriate examples. (12 Marks)

b. What is the difference between precision and accuracy in data analysis? (8 Marks)

(TOTAL: 20 MARKS)

QUESTION FIVE

a. Discuss the limitations in the use of standard curves in quantitative determinations. (8 Marks)

b. Differentiate between iodine value and saponification value in fat characterization. What is the significance of each value (12 Marks)

[TOTAL 20 MARKS]