CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SICENCE IN FOOD SCIENCE AND TECHNOLOGY

FOST 324: FOOD ANALYSIS

STREAMS:

TIME: 2 HOURS

DAY/DATE: TUESDAY 6 /07/ 2021 **11.30 AM – 1.30 PM**

INSTRUCTIONS:

- Answer ALL questions in Section A and any TWO Questions in Section B.
- Do not write anything on the question paper.

SECTION A

1. a) State and explain the mandatory standards governing the composition, quality, inspection and labeling of specific food products. [6 Marks]

   b) Explain the terms Precision, Reproducibility and Accuracy as applied in food analysis. [3 Marks]

   c) Describe three common sources of error in any analytical technique. [6 Marks]

2. Given the following gravimetric results: Weight of dried pan = 1.0376g, Weight of pan and liquid sample = 4.627g and Weight of the pan and dried sample=1.7321g. Determine the moisture content and the percent solids. [5 Marks]

3. A grain was found to contain 11.5% moisture. A 5.2146g sample was placed into a crucible 28.5053g tare. The ashed crucible weighed 28.5939g. Calculate the percentage ash on;

   (i) As is-received basis [2 Marks]

   (ii) A dry matter basis [3 Marks]

4. To determine the fat content of a semi-moist food by the Soxhlet method, the food was first vacuum oven dried. The moisture content of the product was 25%. The fat in the dried food was 13.5%; calculate the fat content of the original semi-moist food. [5 Marks]

SECTION B

5. a) Explain the importance of moisture content determination during food processing. [5 Marks]

   b) Outline the Kjeldah method of protein determination. [15 Marks]

6. a) Samples are analyzed for a number of different reasons in the food industry and this affects the type of sampling plan used. Describe types of samples. [10 Marks]

   b) Explain Biuret method of protein determination including advantages and disadvantages. [10 Marks]

7. a) Describe the solvent extraction method for determining total lipid concentration with special reference to;

   (i) Sample preparation [6 Marks]

   (ii) Solvent selection and ideal solvent [6 Marks]

   (iii) Soxhlet method [8 Marks]

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