THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

155/3 **FOOD AND HUMAN NUTRITION 3**

(For Both School and Private Candidates)

Time : 3 Hours **Year: 2018**

Instructions

1. This paper consists of sections **three (3)** questions.
2. Answer all questions.
3. Question **one (1)** carries **twenty (20)** marks and question **two (2)** and **three (3)** carries **fifteen (15)** marks each.
4. Communication devices and any unauthorised materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

1. You are provided with wheat dough (sample AA). Perform the following:

   (i) Knead the dough under water to wash out a substance.

   (ii) Collect the residue and stretch it between your fingers.

   (iii) Heat a portion of the residue in nitric acid, cool, and add ammonium hydroxide.

   Questions

   (a) Identify the residue in step (ii).

   (b) Explain its role in baking.

   (c) What does step (iii) demonstrate?

   (d) State the principle of separating sample AA into components.

2. You are provided with butter (sample BB). Carry out the following experiment:

   (i) Melt 5 g of sample BB in a test tube.

   (ii) Add 2 ml of ethanol, shake well and add 2 drops of phenolphthalein.

   (iii) Titrate with 0.1 M NaOH until pale pink colour appears.

   Questions

   (a) Calculate the acid value of sample BB.

   (b) State the significance of this value in food processing.

   (c) Explain the purpose of ethanol in step (ii).

   (d) Outline two storage problems associated with high acid values in fats.

3. You are provided with apple slices (sample CC). Perform the following experiment:

   (i) Place one slice on a bench surface.

   (ii) Dip another slice in hot water for 3 minutes.

   (iii) Rub lemon juice on the third slice.

Questions

(a) State the changes in colour for each slice.

(b) Explain the reaction observed in step (i).

(c) Why did changes not occur in steps (ii) and (iii)?

(d) Explain the importance of controlling this reaction in fruit preservation.