



UNIVERSITY OF

SWAZILAND

1ST SEM. 2010/11 FINAL EXAMINATION

**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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GRANTED BY THE CHIEF INVIGILATOR**

QUESTION ONE [COMPULSORY]

- a) How can thin layer chromatography be used in identifying and estimating the amount of a compound in a food sample? (10 Marks)
- b) Draw two labelled typical graphs of alkali against pH during the titration of two fruit juices one with one and the other with two pKa values. (10 Marks)
- c) Briefly give the main steps in the analysis of bread for fibre content (10 Marks)
- d) Give the main steps in the determination of vitamin C in fruit juice. (10 Marks)

[TOTAL: 40 MARKS]

QUESTION TWO

- a) One compound has maximum absorbance at wavelength of 540 nm and another one at 450 nm. With proper justification, show which of the two compounds exhibits a higher energy transition? (10 Marks)
- b) Briefly describe the principles of fluorescence spectroscopy, citing appropriate examples. (10 Marks)

[TOTAL: 20 MARKS]

QUESTION THREE

Discuss five possible sources of errors during the determination of protein content of meat and measures you would take to minimize them.

[TOTAL: 20 MARKS]

QUESTION FOUR

- a) What is the difference between the principles of separation in ion exchange atography and size exclusion chromatography? (10 Marks)
- b) Discuss ways of using paper chromatography to quantitatively determine a food constituent. (10 Marks)

[TOTAL: 20 MARKS]

QUESTION FIVE

- a) In many food analysis reports, concentration of constituents is expressed on a dry weight basis. Discuss the importance of this trend (10 Marks)
- b) A food sample had a moisture content of 30% and a fat content of 42%. Calculate the fat content on a dry weight basis. (4 Marks)
- c) Moisture loss can occur during sample preparation. Give practical precautions that you would take to minimise the loss. (6 marks)

[TOTAL: 20 MARKS]