2ND SEM. 2017/18

UNIVERSITY OF SWAZILAND

RE-SIT EXAMINATION PAPER

PROGRAMME	:	FOOD SCIENCE, NUTRITION AND TECHNOLOGY LEVEL II & YEAR III
COURSE CODE	:	FNS 204 / FSNT 307
TITLE OF PAPER	:	FOOD NUTRIENT ANALYSIS
TIME ALLOWED	:	TWO (2) HOURS
INSTRUCTIONS	:	ANSWER QUESTION ONE (1) AND ANY OTHER TWO (2) QUESTIONS.

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QUESTION 1 (COMPULSORY)

(a) What is proximate analysis and why is it important? **(8 Marks)**

(b) Distinguish between reproducibility and repeatability. **(6 Marks)**

(c) Discuss the **three (3)** forms of water explaining which form is not determined by the oven drying method. **(8 Marks)**

(d) A soy bean sample has a moisture content of 8% and a crude fat content of 30%. Calculate the percentage fat content on dry weight basis? **(10 Marks)**

(e) Explain how you would conduct the following procedures:-

i. Random sampling
ii. Systematic sampling
iii. Composite sampling
iv. Stratified sampling

(8 Marks)

[TOTAL MARKS = 40]

QUESTION 2

(a) Explain the principles of the following methods for moisture content determination.

a. Distillation method
b. Gas production method

(10 Marks)

(b) Describe the equipment and principles of high performance liquid chromatography (HPLC) and give an example of its application in food analysis. **(12 Marks)**

(c) Explain the following terms in chromatography-

a. Stationary phase
b. Mobile phase
c. Retention time
d. Reverse phase column

(8 Marks)

[TOTAL MARKS = 30]

QUESTION 3

(a) What is a gross error? **(4 Marks)**

(b) What is an outlier? How do you determine if a value is an outlier or not? **(8 Marks)**

(c) Describe the equipment and principles of gas chromatography (GC) and give an example of its application in food analysis. **(12 Marks)**

(d) Define ash and explain direct method for ash determination in a foodstuff. **(6 Marks)**

[TOTAL MARKS = 30]

QUESTION 4

(a) Explain how compounds in food samples are identified and quantified using high performance liquid chromatography (HPLC) and gas chromatography (GC). **(8 Marks)**

(b) Explain the following fat characteristics:-
   i. Solid fat index
   ii. Acid value **(8 Marks)**

(c) Give **four (4)** examples where pH measurement is an important aspect of analysis in the food industry. **(8 Marks)**

(d) Briefly explain the principles of fluorescence spectroscopy. **(6 Marks)**

[TOTAL MARKS = 30]