UNIVERSITY OF SWAZILAND

1ST SEM. 2010/11 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 THREE (3) QUESTIONS

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QUESTION ONE (COMPULSORY)

1. What is the importance of proper sampling in food analysis (10 Marks)
2. Give four basic reactions in crude protein determination by the Kjeldahl method (10 Marks)
3. Discuss the limitations in the use of standard curves in quantitative determinations of chemical constituents in foods (10 Marks)
4. Differentiate between iodine value and saponification value of fat. What is the importance of each? (10 Marks)

[TOTAL 40 Marks]

QUESTION TWO

a. A lot of maize was analysed for moisture content using two different methods. Method A gave a mean moisture content of 12.5% and a standard deviation of 0.64. Method B gave a mean moisture content of 13.0% and a standard deviation of 0.72.

If the true moisture content of the maize was 12.9%, which method was more precise and which one was more accurate? Justify your answer.

(10 Marks)

b. Discuss three causes of errors in food analysis and how they can be minimized citing appropriate examples.

(10 Marks)

[TOTAL MARKS = 20]

QUESTION THREE

a. Give a detailed procedure for fat determination using the Sohxlet method.

(10 Marks)

b. Discuss the limitations of moisture determination by the oven drying method and give two other methods of moisture determination in foods

(10 Marks)

[TOTAL 20 Marks]

QUESTION FOUR

a. Discuss two principles of separation in column chromatography.

(10 Marks)

b. How are compounds identified in gas chromatography and paper chromatography?

(10 Marks)

[TOTAL 20 Marks]

QUESTION FIVE

a. Give the mathematical relationship between absorbance and transmittance.

(8 marks)

b. Some compounds absorb electromagnetic radiation at some defined wavelengths and but almost none at other wavelengths. Discuss this phenomenon in terns of energy transitions. (12 marks)

[TOTAL 20 Marks]